

When Your System Demands Quick Attention...®

MOMI is a System Management tool for the Tandem (HP NonStop) computer systems using the Guardian Operating System (NSK).

MOMI software, written by BlackWood Systems, Inc., provides an easy way to obtain useful System information without severely utilizing System resources.

MOMI is a Client/Server design (Requester/Server for us old-time Tandem folks). The Server portion runs on the HP NonStop System as a fault tolerant multi-threaded process with a passive backup. The Client runs on Windows XP, Windows Vista, Windows 7 (see <u>quirk</u>) and is written in Borland's Delphi. TCP/IP sockets are used to communicate between the client and server.

The document reflects MOMI PC Client version 5.30 and MOMI Server version 5.30.

Quick start Links -

Installation Network Information / Troubleshooting

Security concerns

Start / Stop MOMI Server

Server configuration

Adjust System time via SNTP

Client Access

<u>Alarms</u>

Support

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System requirements

MINIMUM SYSTEM REQUIREMENTS

PC Client

Pentium 4 - 3.0 GHz 1 GB memory for XP - 2 GB for Vista/ Windows 7/Windows Server 1 GB free disk space Windows XP, Windows Vista, Windows 7 Windows Server 2003, Windows Server 2008 [R2] 3 GB of virtual memory 1024 x 768 display with 24 bit color (minimum) 1280 x 1024 display with 32 bit color (recommended) Sound card and speakers (if Alarm sound desired)

NonStop Server

Integrity NonStop Blade with J06.04 or later Integrity NonStop with H06.09 or later ServerNet 'S' System with G06.20 or later TCP/IP connection from PC to NonStop Server MEASURE installed and STARTED 200 MB disk space without History active or 1 GB initial default size (user selectable) with History active

Optional Features

Certain functions within MOMI are optional and require authorization in the MOMI password in order to function. This help document does not generally differentiate optional features.

If you have any questions about your level of optional features, please contact us.

Installation

Installation Sources

MOMI is distributed in the following formats: EXE, User created ZIP and MOMI CD.

The various formats all provide the same type of MOMI software. The different package formats are provided to suit various customer requirements.

EXE

The EXE is a self-extracting executable that is downloadable from our web site.

Executing the EXE file and using all the defaults will install the MOMI PC Client only. This is the easiest way to obtain MOMI PC Client software. By choosing the "Complete" installation option, the PC Client is installed, and the NonStop Server components are placed on your PC so they are available for transfer to the host.

User created ZIP

The EXE that is downloaded from our web site may be renamed to a .ZIP and extracted via standard PC utilities or the built-in capability of Windows XP.

Extracting and viewing the ZIP format file displays the various subdirectories of the MOMI software and documents available without the need to "install" MOMI software.

MOMI CD

MOMI software found on our CD is uncompressed and comprised of the individual files. This is similar to the user created ZIP described above.

MOMI software is available on CD by request.

Multiple platform server support

MOMI configuration files automatically support S-Series, Nonstop Integrity and NonStop Blades.

On the Nonstop system, in the subvolume where MOMI is installed, the following object files and their use are present:

BWMOMI - 32-bit TNS/R native (S-Series)
BWMOMIi - 32-bit TNS/E native (Integrity & Blades)

The file used to SQL/MP compile the MOMI object file (OBYCSQL) and the TACL obey file used to start MOMI (OBYMOMI) automatically select the NonStop platform type and use the appropriate object file type.

In the event that the automatic platform selection logic does not function, simply change the references of BWMOMI and BWMOMI as needed.

First Installation / Update of an existing installation

If you are installing MOMI for the first time, or updating an existing installation of MOMI, this section will walk you through the installation details using a utility called MOMIFTP.EXE. This utility handles the details transferring MOMI files from the PC to the NonStop System via FTP.

If the utility cannot be used, please refer to the ReadMe.txt file for manual installation instructions.

Note: The MOMI Software download EXE file may be altered to a ZIP file by renaming it and changing the extension from .EXE to .ZIP. Conventional utilities that recognize the ZIP format will see and process the file just like any other compressed format. This allows the ability to view the contents of the EXE prior to executing or treat the EXE as a ZIP.

1) If you need MOMI software, download the latest version of MOMI from our web site.

2a) If you downloaded an EXE from our web site:

double click on the downloaded file

2b) If you renamed the EXE to a ZIP:

expand the ZIP file to an empty subdirectory on your PC and double-click on SETUP.EXE

2c) If you have a MOMI CD:

double click on the file SETUP.EXE

3) The EXE files self extract to a temporary location and launch a program which gives you the option display the ReadMe file or perform either a Normal Installation to the PC or a Server Install Only. Select Normal Installation. The setup on an expanded ZIP or CD will go directly to a Welcome screen. Click through the initial and Welcome screen. Please read and accept the license agreement.

4) Choose the location where the MOMI files on the PC are to be installed (default recommended).

5) The next screen selects the Setup Type. Choose **Complete Installation**.

6) Choose the name of the program group for shortcut on the Start menu (default recommended).

7) Click Next to begin the installation. The installation may take some time if all help formats are installed.

8) Check the box to Install Server Files and click finish.

9) The program <u>MomiFTP</u> is automatically started to perform the FTP transfer of files from the PC to the NonStop System.

- a. On the screen **1st Connect to HP NonStop**, fill in the **Host Address** (your NonStop System IP address), **User ID**, **Password** and **Initial Volume/Subvolume** where the MOMI files are placed. The User ID specified owns the files once the transfer takes place. Press **Connect to HP NonStop**. If the connection was successful, you will see a big green "Connected...".
- b. Press **Next >>>** to advance the screen.
- c. On the screen **2nd Select Vol.SubVol on HP NonStop** a list of the files present (if any) in the selected location is displayed. For a new installation, you should choose an empty subvolume. Change the location if desired and press **Change** to update the display.
- d. Press **Next >>** to advance the screen.
- e. On the screen **3rd Select New Install or Update** press **Put Files on HP NonStop** to start the transfer. The status boxes indicate the outcome of the transfer.
- f. Press the Exit button to disconnect and stop the program.

10) From a TACL terminal emulator, Logon with the User ID and password to operate \$MOMI. Volume to the location where the MOMI files were placed.

11) Edit the file OBYMOMI. This is a TACL obey file used to start MOMI and provide initial configuration information. Page down to the section "set values below here". This marked portion of the obey file is the place to change the initial startup values for MOMI.

Check the process names, CPU \$MOMI operates in, priority and home terminal. The default values are usually valid for most systems.

12) Edit the file <u>CONFMOMI</u>. This edit file is used to set various MOMI attributes using <u>keywords</u>. Set the <u>System-Description</u> and check the <u>TCPIP-LISTEN</u> which defines the TCP/IP process name, optionally the address and port that MOMI will 'listen' on for PC Client connections.

- Mini-MOMI users, the above should be about the only item of concern.
- MOMI users, add your MOMI <u>password</u>. Also, define any <u>history</u> files desired. MOMI automatically creates the history files in the location specified.

13) <u>SQL/MP compile MOMI</u> (If you don't use SQL/MP, ignore this step): From a TACL prompt: OBEY OBYCSQL

14) Create BWSSG or the Super Group helper process (see <u>Security Considerations</u> to determine if you need this step):

(BWSSG is a PROGID'ed copy of the MOMI server you create. The following steps show you how to rename out any existing BWSSG, keeping a backup copy, create a new file - but changing your logon to different users that may be required in your environment is omitted.)

Purge BWSSG2 Rename BWSSG1, BWSSG2 Rename BWSSG, BWSSG1 FUP DUP BWMOMI, BWSSG,sourcedate FUP Give BWSSG, <Super.Group> FUP secure BWSSG,NGNG,PROGID

(BWMOMIi on TNS/E) (Super.Super on TNS/E)

As of H06.20 and J06.09 Super.Group may now be used on TNS/E platforms.

15) Start MOMI:

From a TACL prompt: OBEY OBYMOMI

(wait at least 2 minutes before proceeding to the next step)

16) On your PC, start the PC MOMI Client (Start / Programs / BlackWood Systems / MOMI_n.nn / MOMI). The MOMI Client will detect an initial start on the PC and will prompt for the TCP/IP address of the NonStop System and port. The port is defined in the CONFMOMI file and has a default of 2000.

MOMI configures and starts on the NonStop System a measurement (DCPUS file) configured for a variety of entities (CPU, Process, TMF, etc...). This measurement does not specify an interval but is effectively used for LISTACTIVE purposes. However, MEASURE will write data to this file such as processes stopping.

Shortly (or awhile) after starting the MOMI server on the NonStop System, the following message, one per processor, may be logged to EMS:

07-08-19 09:47:46.200 \SYSTEM.\$XMnn TANDEM.MEASURE.G09 4016 Measurement 0 \$vol.subvol.DCPUS: write to datafile failed. File error 45.

These messages are not a problem and may be ignored. No action is required. Later releases of the Operating System provide a means within MEASURE to prevent this error which MOMI automatically enables.

MomiFTP

The MomiFTP utility is provided to aid in the transfer of MOMI files from the PC to the NonStop System using the FTP protocol. Transfer type (ASCII or Binary) and File codes settings are automatically perform by the utility.

The utility is located on the PC in the "\Tandem Install" subdirectory where the PC Client was installed if the Complete or Custom option was selected. This subdirectory contains configuration files necessary to drive MomiFTP and a subdirectory of the NonStop System based files that are transferred.

MomiFTP is comprised of three screens. The first screen determines the system to receive file and User ID to transfer the files, the second screen determines the location on the receiving system and the third screen performs the transfer.

On the first screen enter the **Host Address** (or DNS name) of the NonStop System to receive the MOMI files. Enter a **User ID** and password along with (optionally) the location (**Initial \$Vol.SubVol**). Press **Connect to HP NonStop** to establish the FTP connection. Press **Next >>** to advance to the next screen once a connection is established.

FTP MOMI Files to HP NonStop (version 1.65))	
2	Black Wood Systems, Inc.	
−1st Connect to HP	P NonStop	
Host Address	5 192.168.20.10 Port 21	
User ID	net.ftp	
Password	Connect to HP	
Initial ¢Vol SubVol	\$data1.momi	
>Connecting Data socket to 192.168.20.10		<u>^</u>
>TYPE A		
>200 Type set to A. >LIST		
>150 Opening data connection for \BWS1.\$1 >226 Transfer complete.	\$DATA1.MOMI. (192.168.20.21,2492d) (0 bytes).	
Connected to 192.168.2	.20.10 << Back Next >>	Exit

The second screen displays the current contents of the location previously selected (or the default location) and also provides the opportunity to **Change** the location. Press **Next** >> to advance to the next screen.

🐐 FTP MOMI I	Files to HI	P NonStop (version 1.65	ō)						E	
2nd Select 9	Vol.Sub	Vol on HP	P NonStop								
\$data1.mo	mi			Change					File Count		11
FileName	Code	EOF	Last	Modified	Owner	RWEP					
>Connecting D >Socket conne	ata sock	et to 192.	168.20.10								^
>TYPE A	set to à										
>LIST	ng dete	connection	for DRWG1	SDATAL MONT	(192.16	8 20 21	256441 /	0 hyter)			
>550 \$DATA	1.MOMI.:	not found	l. 1.	. , PAIAL . HOHI	(192.16	0.20.21,	20044) (o byces).			~
C	Connec	ted to	192.168	.20.10		<< 1	Back	Next >	>		Exit

The third screen displays the files to be transferred.

The **Update Installation...** option (the default) will leave existing configuration files alone. Existing object files are renamed, with a 1 or 2 placed on the end of the name. This is the normal method for transferring files on an active system. A new configuration file will have a 0 (zero) placed at the end of the name (indicating it is a new file). Restarting MOMI with the OBYMOMI file will then cause the new object files to be used.

The **New Installation...** option will rename any existing files (add a 1 to the end) so that any existing file is updated. This should only be performed with a new installation or major version upgrade. The OBYMOMI file and CONFMOMI file need to be edited and settings confirmed for your environment.

The X in the first column indicates which files are transferred (left/right click toggles the setting).

Press **Put Files on HP NonStop** to start the transfer process. During the transfer, a flashing indicator (...) is present in the Status column to signal the transfer progress.

3	🐐 FTP MOMI Files to HP NonStop (version 1.65)									
Γ	3rd Select New Install or Update									
	Update Installation (Do NOT Update config files) O New Installation (Update config files - if found)									
ľ	4th Put Files on HP NonStop at \$data1.momi.*									
	Х	PC FileName	NonStop FileName	Туре	FileCode	Config	Status	New FileName		
	Х	bwmomi	BWMOMI	В	700	NO				
	Х	bwmomii	BWMOMII	В	800	NO				
	х	emsexpo	EMSEXPO	В	845	NO				
	Х	confmomi	CONFMOMI	Α	101	YES				
	х	obymomi	OBYMOMI	А	101	YES				
	х	obycsql	OBYCSQL	А	101	NO			Put Files	
	х	fupevtcx	FUPEVTCX	Α	101	NO			on HP	
× × × × × × ×	<pre>>Connecting Data socket to 192.168.20.10 >Socket connected. >TYPE A>200 Type set to A. >LIST>150 Opening data connection for \BWS1.\$DATA1.MOMI. (192.168.20.21,2867d) (0 bytes)>550 \$DATA1.MOMI.: not found.</pre>									
	Connected to 192.168.20.10 << Back Next >> Exit									

After the transfer, the **Status** column indicates the completion. Status counts are located in the lower left hand corner of the screen. The **New FileName** column indicates the name of any configuration file added.

-		ilos to HD N	JonSton (version 1,65)								
-3	rd Select N	ew Instal	l or lindate								
6	Opdate Installation (Do NOT Update config files) Onew Installation (Update config files - if found)										
4	th Put Files	on HP No	onStop at \$data1.mo	mi.*							
	PC File	eName	NonStop FileName	Туре	FileCode	Config	Status	New FileNam	ie		
	(bwmomi		BWMOMI	В	700	NO	Completed				
	(bwmomii		BWMOMII	В	800	NO	Completed				
3	(emsexpo		EMSEXPO	В	845	NO	Completed				
3	confmomi		CONFMOMI	А	101	YES	Completed				
3	obymomi		OBYMOMI	А	101	YES	Completed				
3	obycsql		OBYCSQL	А	101	NO	Completed			Put File	is
3	(fupevtcx		FUPEVTCX	Α	101	NO	Completed			on HP	
* *	Successful Put Comple	eted : 7						· · · · · · · · · · · · · · · · · · ·	Su	Status ccessful	
*	Skipped Fi	ile : O								Good Put	7
*	Failure Put Failed	4 : O								Skipped	0
*	Missing Fi	ile : O							Fa	Put Failed	Π
	*** Complete	ed *****								Missing	0
	C	onnecte	ed to 192.168.2	0.10)	<	< Back	Next >>	Help	E	kit

Press Exit to leave the program.

If any problems occur, scroll through the log window to help determine the reason.

Start / Stop MOMI Server

TO START MOMI ON THE NONSTOP SYSTEM

The TACL obey file OBYMOMI provides the means to start MOMI.

- 1) Insure the MEASURE subsystem is running on your NonStop System.
- 2) Start MOMI from a TACL prompt: volume MOMI (subvolume where files were placed) obey OBYMOMI

3) Once MOMI is started, you are ready to run the PC based MOMI Client. When cold loading the Non-Stop System system, in the system startup files perform the OBYMOMI after MEASURE, TCP/IP and the home terminal referenced in the OBYMOMI file have been started.

TO STOP MOMI ON THE NONSTOP SYSTEM

MOMI only requires a Guardian stop from a TACL prompt for an orderly shutdown.

1) From a TACL prompt, LOGON with the User ID MOMI was started under.

2) STOP \$MOMI (use the process name selected in the OBYMOMI file)

3) Other MOMI processes will perform cleanup and stop themselves automatically after 10 to 15 seconds.

System startup and shutdown files

. . .

The NonStop System administrator should add the necessary references to MOMI in the system startup and shutdown procedures.

Generally, the System administrator will use a TACL running under the Super.Super ID to reference a stream of other TACL files that perform the startup of various software components. The original TACL obey file will use a TACL / in ... / of an intermediary obey file. The intermediary obey file created by the System administrator performs a log-down (from Super.Super) to the selected MOMI User ID and then obeys the OBYMOMI file. Below is an obey file fragment (details are omitted):

... main startup obey file executing as super.super

TACL /in STRTMOMI, out strtlog, name/

... in the STRTMOMI file ...

Logon *user.momi* volume \$vol.momi obey OBYMOMI

... continue system startup

•••

In the system startup files, MOMI should be started after the MEASURE subsystem is started and near the end of the system startup sequence.

In the system shutdown files, MOMI should be stopped early in the shutdown sequence and before the MEASURE subsystem is stopped.

Duplicate an existing server environment

The following describes how to duplicate an existing MOMI environment making the changes necessary in order to support another instance of the MOMI server. Take note of the explanations following as avoiding some files may speed up the creation of the duplicate environment.

- 1. stop the existing MOMI process.
- 2. using FUP duplicate all of the files in the existing MOMI subvolume to another subvolume.
- 3. restart the existing MOMI process.

4. In the duplicate OBYMOMI file, assign a new process name to MOMI (each main MOMI must have a unique name).

- 5. In the duplicate CONFMOMI file, change the settings that must be unique for each environment:
 - for the keyword <u>TCPIP-LISTEN</u>, assign a new port number (each MOMI server must listen on a unique port).
 - for the keyword <u>HSTnnDB</u>, assign new vol/subvol locations (each MOMI server must have unique history files).
 - check the file for any other reference to vol/subvol used by the existing MOMI for storage or work purposes (the keywords previously listed are the most common but a few others exist).

The following are brief explanations of certain files within the MOMI subvolume. MOMI will automatically create on startup new one(s) if they are not duplicated into the new environment:

- The CNF01DB file is the MOMI configuration database. It stores configuration information entered online such as Alarm definitions. It does not generally store information found in the OBYMOMI or CONFMOMI files. To start the start the duplicate environment 'clean', simply delete this file.
- The LOG01DB file is the MOMI log file. It stores messages logged by MOMI. If you want to start the duplicate environment with an empty log file, simply delete this file.
- The HSTnnDB files are the MOMI history files. If you want to start the duplicate environment with empty history files, simply delete them. These files are usually large and may take some time to duplicate. It is usually faster to duplicate them from one disk volume to another (to avoid drive thrashing).

PC Client on a central server

see Viewing Help across Network Share

Larger shops may wish to install a single copy of the PC MOMI Client on a central server to simplify upgrades of the MOMI Client.

The PC MOMI Client executable (MOMI.EXE) has no special installation requirements. There are no registry, DLLs or OCXs directly associated with the MOMI Client itself (other than built-in Windows components).

To share the PC MOMI Client in a server environment, there are two methods:

a. Install the MOMI Client on a PC workstation and then copy all the files and subdirectories over to the desired server share.

or

b. Copy all of the files from the "\PC Manual setup" subdirectory from an .EXE renamed to a .ZIP (or MOMI CD) over to the desired server share.

Create a share (or use an existing) on the central server. The share must allow READ access to all desired PC workstations which are executing the PC Client software. Create a shortcut on each PC workstation to the MOMI.EXE on the shared server.

The first time a PC workstation executes the shared MOMI.EXE, a MOMI.INI file, along with a few others are created in the location:

Windows Vista / Windows 7 -

C:\Users\<UserID>\AppData\Roaming\BlackWood Systems\MOMI\

Other Windows versions -

C:\Documents and Settings\<UserID>\Application Data\BlackWood Systems\MOMI\

Where <UserID> is the name used at logon to Windows. You must enable the display of 'hidden' locations within Windows in order to see these locations.

See <u>Specifying run-time parameters</u> if an alternate location is desired.

Example

This example shows how to setup the MOMI PC on a shared subdirectory. The MOMI source files are obtained by renaming the EXE to a ZIP and expanding it to a work area.

The subdirectory "\PC Manual Install" contains all the files a typical PC Client would need.



On a Shared drive, for example drive M:, the administrator creates a subdirectory called \MOMI and copies into it all the files from "\PC Manual Install". The files and subdirectories shows in this example may change from release to release.



On each PC workstation, create a shortcut to the MOMI.EXE located in shared drive M:\MOMI.

Shortcut to momi.exe Properties 🛛 🖓 🔀								
General Shortcu	General Shortcut Compatibility Security							
MOMI Sh	ortcut to momi.exe							
Target type:	Application							
Target location:	момі							
Target:	M:\MOMI\momi.exe							
Start in:	M:\MOMI							
Shortcut key:	None							
Run:	Normal window							
Comment:								
Find	Find Target Change Icon Advanced							
	OK Cancel Apply							

Alternately, a shortcut may be directly created to the shared location (i.e. not using a drive letter). In the following example, the server \\BWS-SV-1 has MOMI located under Shared Programs:

Shortcut to Momi. EXE Properties 🛛 🔹 🔀							
General Shortcut Compatibility Security							
Shortcut to Momi.EXE							
Target type: Application							
Target location: MOMI							
Target: \\bws-sv-1\Shared Programs\MOMI\Momi.EXE"							
Start in: "\\bws-sv-1\Shared Programs\MOMI"							
Shortcut key: None							
Run: Normal window							
Comment:							
Find Target Change Icon Advanced							
OK Cancel Apply							

PC Client initial configuration deployment

(client version 5.23 or later)

The MOMI PC Client has the ability to be deployed with an initial default configuration. This default configuration allows new users to begin using the MOMI client without first defining the connection to each Non-Stop Systems. The default configuration capability is best suited where the client is accessed from a central server.

The feature is activated by placing a copy of the **MOMI.INI** named as **MOMI_INIT.INI** in the same subdirectory were the MOMI.EXE executable is located.

When the MOMI PC Client is launched and a MOMI.INI file is not found, it checks to see if a MOMI_INIT.INI file is present in the same subdirectory as the MOMI.EXE executable. If so, it copies the file and uses it as the initial configuration. If a MOMI_INIT.INI file is not present, a MOMI.INI file is created with minimal default values.

To use this feature, a system administrator would:

1) start the MOMI.PC Client.

2) configure it (i.e. set all screens and options) to the desired default settings.

3) stop the client.

4) restart the client and <u>export</u> the MOMI.INI file named as **MOMI_INIT.INI**.

5) Place the exported file in the same subdirectory as the MOMI.EXE executable in the shared location.

Configuration recommendations

Overview

Several configuration settings should be reviewed in your Windows environment to insure that MOMI and other programs can operate to the fullest.

24 bit color or better

The PC must be configured with at least 24 bit color for the client to operate fully. A warning message is displayed at client start up if a lower color depth is detected. While the client will generally function correctly, certain features are not available such as the a pop up window when the mouse is placed over the connector lines between systems on the SubSystems / Expand / Diagram page.

Sufficient Desktop Heap

Windows XP and Vista (no service pack) should increase the default size of their Desktop Heap. The desktop heap provides for "interactive" windows and contains user objects like hooks, menus, strings, and windows. MOMI and other programs such as Lotus Notes consume a great deal from the desktop heap.

Windows 7, Windows Vista in SP1, both 32-bit and 64-bit, has substantially increased the default size of the Desktop Heap. The registry change, while still valid, probably is not needed (or use a larger value).

A Windows PC that runs <u>at or near</u> the Desktop Heap limit may experience random application crashes and messages such as "Not enough storage is available to process this command". This message is somewhat misleading as it does not always refer to PC memory, but may also relate to the memory available within the Desktop Heap.

Increasing the size of the Desktop Heap allows Windows to support running concurrently more than one copy of the MOMI PC Client along with increasing capacity for other Windows programs.

Below is a modified excerpt from a Microsoft Knowledge Base Article that provides details on how to increase the Desktop Heap. This information is documented in the Knowledge Base Article ID 126962 which also provides a "Fix It" tool.

Important: The information below requires modification of the Windows registry. Serious problems might occur if you modify the registry incorrectly. Make sure that you take care and change only the fields recommended. For added protection, back up the registry and/or key being modified before you implement this change.

1. Run Registry Editor (REGEDT32.EXE).
2. From the HKEY_LOCAL_MACHINE subtree, go to the following folder:

\System\CurrentControlSet\Control\Session Manager\SubSystems

3. On the right hand side of the screen double-click on the key:

Windows

4. On the pop-up window you will see a very long field selected. Move the cursor near the beginning of the string looking for this (values may vary):

SharedSection=1024,3072,512

5. SharedSection specifies the System and desktop heaps using the following format:

SharedSection=xxxx, yyyy, zzz

where xxxx defines the maximum size of the system-wide heap (in kilobytes), yyyy defines the size of the per desktop heap, and zzz defines the size of the desktop heap for a "noninteractive" window station.

- 6. Change ONLY the yyyy value to 8192 (or larger) and press OK.
- 7. Exit the Registry Editor and reboot the PC for the change to take effect.

This registry change allows for potentially more Windows programs to operate concurrently. It is also a good idea to check that Windows also has a sufficient amount of virtual memory (i.e. paging file). This can be checked by starting the Windows Task Manager (right-click on an empty portion of the task bar and select Task Manager) and selecting the Performance tab. In Windows 2000/XP check the PF Usage bar chart, in Windows Vista check the field labeled Page File which displays the current and maximum values.





GDI & USER Handles

MOMI makes extensive use of the Windows resource of GDI and USER handles. These values are limited by default to 10,000 each (up to and including Windows 7).

Increasing the limits of these values allows MOMI to 'load' more screens and pop-up windows.

For Windows XP and Vista pre-service pack 1 the Desktop Heap must <u>first</u> be increased as described above.

Important: The information below requires modification of the Windows registry. Serious problems might occur if you modify the registry incorrectly. Make sure that you take care and change only the fields recommended. For added protection, back up the registry and/or key being modified before you implement this change.

1. Run Registry Editor (REGEDT32.EXE).

2. From the HKEY LOCAL MACHINE subtree, go to the following folder:

\SOFTWARE\Microsoft\Windows NT\ CurrentVersion\Windows

3. On the right hand side of the screen double-click on the key:

GDIProcessHandleQuota

- 4. On the pop-up window
 - a) select a Base of Decimal
 - b) in the "Value Data:" box enter 15000.
 - c) press OK

5. On the right hand side of the screen double-click on the key:

USERProcessHandleQuota

6. On the pop-up window

- a) select a Base of Decimal
- b) in the "Value Data:" box enter 15000.
- c) press OK
- 7. Exit the Registry Editor and reboot the PC for the changes to take effect.

Security

General considerations

(updated for server version 5.24 or later)

MOMI is initially launched via a TACL obey file to start the main \$MOMI process. This process starts other processes that support the MOMI environment.

When a user 'logs on' to a MOMI PC Client, a logon server process is launched that assumes given User ID. If it is necessary to perform a sensitive command, such as viewing a Spooler Job, a process is launched from the logon server to perform the sensitive commands under the users authority and not under the authority of the main \$MOMI process.

MOMI does NOT contain privileged code so it does NOT require to be licensed via FUP. However, certain Operating System functions require additional levels of authority. MOMI obtains this authority via the object file BWSSG (discussed below). BWSSG is manually created by the System Administrator during installation.

There are three general User ID classifications. Super.Super (i.e. 255,255), Super.Group (i.e. 255,*) and all other "normal" User ID's. You should consider starting MOMI under a "normal" User ID, perhaps one specifically created for MOMI. However, the use of SAFEGUARD or SQL/MP may require that you operate MOMI under a higher level of authority.

Below are the security guidelines:

BWMOMI

The BWMOMI executable

Must be secured to allow <u>Execute</u> for all users. For example, a Guardian security string of "UUNU". Additionally, in order to allow the creation of SAVEABEND files (used in troubleshooting), <u>READ</u> access should also be considered for a resulting security string of "NUNU".

BWSSG

A user created copy of BWMOMI (or BWMOMIi) and functions as a helper program to perform TCP/IP "Ping" (the ICMP Echo command) and adjustment of <u>System time</u> (if enabled)

If MOMI is started under Super. Super, this file is not needed.

For TNS/R systems this file is needed and should be PROGID to either Super.Super or to a Super.Group.

For TNS/E systems this file is needed and should be PROGID to Super.Super.

As of H06.20 and J06.09 Super.Group may now be used on TNS/E platforms.

File security must allow <u>Execute</u> for all users (i.e. "UUNU"). To allow the creation of SAVEABEND files (used in troubleshooting), <u>READ</u> access should also be considered for a resulting security string of "NUNU".

Subvolume of BWMOMI

MOMI creates several work files in the subvolume where the object resides. The User ID MOMI runs under must have <u>read/write/execute/purge/create</u> access in this subvolume. It is recommended that SAFEGUARD is not used for this subvolume.

Subvolume of MOMI history files

MOMI must be given <u>read/write/create</u> access to the subvolume(s) <u>specified</u> for the history files.

\$SYSTEM.SYSnn.MEAS*

MEASURE support files MOMI makes extensive use of MEASURE . These files must allow <u>read/execute</u> access.

\$SYSTEM.SYSnn.EMSDIST

EMS distributor program. The file must allow <u>execute</u> access.

\$SYSTEM.SYSnn.INITDLL

ProcessH support file. MOMI uses this file in ProcessH "System" code report on Integrity and later systems. The file must allow <u>read</u> access.

\$SYSTEM.SYSnn.MCPDLL

ProcessH support file.

MOMI uses this file in ProcessH "System" code report on Integrity and later systems. The file must allow <u>read</u> access.

\$SYSTEM.SYSnn.NSKCOM

Virtual memory access utility. MOMI uses this to report on virtual memory usage. The file must allow <u>execute</u> access.

\$SYSTEM.SYSnn.RLSEID

O/S release information (i.e. G06.29.02). The file must allow read access.

\$SYSTEM.SYSnn.TMFSERV

TMF programmatic server. MOMI uses this to report on TMF status. The file must allow <u>execute</u> access.

\$SYSTEM.SYSnn.TSC

ProcessH support file - 16-bit code. MOMI uses this file in ProcessH "System" code report on S-Series systems. The file must allow <u>read</u> access.

\$SYSTEM.SYSnn.TSL

ProcessH support file. MOMI uses this file in ProcessH "System" code report. The file must allow <u>read</u> access.

\$SYSTEM.SYSnn.TSYSCLR

ProcessH support file.

MOMI uses this file in ProcessH "System" code report on S-Series systems. The file must allow <u>read</u> access.

\$SYSTEM.SYSTEM.SQLCOMP

SQL/MP compilation utility.

The display of SQL/MP information is the result of dynamic SQL statements. This file must allow <u>read/execute</u> access.

SQL/MP catalog subvolumes

MOMI provides SQL/MP information by reading this subsystem's catalogs. MOMI needs <u>read</u> access to <u>all</u> the catalogs on the system, particularly to the Catalog of the System, to provide information on the SQL/MP screens.

\$SYSTEM.SYSTEM.EVENTCX (this file is optional)

EMS user defined cause/effect/recovery information. MOMI makes use of this file to display EMS user defined cause/effect/recovery information. MOMI needs <u>read/write</u> access to this file. MOMI Client access controls the ability to display/alter information. The location of this file may be overridden with the CONFMOMI keyword <u>EVENTCX</u>.

\$SYSTEM.SYSTEM.EVENTTX

EMS HTML cause/effect/recovery information. MOMI makes use of this file to display EMS cause/effect/recovery information. MOMI needs <u>read</u> access to this file. (*This file is not found on pre-S-series systems.*)

\$SYSTEM.ZLOGnn

EMS log file subvolume.

In order to display EMS messages from \$0, the EMS log files must allow <u>read</u> access. Use EMSCINFO \$0 to display the current EMS log file settings and EMSCCTRL \$0,-<command> to alter the settings within \$0. Existing EMS log files will need to have their file security altered via FUP.

Logon / Logoff

Operations within MOMI, such as viewing of performance information, listing volumes, files and Spooler collector status are considered non-sensitive commands. Commands of this type are executed in the context of the User ID that started \$MOMI.

Commands that perform an action, such as purging a file, viewing the contents of a file or viewing the contents of a Spooler job, are considered sensitive and must be executed under the context of a User ID and Password entered at the Client.

The Security Logon / Logoff screen allows the User to enter a Guardian Group.User or Safeguard alias format and password. The information is validated, and if accepted used to execute sensitive commands.

Security Logon / Logoff					
User ID	fred				
Password	***** Change Password				
Request Logon Logoff					

After attempting to logon and the password is expired but has a grace period or if Change Password is pressed, additional fields are displayed to allow the user the ability to alter their password.

Security Logon / Logoff						
User ID	fred					
Password	****		Change Password)		
New Password		Confirm New Password]		
Request Logon Logoff)			
Password expired but grace period is in effect						

The MOMI server uses a password one time when the Request Logon button is pressed. A "logon server" process is created locked to an instance of the client. It is used to start additional MOMI server processes as needed to provide sensitive command processing for that instance of the client.

The MOMI server imposes the following to a logon:

- CMON pre-logon message is requested
- CMON logon message is requested
- numeric form of User ID is not allowed (example 255,100)

If <u>Client Access</u> is enabled, a logon may be denied by MOMI (which means the logon is not sent to the host). Message generated by Client Access are preceded by:

Client Access DB -

The following messages may be returned by Client Access:

Client Access DB - User Record Not Found

Client Access DB - User Not Allowed to Logon To NonStop System

Client Access

Overview

MOMI has the ability to limit the screens and features available to users of the PC Client. Virtually every screen (with some exceptions) may be turned on/off. Client Access configuration is optional but provided to allow system administrators to tailor MOMI more closely to their specific needs.

Users are identified to MOMI using the standard Guardian User Id or Safeguard Alias. Client Access relies on host to perform authentication (in other words MOMI does not maintain a database of User Id's and passwords).

Client Access is configured and enabled after MOMI is installed and operational. Configuration information is stored on the NonStop System in the file <u>CNF01DB</u>.

This section describes Client Access and gives examples of turning Client Access on and configuring.

What Client Access is not

Client Access is not the security granted to users accessing the Nonstop system. All sensitive commands, regardless of Client Access settings, require logon security as discussed in <u>Security Logon / Logoff</u>.

Default Security User

The user that starts MOMI on the Nonstop server is considered the Default Security User. This user is allowed to activate Client Access, configure global Client Access settings, define new users and grant the Security User right to others.

Once additional users are defined on the system and at least one is configured as a Security User, it is generally no longer necessary to use the Default Security User. Some operations, such as disabling Client Access, may only be performed by the Default Security User.

The default may be overridden with the CONFMOMI keyword DEFAULT-SECURITY-USER,

Initial operation of MOMI is Client Access turned off

When MOMI is started for the first time and creates its configuration file <u>CNF01DB</u>, Client Access is turned off. All MOMI PC Client screens are displayed to any user that starts the MOMI PC Client. Some functions, such as Alarm configuration and operation may only be performed by the user that starts the MOMI server.

In this point, the user that starts the MOMI server is the only user with full control and full access over the MOMI environment.

Enable Client Access

The Default Security User <u>logs on</u> to the MOMI PC Client and navigates to the screen Configure / Client Access / Global Settings. Check the box to enable Client Access and then press the button "Change Global Client Access Settings".

Special predefined users

Two users are automatically created within Client Access and are used to determine available screens/function when 1) the client is not logged on, and 2) the User Id is not defined within MOMI.

"NOT LOGGED ON" determines what screens/function the MOMI PC Client are available prior to a logon or when a Logoff is performed.

"USER NOT DEFINED" determines what screens/function the MOMI PC Client are available in the event that the User ID is not found in the Client Access database. This user provides the means to define the default operation for any user that can logon to the host.

Client Access order of precedence

When the MOMI PC Client is first started, the predefined user "NOT LOGGED ON" determines what screens/function are available. When a user logs on, the Client Access database is searched in the following order:

1) an exact match to the User ID

2) match User ID by wild card

3) use USER NOT DEFINED if enabled

An exact match to the User ID entered against a User ID defined in the Client Access database always takes precedence. Next, the Client Access database is searched again but logic is enable to allow the first match with an entry containing a wild card. Lastly, the predefined user "USER NOT DEFINED" is chosen if enabled.

Wild-card support, such as ADMIN.*, is available in the MOMI PC Client 4.05 and later.

Examples

The following examples (denoted by a ⇒) describe the sequence of steps necessary to perform certain activities. With the exception of the first two examples, which assume an initial configuration, all other steps

assume that Client Access is enabled.

➡ The MOMI server is initially started

Results

- All screens within MOMI are available to all users
- Only the Default Security User may add/delete/operate an Alarm
- Only the Default Security User may enable Client Access checking
- ➡ Enable Client Access checking
 - Log on to Client as User that started the MOMI server on NonStop System
 - Go to the screen Configure/Client Access/Global Settings
 - Check "Enable Client Access Checking on this System"
 - Click the button "Change Global Client Access Settings"

Results

- Only the Default Security User may add/delete/operate an Alarm
- Only the Default Security User may disable Client Access checking
- The profile "NOT LOGGED ON" determines logged off access
- The profile "USER NOT DEFINED" determines logged on access
- Change profile for "NOT LOGGED ON"
 - Log on to Client as User that started the MOMI server on NonStop System
 - Go to the screen Configure/Client Access/Define
 - Select User ID (in the upper left hand corner of the screen)
 - In the drop-down box pick "NOT LOGGED ON"
 - Configure as desired
 - · Save settings by clicking button "Change User"

Results

- Users not logged on have settings as configured
- Change profile for "USER NOT DEFINED"
 - . Log on to Client as User that started the MOMI server on NonStop System
 - Go to the screen Configure/Client Access/Define
 - Select User ID (in the upper left hand corner of the screen)
 - In the drop-down box pick "USER NOT DEFINED"
 - Configure as desired
 - · Save settings by clicking button "Change User"

Results

- Users logged on but not otherwise defined to MOMI have settings as configured
- ➡ Add an individual User ID
 - Log on to Client as User that started the MOMI server on NonStop System
 - Go to the screen Configure/Client Access/Define
 - Select User ID (in the upper left hand corner of the screen)
 - Enter User ID and Description
 - Don't enter or select a "Member of Group"
 - Configure as desired
 - Save settings by clicking button "Save New User"

Results

- User ID when logged on has settings as configured
- Add a Group ID
 - Log on to Client as User that started the MOMI server on NonStop System
 - Go to the screen Configure/Client Access/Define
 - Select Group ID (in the upper left hand corner of the screen)
 - Enter Group ID and Description
 - Configure as desired
 - · Save settings by clicking button "Save New Group"

Results

- A new Group ID is now available
- ➡ Add an User ID to a group
 - Log on to Client as User that started the MOMI server on NonStop System
 - Go to the screen Configure/Client Access/Define
 - Select User ID (in the upper left hand corner of the screen)
 - Enter User ID and Description
 - Select in the drop-down box "Member of Group"
 - · Save settings by clicking button "Save New User"

Results

- A new User ID that is a member of a group is now available
- Allow a user to add/delete/operate an Alarm (assumes the user was already added)
 - Log on to Client as User that started the MOMI server on NonStop System
 - Go to the screen Configure/Client Access/Define
 - Select User ID (in the upper left hand corner of the screen)

- Enable settings under History/Alarms to Create/Update Alarms
- Save settings by clicking button "Change User"

Results

- User ID when logged on has Alarm Create/Update ability
- Limit AutoUpdate time
 - Log on to Client as User that started the MOMI server on NonStop System
 - Go to the screen Configure/Client Access/Global Settings
 - Check box and "Set AutoUpdate Limit to" value
 - Save settings by clicking button "Change Global Client Access Settings"

Results

- AutoUpdate is limited by default for all users. (*This may be overridden on an individual or group basis*)
- Restore the default state of Client Access and Disable (use only if you really mess up)
 - Log on to Client as User that started the MOMI server on NonStop System
 - Go to the screen Configure/Client Access/Global Settings
 - Press button "Delete All Client Access Records"
 - Press confirmation button

Results

- Client Access disabled. Default functionality restored.
- Disable Client Access Checking
 - Log on to Client as User that started the MOMI server on NonStop System
 - Go to the screen Configure/Client Access/Global Settings
 - Uncheck box "Enable Client Access Checking on this System"
 - Save settings by clicking button "Change Global Client Access Settings"

Results

- Client Access disabled. Default functionality restored.
- User profiles are still present.

MOMI Server

Overview

MOMI obtains its information on the NonStop server platform by running a number of processes. Some process run continually and others are started on demand.

MOMI is initially started via the TACL obey file OBYMOMI. This obey file starts the main \$MOMI process which serves as the overseer for the MOMI subsystem. This main MOMI will:

- start a master process that configures the main measurement in the MEASURE subsystem
- start an Expand collector process
- start a collector in each processor of the system
- start a process that writes <u>history</u> to the HST01db file
- start a process that performs the history consolidation and deletion
- start an NSKCOM process for obtaining virtual memory statistics
- post a 'listen' on the <u>assigned</u> TCP/IP process(es) and port(s)

The MOMI PC Client issues a TCP/IP connect to the address and port configured to establish communication with \$MOMI. \$MOMI either provides answers directly to Client queries or passes the request to a server started by \$MOMI. The response is returned to \$MOMI which is in turn is passed back to the PC Client.

Sensitive commands that require security are executed in the context of the User ID provided. When a user logs on, the server that executes the actual logon command assume the authority of that particular user. From that point on, any sensitive command is executed within a server started under the authority of that particular logon.

The BWMOMI server uses dynamic SQL/MP statements to obtain information from the system and user catalogs. The dynamic SQL/MP is used in support of the PC MOMI Client screens Files / SQL/MP /*. The TACL obey file OBYCSQL performs an SQL/MP compile of the BWMOMI object with the attribute of NOREG-ISTER ON (this means that the SQL/MP catalog does not reflect BWMOMI).



In order for MOMI to collect information on a timely basis, it must run at a priority high enough so that the other programs on the system do not 'walk over' or interrupt operation.

The diagram above shows the relative process priorities of \$MOMI and its server programs.

MOMI, to divide its workload, starts several copies of itself. The main program \$MOMI, is the master traffic cop, data collector and data reporter. MOMI also starts a copy of itself in every CPU in order to collect information about that CPU. All information collected is reported back to \$MOMI. \$MOMI and the CPU collectors consume a fairly consistent portion of CPU resources, with \$MOMI varying the most, based on incoming requests from the PC Clients.

By default, \$MOMI and the collectors in each CPU run at a rather high priority of 170. This priority is set in the OBYMOMI file.

MOMI also starts other processes based on needs of the PC Client and generally run at default priorities in the 80 to 95 range. These priorities can be adjusted in the <u>CONFMOMI</u> file.

If you have concerns with the priority of the MOMI environment, you could run \$MOMI at a lower priority than your critical production programs. Please be aware that running \$MOMI at a lower priority could prevent the timely collection and reporting of data (usually showing up as random interruptions). In the <u>Main Overview</u> screen you may see MOMI CPU collectors reporting as HUNG or STOP. Once you have tested and are comfortable with the operation of MOMI on your system, MOMI should run at a rather high priority to help to insure consistent data collection and reporting.

One of the common questions asked is, what is the CPU impact of MOMI on my system? The discussion above describes at what priorities MOMI operates. Batch type of operations that can consume large amounts of CPU are pushed to lower priorities, while processes that must operate on a regular timely basis operate at higher priorities.

So, what is the impact? With MOMI running at an idle, on an S7000 \$MOMI consumes 3% of a CPU and each collector consumes 1%. On an S72000, \$MOMI consumes 0.75% and the each collector 0.5%. On an NS16000, \$MOMI is at 0.20% and the collector is 0.04%. On an NB50000c, \$MOMI is at 0.03% and the collector is 0.016%.

Now, you will see higher values. Certainly. When MOMI is reading and transferring, for example, an EMS records you will see the EMS distributor and the MOMI server communicating with it both at priority 90 burning cycles. \$MOMI, which handles TCP/IP communication, will be using cycles, particularly with the TCP/IP v6 stack, to transfer the resulting data. We limit the bytes per second, by processor type, \$MOMI can transfer over the TCP/IP connection so place a lid on communication cycle costs.

Adjust System time via SNTP

(server version 4.17 or later)

Overview

MOMI has the capability to adjust the Nonstop System time via a Network time source.

This feature is not enabled by default.

A Network Time Protocol (NTP) server is specified to MOMI and this server queried periodically using the Simple Network Time Protocol (SNTP). SNTP is defined in RFC 2030 and MOMI specifies version 3 in the time request. This protocol provides a simplified means for obtaining time from a reliable source located either on the local network or via the Internet. NTP servers usually obtain their time from master sources such as atomic clocks or from over-the-air sources such as GPS.

How it works

MOMI queries or takes many samples from the NTP server over several minutes. The samples are processed to determine a network time. The network time is compared to the time on the Nonstop System to determine if an adjustment forward or backward is required. The Operating System call SET-SYSTEMCLOCK is used to perform the adjustment and is given 1) the amount to adjust and 2) a mode of 6 which directs a clock adjustment (not a clock set) regardless of the clock error.

The Nonstop Operating System provides two methods for manipulating the System time. The first method is to <u>set</u> the clock to a specific time, which could be an abrupt operation and is not generally performed with a 'live' System. The second method is to <u>adjust</u> the rate at which the clock operates without disturbing the live environment. MOMI uses the second method by default.

A way to think of the clock <u>adjustment</u> is "nudging" either forward or backward by slightly speeding up or slightly slowing down the System clock, but **not** jumping or forcing it to a specific time. Time nudging may be performed on an active system generally without concern. An actual set of the clock, especially going backwards in time, could have a really undesirable affect on certain subsystems such as TMF (i.e. you really don't want to do that).

A side effect of clock "nudging" is that if the System is off by more that a few minutes, particularly if the system is ahead of the network source, it may take some time (no pun intended) before an accurate system time is achieved. If the System time is really 'off', a manual operation should be considered during a maintenance window.

Should I use it?

The SNTP protocol and the MOMI implementation does not the provide the highest level of accuracy theoretically possible, but can in most situations maintain the System time much better than manual input. The code implementation strives for an accuracy of .001 seconds, which is the smallest adjustment attempted, but a resulting accuracy of about 0.1 seconds is recommended for "should I use it" purposes. However, if any of the following are true:

- a. Operating System is less than G06.23 (a bug was fixed in T9050APH with SET-SYSTEMCLOCK), or
- b. A higher level of accuracy is required, or
- c. System time management is exceptionally critical

then this feature of MOMI should not be enabled.

Systems that are just plain "slow" and are constantly behind, may be closer to the network source as a result of MOMI requesting time adjustments, but may still remain behind.

What is the best time source?

Ideally, a local NTP server/device on your Network would provide the highest levels of accuracy. Hopefully, the local network has far less traffic and response time fluctuations than a remote device accessed via the Internet. However, the MOMI SNTP implementation does take network fluctuations (i.e. delays, lags) into account.

The local NTP server/device may be a dedicated NTP server, a Windows Server or a UNIX Server. A Windows Server must be a domain controller or otherwise have the NTP server function enabled.

A public time server (NTP) may be used by searching via an Internet search engine or from the following URL -

www.pool.ntp.org

Network firewall information

SNTP uses a UDP socket over port 123. A MOMI server on the NonStop System opens the socket and sends a time request. The response is received over the same socket and port. It may be necessary to have your firewall (i.e. network environment) allow this outbound request.

How to activate

The System time management feature of MOMI may be placed in a 'preview' mode prior to full activation.

The preview mode allows confirmation of access to an NTP server and the time difference between Nonstop System and the NTP server are written to the <u>MOMI Log</u>. The first three steps below place MOMI in the preview mode and the fourth step allows adjustment of the System clock:

- 1. determine the NTP server to use.
- 2. add the following keywords to the CONFMOMI file (restart MOMI to take effect):

```
== specify
TCP/IP stack
name
== (not always
needed)
<u>SNTP-TCPIP-NAME</u> <tcpip-process-name>
== NTP server
SNTP-SERVER-ADDR <DNS-name> | <IP-address>
```

- 3. view the <u>MOMI Log</u> to see the difference between the System time and the Network Source (the messages are logged once an hour by default).
- 4. if desired, direct MOMI to perform required adjustments to the System clock by adding the following keyword to the CONFMOMI file (restart MOMI to take effect):

```
== allow
MOMI to
adjust
```

== the System time

SNTP-ALLOW-ADJUSTMENT

Common questions

Can our operators still set the System time if MOMI is configured to make adjustments?

Yes, with a consideration. The operating system forces a set of the system clock under two situations. 1) a SETTIME is performed twice within two minutes, or 2) the SETTIME value specifies a time two minutes or more off from the current System time. If the operator only issues a single SETTIME within two minutes of the current System time <u>and expects</u> only an adjustment, a clock set may result if MOMI is also performing an adjustment.

Can this feature be activated even if the System time is off by more than several minutes?

Yes. It may take weeks or months to finally arrive at the correct time, particularly if the System time is ahead of the Network Source.

How long do time adjustments take?

Adjusting the clock forward two minutes takes about 33 hours. Adjusting the clock back two minutes takes about 14 days.

(information from the HP Knowledgebase)

Can an operator perform a SETTIME while MOMI is adjusting the System time?

Yes. Take note of the first question above. MOMI's time computation may be affected if the System time is externally set but the condition would self correct after a few automatic time updates.

Can I have another process (or method) also perform adjustments to the System time in addition to MOMI?

Not recommended. Only one process (or method) should be selected to maintain the System time.

Once the System time is correct and MOMI is performing adjustments, will the System time need to be manually set again?

Probably not. The System time should be checked periodically by an operator to insure proper operation. Messages are written to the <u>MOMI Log</u> and <u>EMS Msgs</u> log for normal and error conditions detected by MOMI (messages are described below).

After a maintenance window, particularly if the outage was extended or if any hardware was replaced, the System time should be checked after processors are loaded but before System is 'started'.

Will messages appear in my EMS log every hour (assuming MOMI is checking once an hour)?

Only if a time adjustment is required.

Initially, you will see messages logged to EMS every hour while your System time is brought into sync. Two messages are logged when a time adjustment occurs. The first message notifies that MOMI is going to perform an adjustment. The second message is from the Operating System indicating the time was adjusted (System ID: TANDEM.CLOCK, event number 107). Additionally, a message is also logged should the Operating System reject the attempt by MOMI to perform the time adjustment.

The System time does not seem to be as accurate as it should be and EMS event 104 (Error reading Service Processor clock, error code :nnn) is logged.

This may indicate a problem with the service processor (SP). Consider resetting the service processors in CPU 0 and 1.

MOMI logs the following messages

Normal messages

SNTP:System time n.nnnnnn seconds ahead of Network Source (<ip-address>) SNTP:System time n.nnnnn seconds behind Network Source (<ip-address>) SNTP:System time 0.000000 seconds equal to Network Source (<ip-address>)

This message is written to the <u>MOMI Log</u> and reflects the difference between the NTP server and the Nonstop System.

SNTP:System time does not require adjustment by MOMI

This message is written to the <u>MOMI Log</u> and indicates that the required adjustment is below an internal threshold so MOMI does not perform any action to the System time.

SNTP:System time will be adjusted by MOMI forward n.nnnnnn seconds SNTP:System time will be adjusted by MOMI backward n.nnnnn seconds

This message is written to the <u>MOMI Log</u> and <u>EMS Msgs</u> log prior to performing the adjustment to the System Clock. The operating system will also generate an EMS message when MOMI issues the call to adjust the System Clock.

Error messages

SNTP: Unable to open socket - TCP/IP stack \$tcpip-name

This message is written to the <u>MOMI Log</u> and <u>EMS Msgs</u> log and indicates that the TCP/IP process specified in the CONFMOMI keyword <u>SNTP-TCPIP-NAME</u> was either invalid or not available.

SNTP:Unable to obtain TCP/IP address from <DNS-name> | <IP-address>

This message is written to the <u>MOMI Log</u> and <u>EMS Msgs</u> log and indicates that the NTP server specified in the CONFMOMI keyword <u>SNTP-SERVER-ADDR</u> was invalid or the DNS entry could not be converted to a binary address (like the Nonstop System did not have access to an DNS server).

SNTP: Unable to obtain reliable time from Network Source

This message is written to the <u>MOMI Log</u> and indicates that MOMI could not process the responses from the NTP server. This either indicates a temporary condition, such as an extremely poor communications link or problems at the NTP server. Occasional messages (particularly if the Internet connection is down) are expected.

Check with your network folks to insure that <u>any and all</u> firewalls in-between the NonStop System and the NTP server allow UDP port 123. You will probably need to provide them the TCP/IP address of the TCP/IP stack specified in <u>SNTP-TCPIP-NAME</u>. Companies usually place multiple firewalls within their networks and each firewall must allow the NTP data flow.

SNTP:MOMI failed to adjust System time

This message is written to the <u>MOMI Log</u> and <u>EMS Msgs</u> log and indicates that the call to adjust the System Clock failed. MOMI requires the proper security for the MOMI helper program <u>BWSSG</u> to perform this activity.

CONFMOMI

Overview

The CONFMOMI file is used to configure/define settings and features for the MOMI environment during program startup. This file is read once, shortly after MOMI is started. CONFMOMI is a simple edit format file (code 101) and follows this general <u>structure</u>.

At a minimum, the **PASSWORD** and **TCPIP-LISTEN** are defined in this file.

After making any changes to the CONFMOMI file, in order for them to take effect, restart MOMI then check the EMS log. Any errors encountered in the CONFMOMI file will cause an EMS message and possibly an ABEND.

Two sections in this document describe settings within the CONFMOMI file referred to as **Keywords** and **Advanced Keywords**. **Keywords** are what most configurations reference. **Advanced Keywords** deal with special features or situations and are not generally required.

Below are selected categories and the keywords that apply. Not all keywords are needed to enable a particular function.

Alarms

Overview <u>ALARM-DOMAIN-NAME</u> <u>ALARM-EMAIL-ADDRESS-FROM</u> <u>ALARM-EMAIL-SUBJECT</u> <u>ALARM-SMTP-SERVER-ADDR</u>

History

Overview HSTnnDB HSTnnDB-DELETE-TIME HSTnnDB-HISTORY-DUMP

MOMI Process Priorities

Overview

PRIORITY-BATCH PRIORITY-DB-HST01DB PRIORITY-DB-HSTxxDB-CON PRIORITY-DB-HSTxxDB-R PRIORITY-EMS PRIORITY-EXPAND PRIORITY-MOMI

PRIORITY-PA

SNTP

Overview

SNTP-ALLOW-ADJUSTMENT SNTP-SERVER-ADDR SNTP-TCPIP-NAME SNTP-UPDATE-INTERVAL

General structure

The file has the following basic format of a keyword optionally followed by a space and a value:

keyword [<value>]

The [] symbols indicate an optional field. The < > symbols are not included, but are for documentation purposes.

Strings must be enclosed in quotes or tics if it contains an embedded space. For example:

== Description of system

```
System-description "Production System"
```

Comments may be included in the file. Lines that begin with the following identifiers are considered comment lines:

! == comment

Generally, data is extracted from lines of the CONFMOMI file when a keyword is recognized. Characters past expected data are ignored. Comments are not supported within valid input lines (i.e. you can't embedded a comment between a keyword and an expected value).

The following are some examples how comments are used:

comment *** this section documents something ***

Hst01db \$data1.momi.hst01db == MOMI history database

Keywords in the file are not case sensitive. Only one keyword is allowed per line. Use the sample CONF-MOMI file, automatically placed in the same subvolume as MOMI object file during install, as a formatting template. It is not necessary to use all the available keywords as most have default values. Many keywords are provided for limited or special purposes.

Some keywords, in order to make it unique, append a value, documented as -nn that represents a number such as 01, 02, 03, etc... . xx is used to signify that the keyword applies in all cases. In other words, where you see nn, such as <u>HSTnnDB</u>, replace it with 01, 02, 03, etc... Where you see xx, such as <u>PRIORITY-DB-HSTxxDB-CON</u>, use the keyword 'as is' as it applies in all instances.

Keywords

ALARM-DOMAIN-NAME

ALARM-DOMAIN-NAME <domain.name>

(Default = none)

Defines the users domain name which MOMI uses in alarm email. Specifying this keyword activates in the SMTP (i.e. outbound email) the HELO protocol. Some SMTP servers require this protocol (perhaps in conjunction with SPAM detection).

The Domain Name specified here is usually the last portion of your email address (i.e. what is after the @ in your email address).

By default, MOMI does not use the HELO protocol.

Example:

== SMTP domain name == My email address is == fred@fredsco.com so == my domain name is == fredsco.com

ALARM-DOMAIN-NAME fredsco.com

ALARM-EMAIL-ADDRESS-FROM

ALARM-EMAIL-ADDRESS-FROM <email-address>

(Default = none)

Defines the return email address which MOMI used in alarm email. This email address should be valid monitored address so that problems in sending email or replies from users receiving email are seen.

This keyword is required in order to support Alarm email.

Example:

```
== return address in email sent
== by MOMI
ALARM-EMAIL-ADDRESS-FROM momi-alarm@fredsco.com
```
ALARM-EMAIL-SUBJECT

ALARM-EMAIL-SUBJECT <"subject-line"> | <"">

(Default = none)

Defines the email subject line which MOMI uses in alarm email.

There are three possibilities in using this keyword:

- 1. If this keyword is not present, the default subject reads: MOMI Alarm
- 2. Use this keyword and specify a particular subject line.
- 3. Use this keyword but specify an empty double quote (i.e. ""). This causes the first line of the alarm message to appear as the subject (in other words the "fixed subject" is eliminated). Some email systems, particularly call phones, limit the length of the subject line more so than the body of the email.

Examples:

== my alarm subject
ALARM-EMAIL-SUBJECT "Alarm from MOMI"
== no 'fixed' email subject, use
== first line of alarm text
ALARM-EMAIL-SUBJECT ""

ALARM-SMTP-BIND-ADDR

(server version 5.18 or later)

ALARM-SMTP-BIND-ADDR <DNS-name> | <IP-address> tem)

Defines the DNS name or IP address of the specific NonStop TCP/IP stack that MOMI should bind to when sending alarm EMAIL. The address specified here forces the 'source' address for the message.

Note that the address specified must be valid for the TCP/IP stack MOMI uses as specified by the keyword <u>ALARM-SMTP-TCPIP-NAME</u>. If the IP address is not valid for the TCP/IP stack MOMI uses to send the email, a failure to send occurs.

This setting handles the situation where a NonStop system is configured for Ethernet port fault tolerance (i.e. with a CLIM) and a particular source IP address must be forced onto outbound socket connections. The reason this function may be needed is that CLIMs contain multiple physical Ethernet ports but has only one TCP/IP process and the default system choice may not be desirable from a network perspective.

Technically, this keyword causes a socket level call to bind() after a socket is opened to force an association with IP address specified.

Example:

== alarm outbound email == source IP address

ALARM-SMTP-BIND-ADDR 67.12.65.12

(Default = determined by sys-

ALARM-SMTP-SERVER-ADDR

(server version 4.03 or later)

ALARM-SMTP-SERVER-ADDR <DNS-name> | <IP-address>

(Default = none)

Defines the name or IP address of the SMTP server which MOMI uses to send EMAIL. This is the server MOMI uses to send outbound email. Note that the NonStop System must have the resolver active if a DNS-Name is used.

As of server version 4.06 or later, a DNS entry that resolves to more than one IP address is interpreted as a primary and backup(s) SMTP servers. MOMI connects to the first IP address returned but if the connect fails, a connect is attempted on the second address and so on. Note that the criteria for using the additional IP addresses in a DNS name is a failure to connect, not a failure of the email. The conversion of a DNS name occurs when a EMAIL is sent (this allows changes to the address while MOMI is running).

This keyword is required in order to support Alarm email.

Example:

== alarm outbound SMTP == server which resolves == into 64.158.128.147

ALARM-SMTP-SERVER-ADDR smtp.fredsco.com

ALARM-SMTP-SERVER-TIMEOUT

(server version 4.05 or later)

ALARM-SMTP-SERVER-TIMEOUT <seconds>

Specifies the maximum amount of time (in seconds) that MOMI waits for a single I/O to complete on the SMTP server. The SMTP server is used for sending Email.

A server that does not respond within the specified time generates an error 40 (Timeout).

Multiple I/Os are required in order to converse with the SMTP server. A server responding slowly may take much longer than the value specified in order to complete an Email transmission. No error is generated as long as each I/O does not take longer than this value.

Example:

ALARM-SMTP-SERVER-TIMEOUT 60

== increase I/O timeout to SMTP

(default = 30)

ALARM-SMTP-TCPIP-NAME

ALARM-SMTP-TCPIP-NAME <tcpip-process-name>

(Default = first TCPIP-LISTEN)

Defines the TCP/IP process name that MOMI uses to access the SMTP server which MOMI uses to send EMAIL. SMTP is outbound email.

By default, the first TCP/IP process defined to MOMI for establishing client connections is used.

This keyword would generally be used in the situation where the SMTP server is isolated or not accessible from the same subnet MOMI PC Clients connect.

Example:

== TCP/IP process used for == alarm output SMTP

==

email

ALARM-SMTP-TCPIP-NAME \$ZSAM1

ALARM-SUSPEND-DELAY

ALARM-SUSPEND-DELAY <minutes> (default = none)

Specifies the amount of time (in minutes) that MOMI should delay alarm processing when the subsystem is started. During this time, alarms are not checked.

The time specified is a minimum and may vary somewhat as at MOMI startup additional delays are imposed to help minimize system overhead at startup.

Alarm processing may also be suspended once MOMI is running, or this startup value altered, after the server is initialized and the client can connect on the screens a <u>Alarms / Active</u> and <u>Settings / Actions</u>.

Example:

ALARM-SUSPEND-DELAY 30 == delay alarms 30 minutes

ALARMS-MAXIMUM-PER-DEFINITION

(server version 4.06 or later)

ALARMS-MAXIMUM-PER-DEFINITION <value16>

(Default = 100)

Specifies the maximum number of Alarms that a single definition is allowed to generate.

This value is primarily a protection mechanism to prevent a single definition from generating an excessive number of Alarms. Once the limit is reached, a special 'really red' alarm is displayed and further alarms from the definition are prevented. Update the Alarm definition to 'reset' or clear the 'really red' alarm.

Example:

ALARMS-MAXIMUM-PER-DEFINITION 175 == Alarms maximum / DEF 175

CNF01DB

CNF01DB <file-name>

(Default = subvolume of BWMOMI object)

Specifies the name of the MOMI configuration database. This database is used to store MOMI configuration information.

This keyword is not required. The file is automatically created if not found at the location (or default) specified. MOMI must have create/write/read security access to this file.

The I/O activity on this file is generally very low.

Example:

== MOMI configuration database

CNF01DB \$data1.momi.cnf01db

DEFAULT-SECURITY-USER

(server version 4.03 or later)

DEFAULT-SECURITY-USER <user-name>

(Default = user that started MOMI)

Specifies the user name, i.e. Guardian or Safeguard, that is the Default Security User for MOMI.

See <u>Client Access</u> for additional information about the Default Security User.

If MOMI is started directly via a TACL process, this keyword would not normally be required. However, in the situation where a site uses a security manager or other front end process the current security context may not be totally accurate. In this situation this keyword allows the direct defining of the desired User ID for default security purposes.

The default value for this keyword is the User ID provided at logon time from the current security context.

Example: DEFAULT-SECURITY-USER admin.fred == fred is default security user

DEFAULT-WORK-LOCATION

(server version 4.11 or later)

DEFAULT-WORK-LOCATION <\$vol.subvol> was started)

(Default = default vol/subvol when MOMI

Specifies an alternate location for MOMI to place work files which typically are MEASURE data files.

The default value for this keyword is the default vol/subvol specified when MOMI was started which normally is the subvolume of the BWMOMI program.

The User ID MOMI runs under must have read/write/execute/purge/create access in this subvolume. It is suggested that SAFEGUARD is not used for this subvolume.

Example:

```
DEFAULT-WORK-LOCATION $data1.momiwork == $data1.momiwork for temp
files
```

DISABLE-LOGON-COMMANDS

DISABLE-LOGON-COMMANDS TRUE | FALSE

(Default = false)

Specifies if MOMI allows commands to function that require LOGON with a User ID and password.

Certain sensitive commands require the user to LOGON with a GUARDIAN and password. This setting can be used to disable LOGON commands and prevent such commands from being executed.

True causes all sensitive commands requiring LOGON to be disabled. False allows the user to enter a User ID and password and if authentication is accepted, execute sensitive commands.

Example:

DISABLE-LOGON-COMMANDS TRUE == 0

== disable LOGON

DISABLE-MEAS-OSSCPU

(server version 4.09 or later)

DISABLE-MEAS-OSSCPU TRUE | FALSE (Default = false)

Determines if MOMI is allowed to report on the OSS CPU entity via MEASURE.

True means this entity is not allowed to operate. False allows this entity to operate.

Certain versions of the operating system may have issues with this MEASURE entity so this keyword provides a disable capability.

Example:

DISABLE-MEAS-OSSCPU TRUE

== disable OSS CPU

DISABLE-MEAS-OSSNS

(server version 4.09 or later)

DISABLE-MEAS-OSSNS TRUE | FALSE (Default = false)

Determines if MOMI is allowed to report on the OSS Name Server (NS) entity via MEASURE.

True means this entity is not allowed to operate. False allows this entity to operate.

Certain versions of the operating system may have issues with this MEASURE entity so this keyword provides a disable capability.

Example:

DISABLE-MEAS-OSSNS TRUE

== disable OSS Name Server

DISABLE-MEAS-SQLPROC

(server version 4.12 or later)

DISABLE-MEAS-SQLPROC TRUE | FALSE (Default = true)

Determines if MOMI is allowed to report on the SQLPROC (SQL Process) entity via MEASURE.

True means this entity is not allowed to operate. False allows this entity to operate.

Certain versions of the operating system may have issues with this MEASURE entity. As a precaution, it is not enabled by default.

Example:

DISABLE-MEAS-SQLPROC FALSE

== enable SQLPROC

DISABLE-MEAS-SQLSTMT

(default changed in server version 4.06 or later)

DISABLE-MEAS-SQLSTMT TRUE | FALSE (Default = true)

Determines if MOMI is allowed to operate an SQL Statement measurement.

True means this entity is not allowed to operate. False allows this entity to operate.

Certain versions of the operating system may have issues with this MEASURE entity. As a precaution, it is not enabled by default.

The MEASURE manual warns that this entity may consume more CPU in it data collection activities. Additionally, some O/S releases may encounter processor halts. Prior to enabling this ability, check your operating system version for any applicable software updates or alerts prior to activating this feature.

Example:

DISABLE-MEAS-SQLSTMT FALSE

== enable SQL statement

ENCRYPTION-ALGORITHM

(server version 5.06 or later)

ENCRYPTION-ALGORITHM 0..5 (Default = 0)

Specifies the type of data encryption used between the MOMI PC Client and the MOMI Server in the TCP/IP data flow.

Three settings are available:

- 0 None
- 1 FAS
- 2 AES
- 3 FAS No Port
- 4 AES No Port
- 5 FAS 2

0 - None, the default, means that normal MOMI traffic is not encrypted. This provides the highest level of performance with the lowest CPU cost.

1 - FAS uses a proprietary algorithm with a 256 bit asymmetric key to provide a "Fast and Simple" encryption of the data. A fairly high level of performance is obtained a modest CPU cost.

2 - AES uses the Advance Encryption Standard with a 256 bit key and provides an industry standard for data encryption. The performance impact varies depending on the NonStop CPU. The System should be monitored after selecting this option to insure no adverse amount of processor is being consumed.

3 - FAS No Port uses a proprietary algorithm with a 256 bit asymmetric key to provide a "Fast and Simple" encryption of the data. A fairly high level of performance is obtained a modest CPU cost. This algorithm may be is automatically selected if the TCP/IP dynamic port varies between the MOMI PC Client and MOMI Server.

4 - AES No Port uses the Advance Encryption Standard with a 256 bit key and provides an industry standard for data encryption. The performance impact varies depending on the NonStop CPU. The System should be monitored after selecting this option to insure no adverse amount of processor is being consumed. This algorithm may be is automatically selected if the TCP/IP dynamic port varies between the MOMI PC Client and MOMI Server.

5 - FAS 2 uses a proprietary algorithm with a 256 bit asymmetric key to provide a "Fast and Simple" encryption of the data. A fairly high level of performance is obtained a modest CPU cost. This implementation is improved over the original 1 - FAS algorithm.

Regardless of the chosen setting, even the default of None, note the following:

- Logon to the MOMI PC Client always (and always has been) encrypted.
- Header and control information in the data flow may not be encrypted.
- Certain message types, usually where only values or statistics are present, may not be encrypted for performance and data control reasons.
- MOMI Clients version 5.06 and earlier can still communicate with a MOMI server even if encryption is enabled. The older clients simply do not have their data encrypted. The requirements for encryption were changed at MOMI Server version 5.06. If encryption is required for all MOMI PC Clients, version 5.07 or later of the client must be installed.
- Encryption may be automatically downgraded to comply with US export controls.

Generally speaking, MOMI takes advantage of the multiple processing running within its environment and pushes encryption processing down-to the level where a request is actually serviced. This push helps to limit the amount of encryption overhead that occurs in the higher priority processes of a MOMI subsystem. See <u>Process Priority</u> for additional information on how MOMI divides its workload.

Example:

== Encrypt type FAS

ENCRYPTION-ALGORITHM 1

EVENTCX

(server version 4.10 or later)

EVENTCX <file-name>

(Default = \$SYSTEM.SYSTEM.EVENTCX)

Specifies an alternate location for the EMS user defined cause and recommended action file. Usage of the keyword effectively limits the file for the exclusive use of MOMI.

This optional file, defined by HP for the Viewpt subsystem, provides a means of user defined verbiage for an EMS event. If the file is 1) present and 2) if a record is found with the same owner, subsystem and event number for a given EMS event then the content of the record is displayed.

On a system that does not have an EVENTCX file, the FUP obey file FUPEVTCX (located in the subvolume where MOMI is installed) is provided to allow its creation. The following command would be used to create the file:

FUP / in FUPEVTCX /

See **<u>EMS EVENTCX</u>** for additional information.

Example:

== alternate location of EVENTCX

EVENTCX \$data1.momi.eventcx

EXPAND-IO-DELAY

EXPAND-IO-DELAY <.01 seconds> (Default = 5)

Specifies the amount of time, in an implied .01 seconds, of delay in-between individual I/Os used to gather information about Expand objects.

This delay reduces the CPU in gathering information by spreading the I/Os out over a longer period of time.

Example:

EXPAND-IO-DELAY 200

== delay 2 seconds between

EXPAND-NETWORK-NAME

EXPAND-NETWORK-NAME <name> (Default = spaces)

Specifies a unique name on an Expand network that MOMI uses to group systems for reporting purposes.

The name may be up to eight characters.

It is possible that a MOMI Client could be connected to more than one Expand network. For network diagram or other reporting purposes, MOMI needs to know how to group this information. This parameter provides that grouping.

All MOMI servers in this 'network' must use the same name in order for the client to properly establish network node relationships.

Example:

EXPAND-NETWORK-NAME USA

== network name USA

EXPAND-UPDATE-INTERVAL

EXPAND-UPDATE-INTERVAL <seconds>

(Default = 60)

Specifies the frequency in seconds in which Expand objects are updated. The higher the value, the longer in-between updates.

Lower values result in more frequent updates, but result in higher CPU usage.

The time spent gathering data also lengthens the update frequency.

Example:

EXPAND-UPDATE-INTERVAL 30

== update every 30 seconds

EXPAND-UPDATE-INTERVAL-ERR

EXPAND-UPDATE-INTERVAL-ERR <seconds>

(Default = 30)

Specifies the frequency in seconds in which Expand objects are updated after an error condition has been detected.

By default, MOMI uses a faster update interval during error conditions such as when a line or path down are present. This allows MOMI to report updates more quickly. After the error condition is corrected and detected by MOMI, the normal update interval is used.

See the parameter <u>EXPAND-UPDATE-INTERVAL</u> for additional considerations.

Example:

EXPAND-UPDATE-INTERVAL-ERR 15 == update every 15 seconds

FNAME-SPOOLER-n

FNAME-SPOOLER-n <object-file-name-pattern>

(Default = \$SYSTEM.SYSTEM.SPOOL)

Specifies the standard SPOOLER supervisor object file name. MOMI identifies SPOOLER subsystems by object file name.

Usage of this parameter will override the default value. If the default is required along with other entries, it must be included.

Multiple file names may be specified when more than one object file is in use, such as during a version upgrade. A file name pattern may also be specified.

The n in the parameter name provides a means to create unique parameter names. Up to 9 object file names may be specified.

Examples:

FNAME-SPOOLER-1 \$SYSTEM.SYSTEM.SPOOL
FNAME-SPOOLER-2 \$*.*.SPOOL

FNAME-SPOOLER-PLUS-n

FNAME-SPOOLER-PLUS-n <object-file-name-pattern>

(Default = none)

Specifies the SPOOLER 'plus' supervisor object file name. MOMI identifies SPOOLER subsystems by object file name.

Use of this parameter is required to identify a SPOOLER 'plus' subsystem. SPOOLER 'plus' is an optional product that requires certain changes in the access method versus the standard SPOOLER.

Multiple file names may be specified when more than one object file is in use, such as during a version upgrade. A file name pattern may also be specified.

The n in the parameter name provides a means to create unique parameter names. Up to 9 object file names may be specified.

Examples:

FNAME-SPOOLER-PLUS-1 \$SYSTEM.SPLUS.SPOOL

FNAME-SPOOLER-PLUS-2 \$*.*.SPOOL

HSTnnDB

HST01DB	<file-name></file-name>	(optional but must be first)
HST02DB	<file-name></file-name>	(optional but must be second)
HST03DB	<file-name></file-name>	(optional but must be third)
HST04DB	<file-name></file-name>	(optional but must be fourth)

Specifies the name of the MOMI history database(s). These database are used to maintain various history statistics.

The file is automatically created if not found at the location specified. MOMI must have create/write/read security access to the files and the subvolume location.

The HST01DB file is used by MOMI to dump the initial history statistics. If history is enabled, the HST01DB file must be specified first, followed optionally by HST02DB as second and so on.

History files should NOT be placed on \$SYSTEM, \$AUDIT nor any other extremely active disk volume.

Examples:

HST01DB \$data1.momi.hst01db HST02DB \$data1.momi.hst02db HST03DB \$data1.momi.hst03db HST04DB \$data1.momi.hst04db

HSTnnDB-DELETE-TIME

<days></days>	(default = 14)
<days></days>	(default = 28)
<days></days>	(default = 60)
<days></days>	(default = 600)
	<days> <days> <days> <days></days></days></days></days>

(revised in server version 5.20 or later)

Specifies how long (in days) data is retained before it is deleted from the history database. Another way to think about it is this value determines how far back history is allowed to accumulate.

If the number of days specified is greater than zero, data is automatically deleted based on the specified time criteria.

If the number of days specified is zero, data is not deleted from the file based on its age. This setting allows a history file to fill all its available file disk space. The oldest data in the file is automatically deleted to make room for new data.

If the value of -1 is specified, data is not deleted from the file based on its age and new data is no longer written to the file. This setting is provided to support the situation where it is necessary to examine a saved history file (usually in a second copy of the MOMI server environment).

When data is written to a history file but the file had reached its maximum capacity, either maximum number extents or no more disk space is available, MOMI automatically and always deletes the oldest data to make room for the new data. MOMI does not generate any out of disk space or file full messages.

Examples:

hst01db-delete-time 7	== keej	HST01DB	history	7	days
hst02db-delete-time 30	== keej	HST02DB	history	30	days

HSTnnDB-HISTORY-DUMP

HST01DB-HISTORY-DUMP	<seconds></seconds>	(default = 120)	2 minutes
HST02DB-HISTORY-DUMP	<seconds></seconds>	(default = 600)	10 minutes
HST03DB-HISTORY-DUMP	<seconds></seconds>	(default = 3600)	1 hour
HST04DB-HISTORY-DUMP	<seconds></seconds>	(default = 86400) 1 day

Specifies the amount of time (in seconds) of history windows for MOMI.

MOMI initially writes history to the HST01DB file at the interval specified by HST01DB-HISTORY-DUMP. MOMI reads data from HST01DB and consolidates it into HST02DB at the interval specified by HST02DB-HISTORY-DUMP. This process is repeated for the other history files.

For example, using the default values, MOMI reads 10 minutes of history from the HST01DB file and writes the consolidated data into HST02DB. MOMI then reads 1 hour of history from HST02DB and writes the consolidated data into HST03DB. MOMI reads 1 day of history from HST03DB and writes the consolidated data into HST04DB. If a history file reaches capacity or no more disk space is available, the oldest data in the file is automatically deleted to free up space.

A value of zero (or less than an internal minimum) turns history dumping off for that file.

Values given for each history file should be progressively larger than the next and a multiple of the previous (i.e. follow the pattern as seen in the default values). History always starts with HST01DB, followed by HST02DB and so on.

The value entered here will effectively still be a multiple of the raw data collection time, which defaults to 10 seconds.

Examples:

hst01db-history-dump 30	==	dump	HST01	every	30	sec-
onds						
hst02db-history-dump 120	==	dump	HST02	every	2	minutes

IIT-NORMAL-INTERVAL-INCREMENT

IIT-NORMAL-INTERVAL-INCREMENT <seconds>

(Default = 10, minimum 10)

Specifies the number of seconds that a normal Measure interval is to increase. An attempt to set the value below the minimum is forced to the minimum.

Measurements started on demand run for an initial period of time, stop, report data, restart the measurement but increase the time interval by an increment value. The computed time interval is capped at a maximum amount. This keyword determines the amount a measurement interval is increased.

A normal Measure are the time periods associated with measurements such as Disk Entity, DiskFile Entity and File Entity. It is not associated with time periods for details such as Process Detail.

Example:

IIT-NORMAL-INTERVAL-INCREMENT 20 == increase by 20 seconds

IIT-NORMAL-MAXIMUM

IIT-NORMAL-MAXIMUM <seconds>

(Default = 240, minimum 30)

Specifies the maximum number of seconds of a normal measurement interval. An attempt to set the value below the minimum is forced to the minimum.

Measurements started on demand run for an initial period of time, stop, report data, restart the measurement but increase the time interval by an increment value. The computed time interval is capped at a maximum amount. This keyword determines the maximum amount of a measurement interval.

A normal Measure are the time periods associated with measurements such as Disk Entity, DiskFile Entity and File Entity. It is not associated with time periods for details such as Process Detail.

Example:

IIT-NORMAL-MAXIMUM 100

== increase stops at 100 seconds

IIT-NORMAL-STARTING

IIT-NORMAL-STARTING <seconds>

(Default = 30, minimum 10)

Specifies the initial number of seconds for a normal measurement interval. An attempt to set the value below the minimum is forced to the minimum.

Measurements started on demand run for an initial period of time, stop, report data, restart the measurement but increase the time interval by an increment value. The computed time interval is capped at a maximum amount. This keyword determines the first measurement interval.

A normal Measure are the time periods associated with measurements such as Disk Entity, DiskFile Entity and File Entity. It is not associated with time periods for details such as Process Detail.

Example:

IIT-NORMAL-STARTING 20

== first interval is 20 seconds

INTERVAL

INTERVAL <seconds>

(default = 10)

Specifies the amount of time (in seconds) in-between each gathering of the main body of information collected by MOMI. This main body of information is primarily the status of each CPU, process, OSS CPU and OSS Name Server on the system.

The value has a range of 5 to 180 seconds.

Internally, MOMI will generally round this value. The accepted values are 5, 10, 20, etc...

The default value is recommended.

Example:

INTERVAL 20

== stats every 20 seconds

IO-STUCK-EXCLUDE-n

(server version 4.06 or later)

IO-STUCK-EXCLUDE-n <object-file-name-pattern> (Default = none)

Specifies object file names to exclude from the determination if a process is 'stuck' in an I/O.

Processes with object files located in \$SYSTEM.SYSTEM and \$SYSTEM.SYSnn are excluded automatically.

A process which remains in a wait state of %004, and is not consuming any processor time (i.e. no CPU busy time), may possibly be caught in some sort of I/O which is not completing. This may or may not indicate a problem.

Multiple file names may be specified when more than one object file is in use, such as during a version upgrade. A file name pattern may also be specified.

The n in the parameter name provides a means to create unique parameter names. Up to 9 object file names may be specified.

Examples:

IO-STUCK-EXCLUDE-1	\$DATA1.DEVEL.FREDOBJ	==	exclude	fredobj
IO-STUCK-EXCLUDE-2	\$*.*.PRODCATB	==	exclude	prodcatb

IO-STUCK-INTERVAL

IO-STUCK-INTERVAL <seconds> (default = 30)

Specifies the amount of time (in seconds) that a process must be in a wait state of %004 before it is declared as possibly 'stuck' in an I/O.

The value has a lower range of twice the INTERVAL, which defaults to 10 seconds.

A process which remains in a wait state of %004, and is not consuming any processor time (i.e. no CPU busy time), may possibly be caught in some sort of I/O which is not completing. This may or may not indicate a problem.

See IO-STUCK-EXCLUDE-n for additional information.

Example:

IO-STUCK-INTERVAL 60

== define 'stuck' as 60 seconds

LOG01DB

LOG01DB <file-name> (Default = subvolume of BWMOMI object)

Specifies the name of the MOMI log file. This file stores events generated by MOMI.

This keyword is not required. The file is automatically created if not found at the location (or default) specified. MOMI must have create/write/read security access to this file.

The I/O activity on this file can be high if logging is enabled on high activity alerts.

Data is retained until the file is full. When a full file is detected, the oldest data is deleted to make room for a new record. To increase the maximum file storage, increase the maximum number of extents for the file.

Example:

== MOMI log file location

LOG01DB \$data1.momi.log01db

PASSWORD

PASSWORD <string> (REQUIRED for full operation)

The keyword specifies a password string used to control the operation of MOMI. The password either allows MOMI to operate on a specific NonStop System, or on any NonStop system for a limited period of time. Optional features and other program capabilities can also be controlled by the password.

Password should be entered EXACTLY as supplied. The entire password is on one single line. There is a single space after the keyword PASSWORD and no quotes around <string>.

Once the Server is started and the Client connected, the status of the password may be viewed on the <u>Diag</u>nostics page within the PC Client.

Example:

== MOMI password PASSWORD 2932938045092384...420394852093845848
PATHWAY-TCP

PATHWAY-TCP <pathtcp2-object-file-name>

(Default = none)

Defines an additional object file location for a Pathway TCP.

By default, MOMI only considers \$SYSTEM.SYSTEM.PATHTCP2 as the only object file for Pathway TCP process.

In order for MOMI to identify a Pathway TCP process, the object file name is examined. This keyword supports the situation where an additional or perhaps customer modified copy of the original Pathway TCP object is maintained. MOMI considers the standard location and this location, if specified, as Pathway TCP object files.

Example:

== Location of our copy
== of PATHTCP2

PATHWAY-TCP \$data1.alttcp.pathtcp2

PRIORITY-ALARM-EMS

(server version 4.06 or later)

PRIORITY-ALARM-EMS <value-1-199> (Default = 92)

Specifies the process priority of a MOMI server for Alarm operations relating to EMS messages.

This server generally reads the EMS log and scans for events defined to trigger and clear Alarms.

Example:

PRIORITY-ALARM-EMS 101

== Alarm EMS priority at 101

PRIORITY-ALARM-FILE

(server version 4.06 or later)

PRIORITY-ALARM-FILE <value-1-199> (Default = 93)

Specifies the process priority of a MOMI server for Alarm operations relating to Disk and File.

This server generally issues commands to obtain disk volume and file information to trigger and clear defined Alarms.

Example:

PRIORITY-ALARM-FILE 102

== Alarm File priority at 102

PRIORITY-BATCH

PRIORITY-BATCH <value-1-199>

(Default = 90)

Specifies the process priority of a MOMI server for 'batch' type operations within MOMI. Batch operations are operations where a server MOMI is started for demand type of operations such as measuring files, processes, ProcessH, etc...

Example:

PRIORITY-BATCH 89

== batch at priority 89

PRIORITY-DB-HST01DB

PRIORITY-DB-HST01DB <value-1-199> (Default = 95)

Specifies the process priority of a MOMI server for database operations relating to the HST01DB file. This file is used as the initial location for storing performance information.

Specifically, this keyword controls the priority for writing new data to the file and reading the most current data. It is recommended that the priority specified here be the highest of the MOMI servers, operating in the batch priority area, to insure data is written timely to disk.

Example:

PRIORITY-DB-HST01DB 94

== hst01db priority at 94

PRIORITY-DB-HSTxxDB-CON

PRIORITY-DB-HSTxxDB-CON <value-1-199>

(Default = 80)

Specifies the process priority of a MOMI server for database operations relating to the data consolidation of the HSTxxDB files. These files are used for storing performance information.

Specifically, this keyword controls the priority for consolidating history from one file into another and deleting old data. This is an ongoing but fairly consistent operation and should occur at a fairly low priority.

Example:

PRIORITY-DB-HSTXXDB-CON 75

== history consolidation at 75

PRIORITY-DB-HSTxxDB-DEL

PRIORITY-DB-HSTxxDB-DEL <value-1-199> (Default = 80)

NOTE: This parameter is not currently used, but is kept for compatibility. See <u>PRIORITY-DB-HSTxxDB-</u><u>CON</u>.

Specifies the process priority of a MOMI server for database operations relating to the HSTxxDB files. These files are used for storing performance information.

Specifically, this keyword controls the priority for deleting old data or cleanup of the files and as such, this is an ongoing but fairly consistent operation and should occur at a fairly low priority.

PRIORITY-DB-HSTxxDB-R

PRIORITY-DB-HSTxxDB-R <value-1-199> (Default = 85)

Specifies the process priority of a MOMI server for database operations relating to the HSTxxDB files. These files are used for storing performance information.

Specifically, this keyword controls the priority for initial, or possibly long running, read operations against the files. It is recommended that this priority be rather low.

Example:

PRIORITY-DB-HSTXXDB-R 87 == history read at 87

PRIORITY-DB-LOG01DB

(server version 4.06 or later)

PRIORITY-DB-LOG01DB <value-1-199> (Default = 94)

Specifies the process priority of a MOMI server for database operations (write and delete of old data) relating to the LOG01DB file.

This file stores events generated by MOMI.

Example:

PRIORITY-DB-LOG01DB 100

== log01db priority at 100

PRIORITY-EMS

PRIORITY-EMS <value-1-199> (Default = 91)

Specifies the process priority of a MOMI server for EMS message retrieval within MOMI. EMS distributors and a MOMI server are started for obtaining this data.

Example:

PRIORITY-EMS 50

== EMS at priority 50

PRIORITY-EXPAND

PRIORITY-EXPAND <value-1-199>

(Default = Main MOMI - 3)

Specifies the process priority for the Expand Server/Collector. This process collects Expand information and services Client requests.

The default value is recommended.

Example:

PRIORITY-EXPAND 167

== expand at priority 167

PRIORITY-MOMI

PRIORITY-MOMI <value-1-199>

(Default = as started)

Specifies the priority for \$MOMI.

While the process priority of \$MOMI is set when the process is started, sometimes \$CMON can alter or prevent the priority given at run-time. This keyword causes the program to alter its own priority directly via a GUARDIAN procedure.

This keyword will override the value specified when the program was started.

Example:

PRIORITY-MOMI 168

== MOMI at priority 168

PRIORITY-PA

PRIORITY-PA <value-1-199>

(Default = Main MOMI - 2)

Specifies the process priority for Process Actions.

Process Actions are the following general activities:

logon process stop / abend / altpri / etc... BWSSG

This grouping of Process Actions helps to insure that these commands are processed in a timely manner and are not hindered by low-priority intense batch type of activity in a CPU.

Example:

PRIORITY-PA 168

== Process Actions at priority 168

SELECTION-DEFAULT-VHS

(server version 4.11 or later)

SELECTION-DEFAULT-VHS <\$vol.subvol>

(Default = none)

Specifies the default location the file selector displays when selecting a VHS log file to display. VHS, or the Virtual Hometerm Subsystem, provides a stable location for processes to log message usually related to a problem or status update.

Usage of this parameter may aid users in selecting the proper log file as the File Locator on the screen <u>VHS</u> Log as it will automatically drill-down to the location specified.

Examples:

SELECTION-DEFAULT-VHS \$DATA1.VHSLOG

SNTP-ALLOW-ADJUSTMENT

(server version 4.16 or later)

SNTP-ALLOW-ADJUSTMENT

(Default = no adjustment)

Allows MOMI to adjust the time on the Nonstop System.

This keyword is provided as an 'extra' step to insure that it is desired for MOMI to make adjustments to the System time.

MOMI adjusts the System time, it does not set the time. Adjusting the System time means that MOMI compares the current time at the Network time source to the Nonstop System and based on that result "nudges" the System clock either forward or backward. "Nudges" is effectively slightly speeding up or slowing down the system clock, but not forcing it to a specific time. This action may be performed on an active system without concern for setting the clock backward, which certain systems such as TMF could not tolerate.

By default, MOMI will not alter the System time.

Example:

SNTP-ALLOW-ADJUSTMENT

== Allow MOMI to adjust == the system time

SNTP-BIND-ADDR

(server version 5.19 or later)

SNTP-BIND-ADDR <DNS-name> | <IP-address>

(Default = determined by system)

Defines the DNS name or IP address of the specific NonStop TCP/IP stack that MOMI should bind to when sending SNTP messages. The address specified here forces the 'source' address for the message.

Note that the address specified must be valid for the TCP/IP stack MOMI uses as specified by the keyword <u>SNTP-TCPIP-NAME</u>. If the IP address is not valid for the TCP/IP stack MOMI uses to send the email, a failure to send occurs.

This setting handles the situation where a NonStop system is configured for Ethernet port fault tolerance (i.e. with a CLIM) and a particular source IP address must be forced onto outbound socket connections. The reason this function may be needed is that CLIMs contain multiple physical Ethernet ports but has only one TCP/IP process and the default system choice may not be desirable from a network perspective.

Technically, this keyword causes a socket level call to bind() after a socket is opened to force an association with IP address specified.

Example:

== SNTP message == source IP address

SNTP-BIND-ADDR 10.21.36.124

SNTP-SERVER-ADDR

(server version 4.16 or later)

SNTP-SERVER-ADDR <DNS-name> | <IP-address> (Defa

(Default = none)

Defines the name or IP address of the NTP server. The NTP server provides a network time source and MOMI uses this to determine if the System time should be adjusted. Note that the NonStop System must have the resolver active if a DNS-Name is used.

MOMI uses the SNTP protocol to access the network time source.

If a DNS entry resolves into more than one IP address, MOMI connects to the first IP address returned but if communication fails over a certain threshold, a connect is attempted on the second address and so on.

This keyword is required in order to have MOMI adjust the System time.

Example:

== NTP server

SNTP-SERVER-ADDR us.pool.ntp.org

SNTP-STARTUP-CHECK

(server version 5.05 or later)

SNTP-STARTUP-CHECK TRUE | FALSE (Default = FALSE)

Allows MOMI during the initial query of the SNTP server to make any needed time adjustments if an adjustment is required and adjustments are allowed.

If SNTP processing is enabled, a query is made to the SNTP server shortly after MOMI is started to confirm that the configured SNTP server is accessible. This initial query is made regardless of the configured time interval. By default, the initial query does not make adjustments to the system time (i.e. it operates in preview mode). If this keyword and the keyword <u>SNTP-ALLOW-ADJUSTMENT</u> are both enabled, the initial access to the SNTP server may perform a system time adjustment.

By default, no adjustments are made to the system time by the initial SNTP query.

The purpose of this keyword is to allow MOMI to make any needed time adjustments shortly after startup. This is particularly handy if SNTP processing is enabled for the first time and a time adjustment is desired to confirm proper configuration and operation. This keyword should probably be removed after an initial use.

Example:

== Allow MOMI to adjust == the system time == during the initial == check

SNTP-STARTUP-CHECK TRUE

SNTP-TCPIP-NAME

(server version 4.16 or later)

SNTP-TCPIP-NAME <tcpip-process-name>

(Default = first <u>TCPIP-LISTEN</u>)

Defines the TCP/IP process name that MOMI uses to access the NTP server. The NTP server provides a network time source and MOMI uses this to determine if the System time should be adjusted.

By default, the first TCP/IP process defined to MOMI for establishing client connections is used.

This keyword would generally be used in the situation where the NTP server is isolated or not accessible from the same subnet MOMI PC Clients connect.

Example:

== specify TCP/IP stack name
== (not always needed)

SNTP-TCPIP-NAME \$ZSAM1

SNTP-UPDATE-INTERVAL

(server version 4.16 or later)

SNTP-UPDATE-INTERVAL <hours> (Default = 1)

Specifies the frequency that MOMI accesses the NTP server to obtain a network time. The NTP server provides a network time source and MOMI uses this to determine if the System time should be adjusted.

The frequency of access has a minimum value of 1 hour and a maximum value of 744 hours (which is approximately 1 month). A value less than the minimum is set to the minimum. A value over the maximum is set to the maximum.

The time when MOMI begins the time update process is approximately an LCT multiple of the value specified here. What this means is if a value of 24 is specified, i.e. update every 24 hours, MOMI begins its processing of updating the system time at 12:00 am. If the value of 2 is specified, time update processing occurs at 12:00 am. 2:00 am, 4:00 am and so on. The time update processing may take several minutes so any adjustment will not be on the multiple, but usually the same number of few minutes after the multiple.

Example:

SNTP-UPDATE-INTERVAL 48

== check NTP server every 2 days

SPI-IO-TIMEOUT

(server version 4.06 or later)

SPI-IO-TIMEOUT <seconds>

(default = 5)

Specifies the maximum amount of time (in seconds) that MOMI waits for a single SPI I/O to complete. SPI is a programmatic interface used to obtain information about various subsystems such as Expand, TMF, Tape, etc....

A server that does not respond within the specified time generates an error 40 (Timeout).

It is not recommended to increase the value greatly as this could slow down other processing within MOMI.

Example:

SPI-IO-TIMEOUT 12

== set timeout to 12 seconds

SPOOLER-IO-DELAY

(server version 4.05 or later)

SPOOLER-IO-DELAY <.01 seconds> (Default = 5)

Specifies the amount of time, in an implied .01 seconds, of delay in-between individual I/Os used to gather information about Spooler objects

This delay reduces the CPU in gathering information by spreading the I/Os out over a longer period of time.

Example:

SPOOLER-IO-DELAY 200

== delay 2 seconds between

SPOOLER-UPDATE-INTERVAL

(server version 4.05 or later)

SPOOLER-UPDATE-INTERVAL <seconds> (Default = 60)

Specifies the frequency in seconds in which Spooler objects are updated for Alarm purposes while the object is in a non-alarm (i.e. normal state).

The higher the value, the longer in-between updates. Lower values result in more frequent updates, but result in higher CPU usage.

The time spent gathering data also lengthens the update frequency.

The parameter <u>SPOOLER-IO-DELAY</u> determines the amount of time in-between each I/O during an update interval.

Example:

SPOOLER-UPDATE-INTERVAL 30

== update every 30 seconds

SPOOLER-UPDATE-INTERVAL-ERR

(server version 4.05 or later)

SPOOLER-UPDATE-INTERVAL-ERR <seconds>

(Default = 30)

Specifies the frequency in seconds in which Spooler objects are updated for Alarm purposes after an error condition has been detected.

By default, MOMI uses a faster update interval during error conditions such as when a line or path down are present. This allows MOMI to report updates more quickly. After the error condition is corrected and detected by MOMI, the normal update interval is used.

See the parameter <u>SPOOLER-UPDATE-INTERNAL</u> for additional considerations.

Example:

SPOOLER-UPDATE-INTERVAL-ERR 15

== update every 15 seconds

SYSTEM-DESCRIPTION

SYSTEM-DESCRIPTION <string> (Default = none)

An informational field that specifies the nature or characteristics of the NonStop System on which MOMI is running.

The <string> is limited in length to the first 30 bytes.

The string may be quoted to include an embedded space.

Examples:

SYSTEM-DESCRIPTION Production SYSTEM-DESCRIPTION 'Communication Front End' SYSTEM-DESCRIPTION "Production 1"

TCPIP-INFO-n

TCPIP-INFO-n <tcpip-process-name> <port>

(At least 1 is REQUIRED)

Specifies the TCP/IP process name and TCP/IP port to place a 'listen' on. Up to 20 specifications may be made.

The 'n' is a value portion of the keyword is present to make the parameter name unique.

This keyword has been superceded by <u>TCPIP-LISTEN</u>.

Examples:

TCPIP-INFO-1	\$ZSAM1 2000	== TCP/I	P \$ZSAM1 2000
TCPIP-INFO-2	\$ZTC1 3000	== TCP/I	P \$ZTC1 port 3000
TCPIP-INFO-3	\$ZTCP0 2040	== TCP/I	P \$ZTCP0 port 2040

TCPIP-LISTEN

TCPIP-LISTEN <tcpip-process-name> * | <ip-address> <port>

(server version 5.15 or later) (At least 1 is REQUIRED)

Specifies the TCP/IP process name, optional IP address and TCP/IP port to place a 'listen' on.

A total of up to 20 specifications may be made, of both TCPIP-LISTEN and TCP-INFO-n. A minimum of one specification is required for either of the keywords.

This keyword expands upon and replaces the keyword <u>TCPIP-INFO-n</u> by allowing the specification of the TCP/IP address listen. Certain NonStop platform configurations may require that TCP/IP listen is only on a particular IP address which in turn directs the operation to a specific physical Ethernet port.

Examples:

				== Listen ŞZSAMI, all
addresses, TCPIP-LISTEN	\$ZSAM1	* 2000		== port 2000
192 168 1 10				== Listen \$ZTC1, address
TCPIP-LISTEN	\$ZTC1	192.168.1.10	3000	== port 3000
				== TCP/IP \$ZTCP0, address
10.11.54.21, TCPIP-LISTEN	\$ZTCP0	10.11.54.21	2040	== port 2040

TCPIP-WRITE-BYTES-SEC

TCPIP-WRITE-BYTES-SEC <value64>

(Default = varies)

Specifies the maximum number of TCP/IP bytes that may be written per second from the MOMI server to all PC Clients. When data traffic exceeds the specified limit, I/Os are limited (i.e. throttled) to honor the limit.

The default value is determined based on the processor type which \$MOMI is running and may vary in MOMI releases.

This parameter has the indirect effect of limiting the amount of CPU usage consumed by \$MOMI in response to TCP/IP traffic. TCP/IP v6 and Parallel TCP/IP effectively perform the protocol overhead in the sending process. This causes an apparent increase in CPU cycles during high volumes of TCP/IP traffic. However, if you compare the overall cost of the previous method, an inter-process message to a TCP/IP stack process, TCP/IP v6 and Parallel TCP/IP is a more cost effective method.

A value of zero disables limitation.

The following table lists the default value:

Processor	<u>Default</u>
pre-S-Series	300,000
S7000, S70000, S7400, S7600	300,000
S72000	500,000
S7800[B]	500,000
S74000, S76000	600,000
S86000, S86100	800,000
S88000	900,000
Later S-Series processors	1,400,000
NSEQOOT	800.000
	800,000
NS1000, NS1200, NS3000AC	900,000
NS14000, NS14200	2,000,000
NS16000, NS16200	3,000,000
NB50000C	4,000,000
Later NS-Series processors	1,000,000

Examples:

TCPIP-WRITE-BYTES-SEC 0 == remove limitation

TCPIP-WRITE-BYTES-SEC 350000 == limit to 350,000 bytes/sec

Advanced Keywords

The keywords located in this section are not generally needed or required for most Users. They are present to support internal development and to activate internal diagnostic routines.

ALARM-BREAKPOINTS-MAXIMUM

(server version 5.17 or later)

ALARM-BREAKPOINTS-MAXIMUM <value> (Default

(Default = 50)

Defines the maximum number of breakpoints available in each processor of the system.

The operating system maintains a table of breakpoints currently defined in each processor. A breakpoint is used by a programmer to stop the execution of a process at a particular location. If the processor breakpoint table becomes full, new breakpoints are not allowed to be set.

The current number of breakpoints defined with a process is available to MOMI via a system call. However, the maximum available in a processor is not available to MOMI. This keyword defines a maximum that MOMI uses for computational purposes.

S-Series systems has a fixed limit in the size of the table used to store breakpoints. H-Series and later do not have a practical limit on the number of breakpoints.

Example:

== Set MAXIMUM breakpoints == to 75

ALARM-BREAKPOINTS-MAXIMUM 75

ALARM-EMS-EVENT-NBR

(server version 5.00 or later)

ALARM-EMS-EVENT-NBR <value> (Default = zero)

Defines the EMS event number for messages logged by MOMI that are a result of an alarm.

Value has a recommended range of 20000 through 32767.

MOMI does generally create EMS messages in a 'formatted' manner, but logs its information as text with an event number of zero. However, to allow for any possible future enhancement in this area the recommended range of values should be followed.

Example:

== Set event number
== for EMS alarm messages

ALARM-EMS-EVENT-NBR 22000

CLIENT-ACC

CLIENT-ACC TRUE | FALSE

(Default = TRUE)

Determines if PC Client acceleration is activated. This optimization allows the server to construct multiple responses to a Client a request (i.e. block up responses into fewer transmissions).

By default, this optimization is turned on. The keyword is provided for internal testing.

Example:

Client-acc false

== acceleration off

CLIENT-INITIAL-MSG

(client/server version 5.24 or later)

CLIENT-INITIAL-MSG TRUE | FALSE

(Default = FALSE)

Determines if the PC Client (or screen saver) must use extra level of initial protocol in communication with the MOMI server on the NonStop System.

The keyword is provided primarily for environments that issue random communication messages on open TCP/IP ports.

The MOMI Server on the NonStop System opens and listens a TCP/IP port as specified by <u>TCPIP-LISTEN</u>. Certain security testing programs may open the port and attempt communication. Using this keyword activates an additional level of required protocol.

A side effect of activating this feature is that no MOMI PC Client prior to version 5.08 or MOMI screen saver prior to version 4.13 (issued in 5.24 release package) can communicate with the server.

Side note: Connecting to the MOMI Server port with a program, such as Telnet, does not introduce any security issue as 1) no action could be taken, 2) nor authority granted.

Example:

Client-initial-msg true

== initial message on

COLLECT-ALL-PROCESSES

(server version 4.17 or later)

COLLECT-ALL-PROCESSES TRUE | FALSE

(Default = FALSE)

Directs MOMI to collect all processes on the system regardless of its creation time.

By default, processes created in the future are not collected.

MOMI, in order to prevent possible process collection hangs, in its normal data collection <u>INTERVAL</u> does not monitor processes with a process creation time greater than the start of a particular collection interval. In the situation where numerous processes are continually being created (i.e. 100's or 1000's), trying to pick up newly created processes could hang a MOMI CPU collector. The default operation of MOMI, in order to work-around this possible situation, is to not pick-up processes created in the "future".

Systems used for test purposes that may adjust or play with (rather dramatically) the system time can use the keyword to alter the normal data collection operation. A side effect of using this keyword, is that HUNG or STOP may be see on the Main Overview screen for CPUs if the situations described above occur.

Example:

== collect all processes
== regardless of process
== creation time

COLLECT-ALL-PROCESSES true

CPU-COLLECTOR-NOREPORT-TIMEOUT

(server version 4.06 or later)

CPU-COLLECTOR-NOREPORT-TIMEOUT <seconds>

(default = (3 * <u>INTERVAL</u>))

Specifies the maximum amount of time (in seconds) that MOMI waits for a CPU collector process to report.

A CPU collector process that does not report in a timely manner is stopped and its data cleared. The client initially reports the CPU as HUNG (or STOP). The collector is automatically restarted about 1 minute later.

It is not recommended to increase this value as data reported by the client for that affected processor may be old and incorrect. However, certain system configurations may not be able to provide MOMI the CPU cycles needed to operate timely and this keyword allows for a greater timeout value.

The minimum value allowed is the default. Any value less than the default is set to the default. No maximum is imposed.

This value is not 'exact' as the internal processing for to determine if a CPU collector is not reporting timely is only performed about once a minute. In other words, the effective value specified here will usually be somewhat higher.

Example:

```
CPU-COLLECTOR-NOREPORT-TIMEOUT 30 == set timeout to 30 seconds
```
CPU-LIMIT

CPU-LIMIT <percent-limit> (D

(Default = no limit)

Percentage of CPU busy each MOMI process is allowed to consume.

This parameter sets a default. Usage of any other CPU-LIMIT-* parameter will override this value for that particular parameter. In other words, this parameter is a 'catch all', or starting point, for all MOMI programs including the main \$MOMI. However, all other CPU-limiting values take precedence (including their default values).

By default, no limitation is imposed. It is generally not advisable or required to use this parameter.

Example:

CPU-LIMIT 22

== limit CPU usage to 22%

CPU-LIMIT-ALARM-DETECT

CPU-LIMIT-ALARM-DETECT <percent-limit>

(Default = 5)

Specifies the percentage of CPU busy a MOMI server is allowed to consume in alarm detection activity.

The value may range from 0 to 99. A value of 0 disables CPU limit.

Alarm detection is the processing in stand alarm servers associated determining if a threshold has been reached. For example, this could be scanning through disk files and obtaining attributes, requesting information from the SPOOLER, performing PING, etc...

Example:

CPU-LIMIT-ALARM-DETECT 15 == limit CPU usage to 15%

CPU-LIMIT-EMS

CPU-LIMIT-EMS <percent-limit> (Default = none)

Specifies the percentage of CPU busy a MOMI server is allowed to consume in reading from EMS.

The value may range from 0 to 99. A value of 0 disables CPU limit.

Reading from EMS is in response to a MOMI PC Client request to obtain information from either \$0, other collectors or an EMS log file. By limiting or slowing down the MOMI process requesting from EMSDIST, indirectly the CPU usage consumed by both may be reduced.

Example:

CPU-LIMIT-EMS 16

== limit CPU usage to 16%

CPU-LIMIT-HSTxxDB-CONSOL

CPU-LIMIT-HSTxxDB-CONSOL <percent-limit>

(Default = 4)

Specifies the percentage of CPU busy the MOMI history consolidate and delete processing is allowed to consume.

The value may range from 0 to 99. A value of 0 disables CPU limit.

History consolidation is the process of moving data from one history file to another. This process takes data from many history periods and adds them together to a more consolidated or 'less detailed' view. Delete processing is removing old data from the history file after consolidation has completed.

Example:

CPU-LIMIT-HSTXXDB-CONSOL 8 == limit CPU usage to 8%

D47-OR-LATER

D47-OR-LATER TRUE | FALSE (Default = automatic)

This parameter is intended for internal use only.

Specifies if MOMI uses certain procedural values to obtain information available in the D47 or later version of the operating system.

'True' instructs MOMI that D47 features are available. 'False' instructs MOMI that D47 features are not available.

D48-OR-LATER

D48-OR-LATER TRUE | FALSE (Default = automatic)

This parameter is intended for internal use only.

Specifies if MOMI uses certain procedural values to obtain information available in the D48 or later version of the operating system.

'True' instructs MOMI that D48 features are available. 'False' instructs MOMI that D48 features are not available.

DEBUG1

DEBUG1

(Optional)

This parameter is intended for internal use only.

If present, activates special debug code used to determine if server is sending invalid data to Client. Will cause MOMI to ABEND if the condition is found.

DEBUG2

DEBUG2 (Optional)

This parameter is intended for internal use only.

If present, activates special debug code used to determine if MOMI is trying to terminate due to an unexpected error condition. Will cause MOMI to ABEND if the condition is found.

DEBUG3

DEBUG3 (Optional)

This parameter is intended for internal use only.

If present, activates special debug code used to confirm if data compression is working correctly. Data is compressed, decompressed and compared to the original. Will cause MOMI to ABEND if a mismatch is found.

DISABLE-LIST-LOCKS

(server version 5.03 or later)

DISABLE-LIST-LOCKS TRUE | FALSE (Default = false)

Determines if MOMI is allowed to obtain information about the presence and status of locks on files.

True means this entity is not allowed to operate. False allows this entity to operate, which is the default.

The keyword is not normally used but is provided in the event that the listing of locks is not recommended for the current release of the operating system.

Example:

DISABLE-LIST-LOCKS TRUE

== prevent list locks

DISABLE-MEAS-COUNTER-WRITE

DISABLE-MEAS-COUNTER-WRITE TRUE | FALSE

Determines if MOMI disables writing of MEASURE counters to any data file where counters are accessed online (i.e. via LISTACTIVE).

True means MEASURE counters are not written to disk. False means MEASURE counters are written to disk.

The default value for this keyword varies based on the operating system release. See the table below:

Operating System release	Default value	
G Series	False	
H Series prior to H06.14	False	
H Series H06.14 or later	True	
J Series J06.06 or later	True	
any other release	False	

Operating System release Default value

A measurement is started shortly after MOMI startup that collects information for CPU's, Processes, TMF, Expand, etc... This measurement is left running the entire time MOMI operates. The measure has no collection interval as data is retrieved via the LISTACTIVE function. However, MEASURE will write records such as process start / stop to the file until it fills. At that time each processor in the CPU will log an error 45 to EMS. This error, however, does not impact MOMI's ability to access the data via the LISTACTIVE function. It simply means that data is no longer written to the MEASURE data file. This feature of MEASURE to disable recording of counter records to disk effectively prevents the error 45 situation.

Setting this value to True, when MEASURE support is not available, will cause the initial measurement started by MOMI to fail. This would be seen in the MOMI PC Client on the screen <u>Overview</u> as the error indication MEAS.

Example:

DISABLE-MEAS-COUNTER-WRITE FALSE disk

== counters written to

(server version 5.05 or later) (Default = see below)

DISABLE-TMF-REPORT

(server version 4.20 or later)

DISABLE-TMF-REPORT TRUE | FALSE (Default = false)

Determines if MOMI is allowed to query TMF to obtain information such as the overall transactions per second and the state of TMF.

True means this entity is not allowed to operate. False allows this entity to operate.

The keyword would be used if TMF is not present or not normally in operation. By default, MOMI will query TMF on a regular basis to obtain status and would log errors in the event of a failure to communicate with TMF.

Example:

DISABLE-TMF-REPORT TRUE ing

== prevent automatic TMF report-

DISK-COMPRESSION-TYPE

(server version 5.00 or later)

DISK-COMPRESSION-TYPE 0 | 2 | 3 (Default = 2)

Specifies or disables the compression algorithm used for storing data on disk, primarily history.

The following selections are available:

- 0 None
- 2 Type 2 (Default)
- 3 Type 3

None is available in MOMI Server version 5.00 or later to activate and process. This selection must not be chosen if there is any possibility that MOMI data may be accessed with an older version of the server.

Type 2 is the default and is present in MOMI Server versions 3.xx, 4.xx and 5.xx. No keyword was previously provided to access this capability. This is the default an provides the highest levels of data compatibility.

Type 3 is available in MOMI server version 5.00 or alter to activate and process. This type compresses longer strings of repeat data than Type 2 and generally provides a higher level of compression. This selection must not be chosen if there is any possibility that MOMI data may be accessed with an older version of the server.

A newer version of the MOMI server can read data created from an older server version. No data conversion is required. However, and older version of the MOMI server cannot read data created by a newer server version if the compression type is not known.

The default is highly recommended at this time.

Example:

== use new disk compression

DISK-COMPRESSION-TYPE 3

G0612-OR-LATER

G0612-OR-LATER TRUE | FALSE

(Default = automatic)

This parameter is intended for internal use only.

Specifies if MOMI uses certain procedural values to obtain information available in the G06.12 or later version of the operating system.

'True' instructs MOMI that G06.12 features are available. 'False' instructs MOMI that G06.12 features are not available.

G0626-OR-LATER

G0626-OR-LATER TRUE | FALSE

(Default = automatic)

This parameter is intended for internal use only.

Specifies if MOMI uses certain procedural values to obtain information available in the G06.26 or later version of the operating system.

'True' instructs MOMI that G06.26 features are available. 'False' instructs MOMI that G06.26 features are not available.

H0604-OR-LATER

(server version 4.07 or later)

H0604-OR-LATER TRUE | FALSE (Default = automatic)

This parameter is intended for internal use only.

Specifies if MOMI uses certain procedural values to obtain information available in the H06.04 or later version of the operating system.

'True' instructs MOMI that H06.04 features are available. 'False' instructs MOMI that H06.04 features are not available.

H0614-OR-LATER

(server version 5.05 or later)

H0614-OR-LATER TRUE | FALSE

(Default = automatic)

This parameter is intended for internal use only.

Specifies if MOMI uses certain procedural values to obtain information available in the H06.14 or later version of the operating system.

'True' instructs MOMI that H06.14 features are available. 'False' instructs MOMI that H06.14 features are not available.

HIGHEST-RUNNING-CPU

HIGHEST-RUNNING-CPU <cpu> (Default = automatic)

Specifies the numerically highest CPU number that should be running on the system.

When MOMI is started, by default it uses the current highest 'up' CPU as the number of processors to 'expect' as running on the system.

This keyword over-rides the default computation. If the value specified is less than the highest 'up' CPU it is not used. Any time a new processor is added to the system MOMI bumps its own internal value and will expect the processor in the system configuration.

The purpose of this keyword is to insure that a minimum number of processors exists on the system. It is possible that is MOMI is started while a CPU is down, no alarm indication would result.

Example:

HIGHEST-RUNNING-CPU 5

== 6 processor system

LOGON-SPOOLER-VIEW-JOB

LOGON-SPOOLER-VIEW-JOB TRUE | FALSE

(Default = TRUE)

Determines if the MOMI requires a user to logon in order to view the contents of a Spooler job.

Setting this keyword to FALSE means that the User ID \$MOMI is started under is used to access the contents of a spooler job. By default, the command is executed under the authority of the user logon.

The keyword is provided for environments where they desire (and should) use MOMI's <u>Client Access</u> feature instead of Guardian / SafeGuard security.

Setting this keyword to FALSE has the following effects:

- Viewing of a Spooler job occurs under the logon security used to start \$MOMI
- If \$MOMI is started under Super.Group (or better) ID the contents any Spooler job may be displayed
- By default, the <u>NOT LOGGED ON</u> user can display the contents of any Spooler jobs

Example:

logon-spooler-view-job false

== logon not required

(server version 5.24 or later)

MAX-COUNT-CONTEXT-ALLOWED

(server version 5.05 or later)

MAX-COUNT-CONTEXT-ALLOWED <value32>

(default = 100)

This parameter is intended for internal use only.

Specifies the maximum number of context control blocks a single client may request from a single MOMI server.

The server will not set a value lower than an internal minimum value.

The MOMI server usually creates context to service individual Client requests. As a protection, the maximum number client context control blocks are limited. This prevents, in a worse case situation, the appearance of a MOMI server looping or consuming a great deal of CPU resources when the client disconnects and internal clean up occurs.

Example:

MAX-COUNT-CONTEXT-ALLOWED 60

== limit context to 60

MEAS-SQLSTMT-WILD-CARD

MEAS-SQLSTMT-WILD-CARD <"character">

(Default = Space)

Defines the character used as a wild-card for the field run^unit on the MEASURE entity SQL Statements.

MOMI always retrieves all SQL Statements in a process when requested. However, at some point the MEAS-URE interface changed and an asterisk ("*") no longer functioned as a wild-card. Instead, a space was required.

This keyword allows the definition of the character used for this particular MEASURE entity field.

Examples:

== set SQL Statements wild-card == to an asterisk

MEAS-SQLSTMT-WILD-CARD "*"

OSS01-API-VERSION

(server version 4.20 or later)

OSS01-API-VERSION 1 | 2 (Default = automatically determined)

Determines the API set used by MOMI when accessing OSS.

Version 1 uses 32-bit OSS file system calls. Version 2 uses 64-bit OSS file system calls.

Later versions of the Operating System provides for OSS files larger than 2 Gigabytes in size. However, this requires that an extended set of API calls be used that generally return 64-bit instead of 32-bit values. The 64-bit OSS file system calls may be used on 64 and 32-bit files. However, 32-bit OSS file system calls cannot be used on 64-bit files.

Usage of this keyword is NOT recommended as the default is automatically determined by MOMI based on the current operating system version. The keyword is provided primarily for internal testing.

Example:

OSS01-API-VERSION 2

== use 64-bit OSS file system calls

PRIORITY-COLLECTOR-MST

PRIORITY-COLLECTOR-MST <value-1-199>

(Default = Main MOMI - 1)

Specifies the priority for the Collector Master. This process configures the master measurement used by all MOMI CPU collectors and performs other coordination activities.

The default value is recommended.

Example:

PRIORITY-COLLECTOR-MST 165

== master at priority 165

PROCESS-ENTITY-EXCLUDE

(server version 5.21 or later)

PROCESS-ENTITY-EXCLUDE <file-name>

(Default = None)

Defines object file names that are excluded from the MEASURE entity Process.

File-name is a MEASURE Guardian format object file name. Wild-cards are supported but only as a whole volume, subvolume or file portion of the name. Up to 10 entries are supported.

This capability is provided to as a work-around where certain object files must be excluded from the process entity measurements made by MOMI. Any exclusion specified causes a Process Entity and SQLPROC Entity exclusion from 1) the master measurement started when MOMI is started, and 2) the measurement started on the client screen Processes / Process Entity.

Note that literally processes with object files specified with this keyword will no longer be reported on MOMI screens where their information is obtained from MEASURE. However, the process may be reported where information is obtained from Guardian and cause discrepancies between client screens.

Examples:

== exclude these objects
== from process entity

PROCESS-ENTITY-EXCLUDE \$SYSTEM.*.mxosrvr PROCESS-ENTITY-EXCLUDE \$OSS.*.* PROCESS-ENTITY-EXCLUDE \$data1.test.fredobj

SNTP-OFFSET

(server version 5.18 or later)

SNTP-OFFSET <+/-hmm>

(Default = zero)

Specifies an offset added to the NTP server reported time.

The value specified may either be positive (the default) or negative and is encoded as hours and 2 digits for minutes. For example, 1 hour is represented as 100. 2 hours and 15 minutes is represented as 215.

This keyword provides for the situation when the original NTP server time value, which is generally GMT, is not desired but requires an adjustment. Literally, MOMI adds the value specified here to the time reported by the NTP server and the result is used in the time adjustment calculations.

It is recommended that if this feature is required, MOMI should be placed into preview mode, via commenting out the keyword <u>SNTP-ALLOW-ADJUSTMENT</u>, to confirm the value specified here is correct. Time adjustment information is reported in the <u>MOMI Log</u> when operating in preview mode.

Example:

SNTP-OFFSET 100	== add 1 hour to NTP == reported time
SNTP-OFFSET -215	<pre>== subtract 2 hours and == 15 minutes from == NTP reported time</pre>

SNTP-SET-IF-BEHIND

(server version 5.00 or later)

SNTP-SET-IF-BEHIND TRUE | FALSE (Default = FALSE)

Directs MOMI to perform a SET of the system time if a correction is needed that would move the system time forward.

This setting provides a capability to 'force' an adjustment of the system time. Moving the system time forward is not considered 'dangerous', where moving the system time backward (on an active system) is not desirable, especially to TMF.

By default, MOMI will only adjust or request a gradual correction to the system time.

Customers generally should NOT use this capability.

Example:

== Allow MOMI to set == the system time == forward

SNTP-SET-IF-BEHIND TRUE

SNTP-VERBOSE

(server version 4.16 or later)

SNTP-VERBOSE

(Default = not verbose)

Directs MOMI to write additional information about SNTP operations into the MOMI Log.

This information would be used to help diagnose a problem with SNTP processing.

By default, MOMI will not generate this additional information.

Example:

== Generate additional
== information about

== SNTP processing

SNTP-VERBOSE

TCPIP-THREADS

TCPIP-THREADS <value16> (Default = 100)

Specifies the maximum number of TCP/IP threads or concurrent Client connections supported. The absolute maximum allowed is 250.

Resources are allocated dynamically for TCP/IP connections, so using this keyword will not generally 'save' anything nor is it generally required.

The number of connections current, high water and the maximum available may be viewed in the PC Client.

Example:

TCPIP-THREADS 150

== TCP/IP threads 150

TCPIP-TIMEOUT

(server version 4.19 or later)

TCPIP-TIMEOUT <seconds>

(default = 600)

Specifies the maximum amount of time (in seconds) that MOMI waits for any data to arrive from the MOMI PC Client. This value acts as a "sanity check" to insure that a socket connection eventually is either used (i.e. valid) or closed and does not simply hang.

If a timeout occur, the socket is closed.

This value also indirectly determines the maximum amount of time that the MOMI PC Client may be globally paused (i.e. all activity suspended) before the TCP/IP socket is disconnected.

The minimum value of 60, or 1 minute. Any value less than the minimum is set to the minimum.

Example:

TCPIP-TIMEOUT 60

== set timeout to 1 minute

History

Enabling History

MOMI has the ability to store history. This feature is activated by enabling it in the CONFMOMI file. By defining a history file, MOMI will automatically create and begin recording predetermined history information. If a file fills up, either for lack of disk space or maximum extents, its oldest data is automatically deleted to make room for newest data.

Up to four history files may be created. These are referred to as HST01DB -> HST04DB. History is initially written to HST01DB and then consolidated into the other files at different intervals. This gives the User the ability to maintain high resolution history for a short period of time and lower resolution history for a longer period of time.

The line to define each history file name (<u>HSTnnDB</u>) is the only line required. Other history attributes all have default values.

History is configured on the NonStop as follows:

1. Determine the disk volume(s) where the history files are to reside.

2. Edit CONFMOMI and un-comment out or add the following lines (HST01DB is required, others optional):

HST01DB\$vol.subvol.HST01DB== MOMIHistorydatabaseHST02DB\$vol.subvol.HST02DB== MOMIHistorydatabaseHST03DB\$vol.subvol.HST03DB== MOMIHistorydatabaseHST04DB\$vol.subvol.HST04DB== MOMIHistorydatabase

- 3. Optional add keyword(s) : HSTnnDB-DELETE-TIME
- 4. Optional add keyword(s) : HSTnnDB-HISTORY-DUMP
- 5. Start (or restart) MOMI via the TACL obey file OBYMOMI.

History files are created automatically. If a file fills up, its oldest data in the file is automatically deleted to make room for newest data.

Resizing History Files

MOMI automatically creates history files when enabled. The initial size of these files are as follows:

File	Primary Extent	Secondary Extents	Maximum Extents	Total Megabytes
HST01DB	5000	5000	50	512
HST02DB	4000	4000	32	262
HST03DB	2500	2500	25	128
HST04DB	1200	1200	16	39

Two methods are available to resize the history file.

Alter maximum extents

The utility FUP may be used, while \$MOMI is running, to alter the maximum extents of the history files.

To increase the amount of history disk space allowed, raise the MAXEXTENTS of the history file(s).

To decrease the amount of history disk space allowed, reduce the MAXEXTENTS of the history file(s). The file system will not allow a reduction in the maximum extents below the End of File (EOF).

On systems with limited amounts of disk space, it is suggested to start MOMI, wait a few seconds to allow the files to be automatically created, and then stop MOMI. In FUP "set like" a history file, purge the old file, set the MAXEXTENTS and/or primary/secondary extent sizes, then create a new file. MOMI must be able to allocate at least one extents on a history file.

See the screen <u>Server / Server Info 5</u> for information on how to alter the history files MAXEXTENTS from within the MOMI PC Client.

Convert file from Format 1 to Format 2

Older versions of MOMI created the history file as format 1 which is limited to a maximum size of approximately 2 Gigabytes. MOMI has always supported opening and reading format 2 files which are generally limited only to available disk space.

The procedure to convert a file is to create a new file **just like** the old file and change a) format 2, and b) primary and secondary extent sizes. Data is transferred from the old file to the new via the FUP LOAD command. The following steps describe how to perform the conversion. The values in **green** are dependent on your configuration and needs. HST01DB is used in this sequence. Substitute HST01DB with the desired name on your system. Compute a primary and secondary extent size for your system:

1. Stop \$MOMI. Wait until the file is closed.

2. Start FUP and enter the following sequence of commands -

FUP

RENAME HST01DB,HST01DB1

SET LIKE HST01DB1 SET FORMAT 2 SET EXT (70000,70000) SET MAXEXTENTS 16 CREATE HST01DB

LOAD HST01DB1,HST01DB,SORTED

3. After the load completes, exit FUP and restart MOMI. Check the EMS log to insure that the new file was accepted.

Considerations:

a) absolutely, positively, and without a doubt insure that other applications will not be impacted and that sufficient free disk space is available. Use the DSAP utility to confirm the availability of the extent sizes chosen. Remember that total free disk space does not indicate the availability of the extent size chosen.

b) to allow a history file over 2 Gigabytes in size, consider a primary and secondary extent sizes of at least 70000. This will create a file just over 2 Gigabytes which you can then alter the maximum extents to gain additional disk space.

c) depending on the file size and system performance, the LOAD command may take 15-20 minutes. One way to speed the process is to perform the LOAD from one disk volume to another disk volume and after the load completes FUP DUP the file back (if necessary). This may be faster than a LOAD with both input/output on the same volume.

Leave all other attributes of a MOMI file 'as is'. MOMI will not use the file if an expected attribute is changed. Check the EMS log immediately after restarting MOMI to insure that the converted history

file is accepted (MOMI writes a message to the EMS log (i.e. \$0) if the history file is not accepted). Fallback to the original file should the new file not be accepted.

History Considerations

The collection of history may require consideration before activation on older platforms or systems short of disk space.

History files (HSTxxDB) are simple Enscribe keyed sequence files with a single primary key. No alternate keys are used and the files are not TMF audited. If necessary, history files may be purged. Stop MOMI, purge the desired files (or purge data) and restart MOMI. MOMI automatically creates files if needed. No special recovery procedures are required.

The activation of history primarily 1) will consume disk space, and 2) increase the I/O load to the disk volume(s) where MOMI history files reside. Additionally, older processors prior to the S72000 may notice a slight increase in CPU utilization. However, disk space and I/O load is really the primary considerations.

The default amount of disk space consumed by MOMI history files may be found in <u>Resizing History Files</u>. Care should be given to not impact disk space required by other applications.

MOMI initially writes history to the HST01DB file. History is consolidated from HST01DB into HST02DB, from HST02DB into HST03DB and finally from HST03DB into HST04DB. The consolidation process generally a) reads all needed records from one file, b) writes all needed records into the second file and c) goes back and deletes oldest eligible data from the first file. Spreading MOMI history files out across multiple disk does not really 'help' to provide any performance improvements at least to MOMI, however it may help other applications also residing on the same volume if it is heavily loaded.

History is written to HST01DB every few minutes by default. All MOMI history is compressed and consolidated to help avoid unnecessary I/O. Consolidation into the other files occur at their history dump interval (default history dump intervals are found in <u>HSTnnDB-HISTORY-DUMP</u>).

Older or smaller powered processors, such as the S7000, may see an increase of one to two percent in CPU utilization. Processors such as the S72000 and beyond would hardly report any difference.

History Questions and Answers

Where do I start with the history parameters?

We recommend using the defaults. Remove comments or add the lines to the CONFMOMI file as referenced elsewhere in this document.

What if my file is not large enough? Will MOMI generate an error 45 (file is full) message?

If MOMI needs to write data to the history file and space is not available, some of the oldest data in the file is automatically deleted to make room for new. You will not get error 45 messages nor error 43 (no disk space). This action occurs regardless of any other settings pertaining to how long data is retained.

Does dumping data more frequently cause MOMI to work harder?

Directly no, but indirectly yes. The information MOMI dumps to the history file has already been collected. Activation of history is the process of dumping this data to disk, allowing the PC Client to read the history data and maintain or delete old data from the history file. Therefore, no additional CPU cost is directly imposed in the collection process, just in what you do with the data after it is collected.

At what priority will the history be dumped to disk? Will it be high like MOMI (by default) is?

MOMI uses a server process, by default running at priority 95, to write data to disk. It does not write at the priority of \$MOMI. MOMI uses three different servers to manage the history file. One server to write data, a second server to read data for PC Client requests, and a third server to delete or cleanup old data. See the CONFMOMI keyword documentation for additional information. Three keywords used to control the priority for access to the history file:

PRIORITY-DB-HST01DB	-	priority	write
PRIORITY-DB-HSTxxDB-R	-	priority	read
PRIORITY-DB-HSTxxDB-CON	-	priority	delete/cleanup

What will happen if the server process that MOMI uses to write data to disk is bogged down or otherwise not able to get its data written out to disk?

MOMI will initially queue in memory the data waiting to be written to disk. This queue will continue for a period of time, before new data is discarded. Overall, MOMI will try to protect itself and your System by using more memory and discarding history data if necessary. In order to insure that all history data
is collected, the MOMI server used to write data to disk should be given sufficient CPU so it will not normally be bogged down by batch or other long running programs.

I see a high CPU utilization of a MOMI process running at a low priority, and by using MOMI I tracked it down as performing large number of disk reads from a history file. What is going on?

Normally, that is normal. The PC Client has a great deal of flexibility in accessing the history data. The PC Client could be searching for a named process, reading data for display or perhaps performing a history export operation. MOMI protects your System by using a separate, configurable priority process to perform "bulk" history reads. If the default priority is too high for your System, lower the priority by using the keyword <u>PRIORITY-DB-HSTxxDB-R</u>.

I cannot find history records for a process?

To conserve disk space MOMI history records are written when a process 'changes' state or is active. If a process is active, inactive for a period of time, then active, there may be no history records for a portion of the inactive period of time. If you were to view all of the history records for this process, at the start of the inactive period of time there would be at least one record showing zero CPU busy, a gap in real time and then followed by a record showing activity. Activity is start/stop, CPU Busy, or other change in process state.

System Quirks

The following links describes various situations or "quirks" present on the NonStop System:

CPU Up/Down determination

Expand throughput

LISTLOCKS

O/S version determination

SQL/MP - DiskFile Entity

SQL/MP errors

Undefined externals on K-Series systems

Virtual Memory changes via NSKCOM / Virtual memory statistics

CPU Up/Down determination

S-Series systems are not configured with the number of processors expected in the system. From a system configuration perspective, the operating system is always ready to accept (software wise) a maximum of 16 processors.

MOMI, every time is it started, uses the numerically highest 'up' processor in the system as the number of processors for up/down determination. For example, if the numerically highest 'up' processor is 5, which indicates 6 CPUs numbered 0 through 5, and processor 4 crashes, processor 4 is reported as down.

Additional processors added to the system while MOMI is operating automatically increase the numerically highest 'up' processor determination. In the above example, if an additional two processors were added, processors 6 and 7, MOMI now assumes the system is 8 processors numbered 0 through 7.

If processors are removed from the system 'on-line', i.e. without a cold-load, restart MOMI to force a new up/down calculation.

Expand throughput

Byte rates for Expand lines are generally only available for Expand over TCP/IP. Byte rates for other types of lines such as Expand over X.25 are estimated by using the Frame rate times the average bytes per frame. Expand over Fox and Supercluster (Expand over ServerNet which is reported as a NAM connection) do not provide a byte rate.

LISTLOCKS

The MOMI PC Client screen Enscribe / Locks does not function on systems prior to G06.26 as a precaution to prevent a possible CPU halt when using the Guardian procedure FILE_GETLOCKINFO_.

O/S version determination

Operating Systems versions prior to G06.24 do not provide the exact Operating System version as known by Users (i.e. G06.21) via supported system calls. You can determine the major portion (i.e. G06), but not the minor portion (i.e. .21).

The documented System procedure call PROCESSOR_GETINFOLIST_ has an item code defined to return the minor version number, but it always returns zero on systems prior to G06.24. To work around this limitation MOMI reads an undocumented file \$SYSTEM.SYSnn.RLSEID. This file appears to be used by the utility SYSINFO and by TACL to obtain this information.

On Operating Systems G06.24 and later, the documented System procedure PROCESSOR_GETIN-FOLIST_ correctly returns the minor version number. The undocumented file \$SYSTEM.SYSnn.RLSEID is not accessed.

The TNS/E Integrity System must use the RLSEID file. Hopefully, this may be removed in a future O/S release.

SQL/MP - DiskFile Entity

Secondary partitions on SQL/MP files do not always show up under this measurement. This is due to MEASURE not providing data. Try the DiskOpen Entity in this situation.

SQL/MP errors

The SQL/MP screens may display various SQL error codes, with 4060 as the most common. The appearance of these codes may indicate a discrepancy in the SQL catalog itself. MOMI assumes that the catalog structure and data within the catalog has full integrity.

In the PC Client, on the <u>SQL/MP / Catalog</u> screen, the column Status Message shows an error code if a simple query of that catalog fails. Any Status Message displayed here indicates that MOMI will have problems with SQL/MP reporting. This is the first place to check and perhaps identify the catalog in question.

We suggest consulting with your Database Administrator (DBA) if you have any integrity issues with your SQL/MP catalogs.

Below are some additional steps you can perform to check your catalog integrity. From a TACL prompt:

- 1) SQLCI GET CATALOG OF SYSTEM; exit
- 2) Volume to this location.
- 3) SQLCI SELECT * FROM CATALOGS; exit

4) The first column (CATALOGNAME) in the output consists of all of the catalogs on your system registered to SQL. For each of those entries do a fileinfo of the \$vol.subvol.*

5) If a \$vol.subvol is listed in the CATALOGS table that does not exist, or does not contain SQL catalog objects, an inconsistency is present. Consult with your DBA and/or HP to resolve the problem.

If your SQL/MP catalogs do not show a problem, please send us an email with a screen shot and description of the SQL/MP error encountered.

Undefined externals on K-Series systems

Several undefined externals will appear on the home terminal when starting the BWMOMI object file for the first time on a K-Series system. This is normal. MOMI code avoids invoking these procedures on the older systems. As a side effect, the amount of information returned by MOMI on some screens is reduced.

Virtual Memory changes via NSKCOM / Virtual memory statistics

Virtual memory configuration and statistics are not available from either the Guardian Operating System procedures nor MEASURE. To work around this limitation, MOMI starts a copy of NSKCOM and periodically parses its text output to determine the amount of virtual memory available, the highest usage (i.e. high water mark), and the current usage.

Some users have reported that they were unable to alter the virtual memory on their system due to NSKCOM reporting:

"... ZSYSCFG is locked by another user..."

Note: The file in question is really \$SYSTEM.SYSTEM.KMSFLOCK

They corrected this problem by stopping MOMI, making changes via NSKCOM and then restarting MOMI.

MOMI does not make any changes to virtual memory but just uses NSKCOM for 'reading' virtual memory status. However, we believe this situation may occur if a delete of a swapfile is pending after a system cold-load and if the NSKCOM started by MOMI is the first instance of this utility after a cold-load of the system.

The suggested work-around is to start an NSKCOM, under a Super.Group User ID or better, rather early in your system startup files a) after all processors have been loaded, but b) before MOMI is started. The purpose of this NSKCOM is to cleanup any pending swapfile operations after a cold-load. It is possible that the pending operation may take some time if a great deal of cleanup is involved. The recommended command to consider in your system startup file is:

comment	== start NSKCOM, allow any
comment	== pending cleanup then exit

NSKCOM EXIT

Update → As of MOMI Server version 5.00 and later the NSKCOM used by MOMI is restarted after the initial request of swapfile information. This restart should prevent, or at least automatically correct, a locked configuration file. Note that pending changes to the swapfile may keep the initial instance of NSKCOM 'busy' for a while. This may delay the initial report swapfile information within MOMI. If your site changes the swapfile often, placing an NSKCOM EXIT in your startup files, as described above, is still recommended.

MOMI PC Client

Overview

The MOMI PC Client provides the presentation/access interface to MOMI. It is a standard Windows 32-bit program that uses TCP/IP (i.e. Winsock) to communicate with the MOMI server on the NonStop System. No additional communication software such as RSC is required.

The Client is written in Borland Delphi. Delphi provides high speed, and a stand-alone executable that does not require 'registration' within the Windows environment in order to function. The Client makes extensive use of Windows graphics and other resources. As such, a professional version of the Windows operating system such as Windows XP (or Windows 2000) is required.

The MOMI PC Client *technically* does not require any Windows installation or setup. You can run the PC Client by double-clicking on the MOMI.EXE executable. This stand-alone executable feature helps support various deployment options. The MOMI PC Client activates additional features when expected subdirectories are present in the location where the executable is present. For example, if the subdirectory \Help\WebHelp is present, local HTML help may be invoked when pressing the Help button.

When a Client is started for the first time, it creates the MOMI.INI file. This file contains the configuration information for the program. We chose to use an INI file versus registry entries because a User can easily look at or relocate an INI file. Registry entries are a little more involved.

The default location where MOMI stores its INI and other working files:

Windows Vista / Windows 7 -

C:\Users\<UserID>\AppData\Roaming\BlackWood Systems\MOMI\

Other Windows versions -

C:\Documents and Settings\<UserID>\Application Data\BlackWood Systems\MOMI\

Where <UserID> is the name used at logon to Windows. You must enable the display of 'hidden' locations within Windows in order to see these locations.

After the Client creates the MOMI.INI file, it will prompt the User for a TCP/IP address and port. This is an address and port the MOMI server on the NonStop System is 'listening' on. After entering this information the Client will establish a socket connection and begin exchanging data with the MOMI Server. Additional Non-Stop Systems may be defined in the Client. Each TCP/IP address and port is defined on this same screen.

After the initial connection, the User is taken to the <u>Main Overview</u> screen. This main screen of MOMI provides an overview of the general System health.

The available screens are organized by functional groups. Select the Tab or button of the group to navigate to the desired screen. The mouse will change to a pointing hand when over a jump point. The letters L and/or R will appear to indicate what mouse keys (Left / Right) are available.

Tool Tips or pop-up windows are used extensively throughout the MOMI PC Client to describe fields and actions. Move the mouse over any field or column heading to obtain additional information.

Security is imposed when access to the data or information requires user specific authorization. For example, to view the contents of a file requires security but to view the names of files in a directory does not. Additionally, commands that perform an action such as purging a SPOOLER job or renaming a file require security. The User obtains security by logging on. This is obtained by pressing the <u>LOGON</u> button in the lower right hand corner of the screen. A Guardian User ID or Safeguard Alias and password is entered.

<u>Client Access</u> provides a means to restrict access to particular screens within the MOMI PC Client. Client Access does not replace Guardian/Safeguard security, but is a separate subsystem specific to MOMI.

During the course of accessing various screens and requesting information, additional MOMI servers on the NonStop System are started. This action allows MOMI to <u>prioritize</u> and multi-thread operations. After a period of time (3-4 minutes) unused servers are stopped. Additionally, when the MOMI PC Client is stopped or disconnects from the System, unused servers are also stopped.

Common screen items

The mouse pointer displays an indication when a jump point or 'hot spot' is available. It will change to a hand with a L and/or R indicating when a Left and/or Right mouse click is available. Left clicks generally perform the default action and a right click brings up a context sensitive menu with the default action in **bold**. A mouse click in this document refers to the left mouse button.

Tool tips, or Hints, are yellow text windows that automatically display when the mouse is moved over certain fields. Tool tips are present throughout the PC MOMI Client. They provide information such as field descriptions, column descriptions and navigational assistance. Tool tips may be disabled or the amount of time before they appear are adjusted on the screen <u>Settings / System Wide</u>. Below are some sample tool tips:

:PU: ntity er F	Volume Full Percent On Virtual Disk shows the u Right-Click to Sort/Filter Left-Click to Move Column	ast - 2002 Inderlying Po	ol Volumes	
ace	% Fail Full Percent gauge	Fragments	Largest Frag	
802	KB19	15	3,262	
547	57	140	2,436	
800	54	69	1,202	
0 Busy % 9 CPU que 0 Pressure 0 Disk i/o 9	Memory Pressure = frequency Left-click to jump to Top Proce	of page fau	Its (0 = Iow / 7	= high)

Tool tips are also available to display the entire message in notification areas located at the bottom of most screens. In the example below, the text not visible on screen is shown in the tool tip.

Export finished to C:\Documents and Settings\dwood\Desktop\MOMI Process History.TXT	Create Export Script
Clear Export Data Export finished to C:\Documents and	Settings\dwood\Desktop\MOMI Process Histor
•	Not Logged On ? Help Print Screen

All MOMI screens have common items at the top and bottom of the screen. Place your mouse over items below and click for descriptions of these common items.

IIII 18WS1 2004 HOM	U Client version 5.	00)							
	in (chefit version 5.)						-		
Black Wood	. M	0 M	/ ®		\BWS1-20	04 🗸		ause	2008/04/17
- Back									
•				Chat	Not Logged Or	Hints	On ?	Help	Print Screen

Rated Values The Rated Values option allows the selection of either values on a per-second basis, or raw values for the measurement window. The measurement window is usually displayed in the status area or on the end of the data line.

The Tool button in the lower left hand corner of most grids presents a pop-up window called Grid Tools and provides options for exporting, printing, hiding columns, setting the columns to export, and saving or restoring the column order. The number of tabs visible may vary from screen-to-screen. Press the **Save Settings** button to have any setting changes apply the next time the MOMI PC Client is started (otherwise the changes only apply during the current instance). Settings within the Grid Tools window affect only the current screen from which the Tool button was pressed.

	Grid Tools for All Processes						
Export Grid	Show Columns	Set Export C	olumns	Column Orde	r/Fixed	View	
Rows 434	Columns Display 72	Export 72	Colu	mns Exported 'Set Export C	/Printed Columns'	are set in Tab	
Create Delim	ited File File 🔲 🗖 Excl Hea	ude dings	Print C	Grid to: Printer	Cli	pboard)
Create HTML	file						
\BWS1-2000	All Processes						
HTML Tab	le Title	Ехр	ort HTMI	-			
	Save Settings			C	lose		

The **Show Columns** tab provides the ability to show or hid columns displayed within the grid. Some fields also provide the option to modify their contents. String fields provide the ability to remove a constant number of leading or trailing characters.

Grid Tools for All Processes						
Export Grid Show Columns	Set Export Columns Co	lumn Order/Fixed View				
Show Grid Columns						
X Column Name	Display Alter	Value Display 72				
CPU,PIN	0_Display As-Is					
Process	1_Chop Leading	5				
Code Type	0_Display As-Is	0 Clear All				
IH LH	0_Display As-Is	0				
B	0_Display As-Is	0 Reset Alter				
IPri IPri		values				
Save Settings		Close				

The **View** tab of the Grid Tools window changes the font for viewing data within the grid and font used for printing data from the grid. The font size for viewing may also be increased or decreased in size by pushing the +/- keys.

	Grid Tools for All Processes						
Export Grid	Show Columns	Set Export Col	umns	Column O	rder/Fixed	View	
Grid Font Nan	ne						
Tr Verda	na	-	Defau	It Font			
Grid Font Size	e Default Size		Samp	ole 8			
E Courie	er New	-	Defau	lt Font			
0%							
	Save Settings				Close		

Columns in display grids usually have a sort/filter function available. A pop-up window allows the column to be sorted ascending or descending and control filtering. Columns of string data have a single filter item. The entered filter string is exactly matched unless wild card characters * or ? are used. Columns of numeric data provide a minimum and maximum display value. Additionally, the sum of each row in the column is visible but this value is not always useful. Date ranges may be selected and columns with a single character may be selected/deselected.

Sort Process				
Ascending	∇	Descendin	g	
Filter Process				
Filter String				
🔘 Include Filter string				Cancel
Excludes Filter String				cuncer
Wildcards ('*' and	d '?') are	e available		
) 🔽	Class Cilts		
Use Filter		Clear Flitte	:r	
Bitter Use Filter		Clear Filte	sr	
Sort OLen		Clear Filte	: r	
Sort QLen		Descending		
Sort QLen		Descending	;r ,	
Sort QLen Ascending Filter QLen		Descending	3	
Sort QLen Ascending Filter QLen Minimum display value		Descending	•	
Sort QLen Ascending Filter QLen Minimum display value Maximum display value		Descending	;r	Cancel
Sort QLen Ascending Filter QLen Minimum display value Maximum display value Total for Column		Descending		Cancel
Sort QLen Ascending Filter QLen Minimum display value Maximum display value Total for Column		Descending		Cancel
Sort QLen Ascending Filter QLen Minimum display value Maximum display value Total for Column		Descending 1		Cancel

Sort C	reatedT	ime				
	Ascer	nding	∇	Desc	ending	
Filter	Created	Time				
Set Tin	t Now	1899/12/	30 👻	00:00:	00 🚔	
Stop	Now	1899/12/	30 🔻	00:00:	00 🚔	Cancel
or Set / Age Age	Aqe over under	0)ays	-	old	
	llco	Filtor	\sim	Class	Filtor	
Plice	Use	Filter		Clear	Filter	
ngree	Use	Filter		Clear	Filter	
Sort N	Use	Filter dina		Clear	Filter	
Sort N	Use Ascen	Filter ding	∑ \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	Clear Desce	Filter	
Sort N Filter N	Use Ascen	Filter ding	Node)	Clear Desce	r Filter	
Sort N Filter N Inclu	Use Ascen I de only ude if N	ding N (Native (Native I	Mode)	Clear Desce	nding	
Sort N Filter N Inclu	Use Ascen I de only ude if N	ding N (Native (Native I	Mode)	Desce	nding	Cancel
Sort N Filter N Inclu	Use Ascen I de only ide if N	ding N (Native (Native I	Mode) Mode)	Desce	nding	Cancel
Sort N Filter N Inclu	Use Ascen I de only ude if N	ding N (Native (Native I	Mode)	Desce	nding	Cancel
Filter N O Inclu Exclu	Use Ascen I de only ide if N	ding N (Native (Native I	Mode) Mode)	Clear	Filter	Cancel

or Define the screen graphic buttons represents a \$volume, subvolume and/or file selector option. It can represent an open of a PC file or of a NonStop System based file. Pressing this button for a NonStop System based file brings up a tree view window that allows the user to expand the Volume, Subvolume and down to the file level (where appropriate).

SubVol/	File Locator	
Code	Size	Creation Date
991	1,159,512	2005/05/05 14:52:42
Security	Owner	Modification Date
CCCC	100,2	2005/05/05 14:52:44
	Use the loc	ated File

\$~

This screen graphic button opens a tree view window that allows the user select a process name. The types of processes presented are usually limited to the type applicable for the given situation within the MOMI PC Client (for example a listing of all Tape processes).

Process Locator	X
== \$ARS1	^
\$CICI	
\$DM00	
\$DM01	
SIMON	
\$ISN0	
\$LSN1	
\$MOM0	
\$MOMI2	
\$MOMI4	
\$MOMI6	
\$MOMT6	
\$NULL	
\$NULLL	
\$PLAMO	
\$PLUS1	
\$PTCO	
\$PTC1	
-\$S	
\$S1	
\$S2	
\$SC1	
Use the located Name	

Alarm Overview

MOMI Alarms are the ability to set thresholds and trigger notifications.

An Alarm definition is unique for each threshold monitored but the Alarm also references a reusable monitor time and action record. By default, an Alarm is monitored continuously and displays in red on the <u>Alarms / Active</u> screen.

Creation of an Alarm generally follows the sequence of entering a unique name, description, selection of an Entity Type and Sub-type, setting thresholds, entering entity name(s), selecting the Times to monitor and Action to take. If a desired Times or Action record does not already exist, the View button may be pressed to jump to the appropriate Define screen to create the record and then push Back to continue with the Alarm Definition.

Alarm processing may be delayed at MOMI start by using the CONFMOMI keyword <u>ALARM-SUSPEND-</u> <u>DELAY</u>.

Alarm Security

By default, only the user that started the MOMI server is allowed to configure an Alarm. Additional users may be granted this authority by activating <u>Client Access</u>.

CONFMOMI keywords

One of the available Actions to an Alarm is the generation of Email.

Email requires an external SMTP server (i.e. outgoing email) and the return Email address. The following must be defined in the CONFMOMI file to enable Email:

ALARM-SMTP-SERVER-ADDR ALARM-EMAIL-ADDRESS-FROM

To override the default, this keyword determines the TCP/IP process used to communicate with the SMTP server:

ALARM-SMTP-TCPIP-NAME

Some SMTP servers require the HELO sequence:

ALARM-DOMAIN-NAME

The default subject line of a MOMI Alarm generate is altered by:

ALARM-EMAIL-SUBJECT

Common screen items

Definition screens usually have several common commands:

Display Save New Change Delete	Display	Save New	Change	Delete
--------------------------------	---------	----------	--------	--------

Display causes the selected record to appear.

Save New creates a record. If a record with the same name is already present, an error is displayed.

Change updates an existing record. If a record with the same name does not exist, an error is displayed.

Delete removes an existing record.

International Issues

Dates

All Dates in the Client, where the value is output, are in the format of yyyy/mm/dd (year/month/day) except where the date is contained within a text message. An example of this exception is EMS messages.

In certain regional language selections, the Calendar display for Dates displays some invalid characters, although the calendar still works. On the Config screen the User may select a roll up/down style instead of a calendar to prevent this display irregularity.

Export data

Data exported contains a leading HardSpace (ASCII value 160) for fields that contain numeric information intended to be treated as a string field. An example is the CPU,PIN field. The default character may have adverse implications when using a multi-byte character set. The leading character used for these fields may be altered on the <u>Settings / System Wide</u> page.

Specifying run-time parameters

Various parameters may be given to the MOMI PC Client at startup. These parameters control certain aspects of the program operation. Multiple parameters are separated by spaces and may be specified in any order.

Syntax may enclose descriptions in the characters < >, however these characters are not used. For example, this description:

inipath="<location>"

is used as follows at a command line:

MOMI.EXE inipath="d:\data\fred\momi"

Examples:

MOMI.EXE script-history=ProcessScript	executes script ProcessScript
MOMI.EXE nocail	don't load the CAIL emulator
MOMI.EXE inipath=d:\data\fred\momi	<pre>sets INI to d:\data\fred\momi, execute script ProcessScript script=ProcessScript</pre>

As viewed from the Target field of a short-cut:

"C:\Program Files (x86)\BlackWood Systems\MOMI_5.26\MOMI.exe" inipath="d:\data\fred\momi"

MOMI Proper	ties		×	
Security General	Deta	ils ortcut	Previous Versions Compatibility	
MOMI				
Target type: Application				
Target location: MOMI_5.26				
Target:	4I_5.26\MOMI.exe" inipath="d:\data\fred\momi"			
<u>S</u> tart in: Shortcut <u>k</u> ey:	"C:\Program Files (x86)\BlackWood Systems\MO None			
Run:	Normal window 👻			
Comment:	Momi Client			
Open File Location Change Icon Advanced				
	ОК		Cancel <u>A</u> pply	

Run-Time Parameters

FREERESOURCES

(client version 5.19 or later)

FreeResources

Causes the MOMI PC Client to release USER Process handles during the course of processing.

Specifying this parameter activates the feature. By default, it is not enabled.

USER Object handles are an internal Windows resource. Windows imposes a limit, which can vary from release-to-release, to prevent run-away programs from consuming all of a limited resource.

It is possible that if all of the screens, pop-ups and other 'objects' within MOMI were activated that the limit imposed by Windows could be reached. Specifying this parameter effectively releases resources not currently in-use and can prevent hitting the Windows imposes limit. However, extra overhead is imposed and enabling this option could visibly slowdown the client (primarily when changing screens).

The percentage used User Handles are displayed on the screen Settings Misc Settings.

The syntax is as follows:

MOMI.EXE FreeResources

Examples:

free Windows handles

MOMI.EXE FreeResources

FUNCTION-EVENTBX-EXPORT-UNFORMATTED

(client version 5.27 or later)

Function-EventBX-Export-Unformatted="<pc-file-name>"

This parameter directs the client to export all EVENTBX information as ASCII text.

The MOMI PC Client stops at the completion of processing this parameter. No other parameter is executed.

Note there are no spaces between the keyword, equal sign and the file name. The file name must be enclosed in quotes if it contains a space.

Format of the exported data:

- one line per record
- each line is "owner ~ SSID ~ event number ~ text <CRLF>"
- event number is leading sign(+/-) and 5 digit leading zeros
- default item separator is Tilde ~ (#126) (may be changed in Configure)
- default embedded linefeeds within the text are <ETX> (#3) (may be changed in Configure)
- each line ends with <CRLF> (#10#13)

This parameter supercedes the parameter SCRIPT-EVENTBX-EXPORT-UNFORMATTED used during the BETA release of the software.

The syntax is as follows:

MOMI.EXE function-eventbx-export-unformatted=<pc-file-name>

Example:

exports EventBX records
into 'myBXs'

MOMI.EXE function-eventbx-export-unformatted=d:\data\fred\myBXs

FUNCTION-USERHINTS-IMPORT

(client version 5.27 or later)

Function-UserHints-Import="<pc-file-name>"

This parameter directs the client to import User Hints from a PC file into MOMI. See <u>UserHints</u> for the format of the file imported.

The MOMI PC Client stops at the completion of processing this parameter. No other parameter is executed.

Note there are no spaces between the keyword, equal sign and the file name. The file name must be enclosed in quotes if it contains a space.

This parameter supercedes the parameter SCRIPT-USERHINTS-IMPORT.

The syntax is as follows:

MOMI.EXE function-userhints-import=<pc-file-name>

Example:

imports userhints file 'myhints'
MOMI.EXE function-userhints-import=d:\data\fred\myhints

INIPATH

INIPATH="<location>" (default = user profile area)

This parameter directs the MOMI PC Client to store its configuration information at the location specified.

Note there are no spaces between the keyword, equal sign and the location.

The Client configuration information in stored in a simple text file using standard INI format. By default, this file is located in the in the users profile area. This location is typically:

Windows Vista / Windows 7 -

C:\Users\<UserID>\AppData\Roaming\BlackWood Systems\MOMI\

Other Windows versions -

C:\Documents and Settings\<UserID>\Application Data\BlackWood Systems\MOMI\

Where <UserID> is the name used at logon to Windows. You must enable the display of 'hidden' locations within Windows in order to see these locations.

MOMI will also store Calendar.mom, CustErrors.mom and MomiData in the location specified by this parameter.

The default location provides user specific storage for MOMI settings and usually has no security implications. However, using the parameter to define a fixed location may be desirable if more than one User accesses the PC and common settings are needed.

The User could have different INI files to store different configurations for multiple Systems. Each System could have its own filters, color-coded EMS messages, thresholds, etc... Specific a different location for each MOMI shortcut.

Example:

MOMI.EXE inipath="d:\data\fred\momi" redirects INI to d:\data\fred\momi

LOG

Log

Causes the MOMI PC Client to create a trace log file used for special customer problem situations. The file MOMI-Actions.log is created on the users desktop and a red "Logging" is visible in the top left portion of the MOMI screen.

Usage of this parameter would normally be by request of BlackWood support.

The syntax is as follows:

MOMI.EXE log

Example:

MOMI.EXE log	activate special logging
	activate special logging
MOMI.EXE log user	MOMI.INI in user profile area

NOCAIL

Nocail

This parameter directs the client to NOT load the CAIL terminal emulator.

The option is provided if the CAIL terminal emulator is not desired or cannot be loaded.

The syntax is as follows:

MOMI.EXE nocail

Examples:

MOMI.EXE nocail

don't load the CAIL emulator

NOSPEECH

(client version 4.07 or later)

Nospeech

Directs the client to NOT attempt speech activity.

The option is provided if the normal detection mechanism used by the MOMI PC Client fails on speech detection.

The syntax is as follows:

MOMI.EXE nospeech

Examples:

MOMI.EXE nospeech

don't enable speech

SAME

Same

The MOMI.INI file is placed in the same location as the MOMI.EXE.

The syntax is as follows:

MOMI.EXE same

Examples:

MOMI.EXE same	redirects INI to same location as EXE
MOMI.EXE same script=fred	redirects INI to same location as EXE, run script FRED

SCRIPT

Script="<script-name>"

This parameter directs the client to export information from the MOMI history files. See <u>History / Export Data</u> or information on defining the script of "pre-saved" commands that are executed.

The MOMI PC Client stops at the completion of processing this parameter. No other parameter is executed.

Note there are no spaces between the keyword, equal sign and the file name. The file name must be enclosed in quotes if it contains a space.

This parameter is replaced by SCRIPT-HISTORY.

The syntax is as follows:

MOMI.EXE script=<script-name>

Examples:

executes script ProcessScript MOMI.EXE script=ProcessScript sets INI to d:\data\fred\momi, execute script ProcessScript MOMI.EXE inipath=d:\data\fred\momi script=ProcessScript

SCRIPT-HISTORY

(client version 4.20 or later)

Script-History="<script-name>"

This parameter directs the client to export information from the MOMI history files. See <u>History / Export Data</u> for information on defining the script of "pre-saved" commands that are executed.

The MOMI PC Client stops at the completion of processing this parameter. No other parameter is executed.

Note there are no spaces between the keyword, equal sign and the file name. The file name must be enclosed in quotes if it contains a space.

This parameter supercedes the obsolete parameter SCRIPT.

```
The syntax is as follows:
```

```
MOMI.EXE script-history=<script-name>
```

```
Examples:
```

executes script ProcessScript MOMI.EXE script-history=ProcessScript

sets INI to d:\data\fred\momi, execute script ProcessScript MOMI.EXE inipath=d:\data\fred\momi script-history=ProcessScript
SCRIPT-LOG

(client version 4.20 or later)

Script-Log="<script-name>"

This parameter directs the client to export information from the MOMI log file. See <u>MOMI Log</u> or information on defining the script of "pre-saved" commands that are executed.

The MOMI PC Client stops at the completion of processing this parameter. No other parameter is executed.

Note there are no spaces between the keyword, equal sign and the file name. The file name must be enclosed in quotes if it contains a space.

The syntax is as follows:

MOMI.EXE script-log=<script-name>

Examples:

```
executes script ProcessScript

MOMI.EXE script-log=LogScript

sets INI to d:\data\fred\momi, execute

script LogScript

MOMI.EXE inipath=d:\data\fred\momi script-log=LogScript
```

SCRIPT-USERHINTS-IMPORT

(client version 5.16 or later)

Script-UserHints-Import="<pc-file-name>"

This parameter directs the client to import User Hints from a PC file into MOMI. See <u>UserHints</u> for the format of the file imported.

The MOMI PC Client stops at the completion of processing this parameter. No other parameter is executed.

Note there are no spaces between the keyword, equal sign and the file name. The file name must be enclosed in quotes if it contains a space.

This parameter is superceded by the parameter **FUNCTION-USERHINTS-IMPORT**.

The syntax is as follows:

MOMI.EXE script-userhints-import=<pc-file-name>

Example:

imports userhints file 'myhints'
MOMI.EXE script-userhints-import=d:\data\fred\myhints

Screens

Systems

Systems / Probe

BWS1-	2004 M	IOMI (Client	version 5.19)									_ 🗆 💌
Black	Wood System	1 100 11. bro.			94. 		\BWS1	L-2004		Par	use	2010/12/06 14:08:54
<- ·	-1	Systems	Overview	CPUs	Processes	Files S	ubSystems	History	Alarms	Conf	igure	
Probe	FTP	PING T	raceRoute	Emulat	ors							
Base 🛩	Log	ical Name	System Ad	dress:Po	rt System Des	cription	Last Update	Busy%	Syster	n Busy	V	ers. Alarms 🔺
All Sys 1-4 Sys Line		No Sys	tems Selec	ted								
												-
Pa	ause	Select S	Systems		₩ W	hen check	ced will Displa	y separate	e Probe w	indow		
•						Chat	Not Logg	ed On	Hints On	?	Help	Print Screen

The Probe screen provides a method to configure the MOMI PC Client to display high level details on more than one system. The systems available on this screen were initially configured to MOMI on the <u>Define Systems</u> screen.

To configure the display, press the **Select Systems** screen. Check each system desired.

Monitor System Config 🛛 🗙
Select system to activate monitoring
BWS1-2000
BWS1-2002
BWS1-2006
BWS1 Fast - 2002
BWS2-2000
V \BWS1 Fast - 2006
BWS2-2002
▼ \BWS1-2004
NSKIT06-3000
BWS1-2008
NSBLDE4-3000
BWS1-2010
Close

Information is displayed for each system selected. The column "Alarms" provides a general indication of any Alarms present on a system being probed. This column is not displayed by default. It is enabled on the screen <u>Settings / Single Screen</u>.

	VS1-2004 N	/IOMI (Client v	ersion 5.19)									
Bla	ck Woo	d		24			\BWS	1-2004	4 ▼ [ª	Pause	2010 14:	/12/06 08:21
<-	-1	*Systems	Overview	CPUs	Processes	Files	SubSystem	Histor	y Alarms	Configur	re	
*Pro	be FTP	PING T	raceRoute	Emulate	ors							
Base	Service Coo	jical Name	System Add	ress:Port	System Des	cription	Last Update	Busy%	System	Busy	Vers. A	larms 🔺
	\BWS	1 Fast - 2006	192.168.20.1	11:2006	BlackWood S	\$72000	12/06 14:08:	.9 3.5			5.18	NO E
Sys	\BWS	1-2004	192.168.20.1	11:2004	BlackWood 9	572000	12/06 14:08:	.4 2.9			5.19	YES
1-4												
Sys												
Sys Line												
												-
	Pause	Select Sy	stems		✓ w	hen che	cked will Disp	lay separat	e Probe win	dow		
•						Cha	at Not Log	ged On	Hints On	? Help	Print	Screen

A floating independent window is available by checking provides basic information about a system. This resizable (grab the window edge and drag) window may be positioned anywhere on the desktop. Clicking on the cpu busy graph bar displays the top few processes busy in that processor. Clicking on the MOMI arrow button will select the main MOMI screen to that system.



Additional sub-screens are available to present multiple systems in different formats. Press the All Sys, 1-4 Sys and Sys Line buttons to display these screens. Press the **Select Systems** button to select which systems are displayed.

	VS1-2004 MOMI (CI	ient version 5.19)								
Bla	ck Wood Systems, Inc.		7%			\BWS1	-2004	-	Pause	010/12/06 4:26:20
<-	*Syste	ems Overview	V CPUs	Processes	Files	SubSystems	History	Alarms C	onfigure	
*Pro	be FTP PIN	G TraceRoute	e Emulato	ors						
Base All Sys 1-4 Sys Line	\BWS1 Port:2006		5	10	15	\BWS1 Port:2004		5	10	15
	Pause Sele	ct Systems								
•					Chat	Not Logg	ed On Hin	nts On ?	Help F	Print Screen



Black Wood Systems Dverview CPUs Processes Files SubSystems History Alarms Configur *Probe ETD DINC TweePauta Emulators	2010/12/06 14:27:12 re						
*Systems Overview CPUs Processes Files SubSystems History Alarms Configur	re						
*Prohe CTD DINC Two-pouts Country							
FIGURE FIF FING TRACEROULE EMULATORS							
Base All selected Systems	All selected Systems						
100 -							
All 95							
Sys 90							
1-4 85							
Sys 80							
5vs 75							
Line 70							
65							
60							
50							
45							
40							
35							
30							
25							
20							
15							
10							
\BWS1 Fast - 2006 \BWS1-2004							
Alams							
Pause Select Systems							
Chat Not Logged On Hints On ? Help	Print Screen						

Systems / FTP

BWS1-2004 MOMI (Client version 5.	18)		the (Pressenter) (1)	100 (100	defigation of		X
Black Wood	MOMI®		\BWS1-20	04 -		se 2010	/11/12)1:24
*Systems Overv	iew CPUs Processes	Files	SubSystems His	tory Al	arms Conf	igure	
*Probe *FTP PING TraceRoute Emulators							
Host Name/Address 192.168.20.11	Port User ID 21 net.ftp		Password	Со	nnect	onnected	Quit
Local PC		W I	Remote Host	N S N S	SK 💿 OSS	Winde	ows
C:\USERS\DWOOD\DESKTOP\IPMs	• 🗲 🖻	Config	\BWS1.\$DATA1.FTP				• 🖯
FileName S	ize Modified	2	FileName O	Code	Size	Date	Tir
R0607ALA 11,078,6	63 2010/08/19 14:20:16	Refresh	FUPCSTM	101	62	8-Oct-03	17:2
R9225ACI 7,513,5	2010/08/19 14:20:28	200	MRWINEXE	0	19,622,918	11-May-09	08:5
T0607SET.exe 11,134,4	460 2010/08/19 14:44:14		README	101	72	18-Feb-01	22:4
	T9225SET.exe 1,208,376 2010/08/19 14:44:50 TACLCSTM 101 2,048 8-Oct-03 17:2 AUTO AUTO AUTO AUTO TACLCSTM 101 2,048 8-Oct-03 17:2 ASCII 0101 Image: Binary Ima						17.2
< III	÷.	\approx	< III				F.
No Filter Displayed	4 of 4		No Filter Di	splayed	4	of	4
TE Pause							*
•		Cha	t Not Logged Or) Hint	s On ? H	elp Print	Screen

The Systems / FTP screen provides an FTP client knowledgeable of Guardian file formats to allow the display of file codes, size, date/time, Guardian security string, etc...

Files transferred with an extension of TXT from the PC to a NonStop System are automatically loaded into and Edit file. Like wise, and Edit file is automatically transferred as ASCII to the PC. Additional PC file extensions may be defined as text. Right click on a column heading to activate standard sort/filter capabilities.

The user first enters the **Host Name/Address**, **User ID** and **Password**. Press **Connect** to establish a session with the FTP server on the destination system. Press the Open Folder icon to navigate.

The **Config** button displays a window to set various attributes of the FTP Client such as the editor used for PC file operations, file extensions to treat as ASCII (which result in Edit files on the Tandem), sounds to play after specific operations and turning confirmations off. Press Save to store selections.

	Configure Editor and FTP Connection Settings		X
Editor	. (DOS Format	ASCII File exten	sions
NOTEPAD.E	EXE UNIX Format		Add
Transfer Se Sounds	ounds	101 A R	emove
Download	BEEP 🖻 🖄	ASP E BAT	
Upload	BEEP 🖻 🖄	C M	No File
Error	BEEP 📓 💁	CGI	
		CFF +	
Connection	Settings		
Connection	Port 21 🔽 PASV 🔲 One-time Password		
DownLoad /	Local PC Confirmations Upload / Host Confirmations		
V Overwrit	e 🔽 Rename 📝 Delete 📄 Overwrite 📝 Rename 📝 Delete		
	Save	C	Cancel

The **PASV** option enables a Passive FTP connection. A Passive FTP connection is were the FTP client initiates the control and data channels. PASV is usually required in order to access an FTP server behind a firewall (but does not seem to matter for local LAN connections).

By default, a window appears when transferring a file and displays the action about to take place allowing change of certain default transfer settings.

		New File Name for Remote Host				
		The Loc				
		F	0607ALA		Transfer	
		will be renam	ed on the Tande	em to	File and Rename	
	R0607ALA					
		with a File Co	de of 0	More	Skip	
New File Name for Remote Host	x	V Overwrite	Cancel			
The Local PC file named		File attributes	5			
R0607ALA	Transfer	File Type	Do NOT set F	ile Structu	re 🔻	
will be renamed on the Tandem to	Rename	Auto Size	Pri Ext	Sec Ext	Max Ext	
R0607ALA		Set Sizes	339	339	10	
with a File Code of 0 More	Skip	Rec Len	Pri Key Len	Key Off	Indx Blk Len	
Voverwrite existing file	Cancel					

New File Name for Loc	X	
The Tandem file nan		
TACLCSTM	Transfer	
will be renamed on the PC	File and Rename	
TACLCSTM		
with an Extention of	txt	Skip
Overwrite existing file	Cancel	

Right-click on a file name brings up a menu to transfer, edit, rename or delete. The editor invoked is selected by pressing **Config**.

📟 \BWS1-2004 MOMI (Clien	t version 5.18)	Succession (Sectores)	m. 110	ten (Prescenter))	1884.3	adeligation of the		×
Black Wood	М	0 M I®		\BWS1-2	004	- Pau	se 2010	/11/12) 7:47
System	s Overview	CPUs Processes	Files	SubSystems H	istory /	larms Cont	figure	
*Probe *FTP PING	TraceRoute E	Emulators						
Host Name/Address 192.168.20.11	· ·	Port User ID 21 net.ftp		Password	C	onnect	onnected	Quit
Local PC			¥ [Remote Host		ISK OSS	Winde	ows
C:\USERS\DWOOD\DES	KTOP\IPMs	- 🖻 🚔	Config	\BWS1.\$DATA1.FT	P		•	• 🖯
FileName	Size	Modified	2	FileName	O Code	Size	Date	Tir
R0607ALA	R0607ALA		resh	FUPCSTM	101	62	8-Oct-03	17:2
R9225ACI	NOOD/ALA		92	MRWINEXE	0	19,622,918	11-May-09	08:5
1060/SEL.es	Send File			TACLOSTM	101	2 049	18-Feb-01	22:4
< Ⅲ No Filter Displa	Edit File Rename File Delete File Copy File Name Cancel yed 4	e to Clipboard		۲ الله Mo Filter	Displayed	4	of	<u>۲</u>
Pause								4
			Cha	t Not Logged	On Hir	nts On ? H	elp Print	Screen

Click on the circle next to the **OSS** label to enable the UNIX like personality in the FTP interface. Folders are displayed for subdirectories (the field is blank for files). Click on a folder to display its contents. Click on the folder with the up arrow (to the right of the current path field) to navigate up one level.

BWS1-2004 MOMI (Client version 5.18)		m	the (Processes) (1)	100 (100	and participation of the		
Black Wood M	0 M I ®		\BWS1-20	04 -	Pause	<mark>2010</mark>	0/11/12 10:32
*Systems Overview	CPUs Processes	Files	SubSystems Hist	tory Ala	arms Config	ure	
*Probe *FTP PING TraceRoute Emulators							
Host Name/Address 192.168.20.11	Port User ID 21 net.ftp		Password	Сог	nnect	nected	Quit
Local PC		W I	Remote Host	O NS	K 💿 055	O Win	dows
C:\USERS\DWOOD\DESKTOP\IPMs	- 🖆 🚔	Config	1				- 📂
FileName Size	Modified	2	FileName	Size	Date	Time	-
R0607ALA 11,078,663	2010/08/19 14:20:16	Refresh	🛅 bin	4,096	Jul 29	17:31	SUF E
R9225ACI 7,513,529	2010/08/19 14:20:28	000	🗋 dev	4,096	Nov 23 2006		SUF
T0607SET.exe 11,134,460	2010/08/19 14:44:14		E E	4,096	Nov 12	11:10	SUF
T9225SET.exe 1,208,376	2010/08/19 14:44:50	AUTO	etc	4,096	Jul 29	17:31	SUF
		ABC	examples	4,096	Jul 29	17:31	SUF
		ASCII	G	4,096	Nov 12	11:10	SUF
		0101	home	4,096	Jun 26 2007		SUF
		Binary	nonnative	4,096	Jul 29	17:31	SUF
			tmp	4,096	Jul 29	17:31	SUF +
< III	Þ	>	< <u>Ⅲ</u>				- F
No Filter Displayed	4 of 4		No Filter Di	splayed	11	of	11
2							^
Pause							Ŧ
•		Cha	at Not Logged On	Hints	On ? Help	p Prin	t Screen

Click on the circle next to the **Windows** label to enable the conventional PC personality in the FTP interface. Folders are displayed for subdirectories (the field is blank for files). Click on a folder to display its contents. Click on the folder with the up arrow (to the right of the current path field) to navigate up one level.

BWS1-2004 MOMI (Client version 5	5.18)	
Black Wood Systems, Inc.	MOMI®	\BWS1-2004 ▼ Pause 2010/11/12 11:12:06
*Systems Over	view CPUs Processes	Files SubSystems History Alarms Configure
*Probe *FTP PING TraceR	oute Emulators	
Host Name/Address ftp.blackwood-systems.com	Port User ID 21 momisave	e Password Connected Quit
Local PC		Remote Host ONSK OSS OWindows
C:\USERS\DWOOD\DESKTOP\IPM	1s 🔻 🖆 🖆	
FileName	Size Modified	FileName Size Modified
R0607ALA 11,078	,663 2010/08/19 14:20:16	Refresh Place Files here.txt 0 Jan 22 2008
T0607SET.exe 11.134	.460 2010/08/19 14:44:14	292
T9225SET.exe 1,208	,376 2010/08/19 14:44:50	
		ASCII 0101 Binary
•	Þ	-
No Filter Displayed	4 of 4	No Filter Displayed of
->Error (WINDOWS) Sett	ing to WINDOWS Environme	ent A
Pause		
•		Chat Not Logged On Hints On ? Help Print Screen

Press Quit to drop an established session.

Certain FTP activities may temporarily freeze or lock-up other MOMI PC Client screens.

Systems / PING



The PING screen provides the ability to PING another host or device on the TCP/IP network and determine where the PING is originated either from the currently connected HOST or from the local PC.

PING is the generic name used to describe a diagnostic to test if communication is possible between the source (i.e. HOST or PC) to the destination.

A PING consists of an ICMP echo message that most TCP/IP stacks with acknowledge by simply echoing the original request. Note that some networks disable the ability for devices to respond to the PING.

When a PING is "From HOST" it is generated on the Nonstop system were the BWMOMI server is running using the selected TCP/IP Stack. When "From PC" is selected the PING is generated on the PC running the MOMI PC Client.

The screen is used by selecting either "From Host" or "From PC", entering a destination as an DNS name or IP address and pressing the PING button. Optionally, the number of PING attempts (Count), the time delay in seconds between each attempt, the amount of time to wait for a PING to respond and the TCP/IP Stack to issue the PING through. The center of the screen displays the amount of time each response took and a graphical presentation of the response time. General statistics about the number of attempts, successful and failed pings are also displayed.

The ability to PING from the HOST requires the setup of an additional MOMI server to perform the function. See <u>General considerations</u> for additional information.

Systems / TraceRoute

MOMI (Client version 4.19)		
Black Wood Systems, Inc.		\BWS1-2004 ∨ ↓ Pause 2006/12/27 13:59:29
- Back - System	ns Overview CPUs f	Processes Files SubSystems History Alarms Configure
*Basic Detail FTP PINC	TraceRoute Emulato	ors
Erom HOST Name	e/Address to Trace	Max Hops Tries Timeout TCP/IP Stack
O From PC www.google.	com	
Hop IP Address	Time Re	esult 🛛 Host Name 📃 🔨
2 64.158.131.173	16.1870 msecs n	iext unknown.rni.net
3 64.158.131.1	20.1100 msecs n	iext unknown.rni.net
4 67.72.69.253	19.6800 msecs n	1ext 67.72.69.253.mi.net
5 209.0.5.73	21.9890 msecs n	1ext 209.0.5.73.rni.net
6 209.0.5.81	19.3320 msecs n	1ext 209.0.5.81.mi.net
7 64.154.128.73	22.9090 msecs n	iext se-3-0-10.hsa1.Phoenix1.Level3.net
8 4.68.98.33	22.8280 msecs n	iext ae-2-52.mp2.Phoenix1.Level3.net
9 209.247.9.114	38.2250 msecs n	next as-1-0.bbr1.SanJose1.Level3.net
10 4.68.123.176	40.9050 msecs n	iext ae-22-56.car2.SanJose1.Level3.net
11 4.79.216.58	40.0880 msecs n	iext *Unknown*
12 72.14.233.129	39.9660 msecs n	iext *Unknown*
13 216.239.49.54	43.0330 msecs n	iext *Unknown*
14 66.102.7.147	41.0380 msecs con	nplete mc-in-f147.google.com
Finished	Clear/Reset	
Statistics		10 ± 10
Resolved Address	66.102.7.147	
Hops Required	14	
•		Not Logged On Hints On ? Help Print Screen

The TraceRoute screen provides the ability to PING all devices in-between another host or device on the TCP/IP network and determine where the PING is originated either from the currently connected HOST or from the local PC.

PING is the generic name used to describe a diagnostic to test if communication is possible between the source (i.e. HOST or PC) to the destination. A TraceRoute uses a form of PING where the TTL (Time-To-Live) count starts at 1 and is incremented (to an absolute maximum of 255) allowing the display of each intervening device (usually a router) until the destination is reached. The resultant trace of information is an indi-

cation of the number of hops through the devices required to achieve a communications connection end-toend.

When the TraceRoute is "From HOST" it is generated on the Nonstop system were the BWMOMI server is running using the selected TCP/IP Stack. When "From PC" is selected the TraceRoute is generated on the PC running the MOMI PC Client.

The screen is used by selecting either "From Host" or "From PC", entering a destination as an DNS name or IP address and pressing the TraceRoute button. Optionally, the maximum number of Hops, the retries per device, the amount of time to wait for a response and the TCP/IP Stack to issue the PING through. The center of the screen displays a trace of each device (IP address and DNS name if available) and the amount of time each response took. The graphic displays the response time.

The ability to PING from the HOST requires the setup of an additional MOMI server to perform the function. See <u>General considerations</u> for additional information.

Systems / Emulators

Special Note: The CAIL Emulator is provided courtesy of CAIL (<u>www.cail.com/index.html</u>) and is not a component of any purchased MOMI product. The Emulator is a limited-function version of the CAIL CTT/Suite product. BlackWood Systems and CAIL reserves the right to discontinue, limit or alter the availability in future releases. Please see the CAIL Emulator help within the Emulator for additional information. To obtain a full featured emulator, please contact CAIL.

MOMI (Client version 4.19)	
Black Wood Systems, Inc.	\BWS1-2004 v Pause 2006/12/27 14:25:13
-Back	les SubSystems History Alarms Configure
*Basic Detail FTP PING TraceRoute Emulators	
Create New Emulator	
6530 Test_System INTERNAL system used for test	
	Not Logged Op Hists Op 2 Halp Print Screen
•	Not Logged on _ Hints On _ ? [Help] [Print Screen

The Systems / Emulators screen provides the ability to define and launch the CAIL 6530 terminal emulator. This provides command line and full screen access to Nonstop applications.

An emulator is defined by pushing the Create New Emulator button. In the pop-up window enter the Host-Name/IP Address, port (usually the default of 23 for Telserv), Service (by default a selection is displayed once a connection is established), a name for the emulator and a description the press Create. The new button created may then be pressed to launch an emulator. Right-click on the created emulator button to delete.

Internal CAIL	Externa	l Program
HostName/IP Address	Port	Service
192.168.20.10 -	23	TACL
Name for this Emulator		
BWS1		
Description		
system used for test		

An Internal emulator (below) appears as a tab within the MOMI process. An external emulator is launched in a stand-alone window.

📟 MOMI (Client versio	on 4.19)					
Black Wood Systems, Inc.				\BWS1-200) 4 🗸 🌅 Pause.	2006/12/27 14:57:13
- Back	*Systems Ove	erview CPUs P	rocesses File	s SubSystems	History Alarms	Configure
*Basic Detail FTP	PING Trac	eRoute Emulato	rs Test_Syst	em		
	1 A 4 Co	lumns > LIMITED	<pre> < Rows ></pre>	PCFILE IXF FT	P HELP	×
SF1 SF2 SF3 SF4	SF5 SF6 SF7	SF8 SF9 SF10	SF11 SF12	SF13 SF14 SF1	15 SF16	AII
F1 F2 F3 F4	F5 F6 F7	F8 F9 F10	F11 F12	F13 F14 F1	5 F16	
NELCONE TO BUS		9.W1 #20 NTN	007 6291 4	D.T.U. A. A. U. A.		^
TELSERV - T9553	GO6 - (24F	EB2006) - (I)	PMAEF)	FIOXANOJ		
Available Servi	les:					
OSS TACL Enter Choice> T	EXIT FACL					
TACL 1>						
					CONV	~
•			(Not Logged On	Hints On ? Help	Print Screen

Alternately, instead of a the built-in emulator an external program may also be defined.

Create new Emulator	X
Туре	
Internal CAIL	rogram
External Program to run	
C:\Windows\System32\cmd.exe	2
Name for this Emulator	
command_line	
Description	
allow direct command	
Create	Cancel

Overview

Main Overview

			3	See System Quirks
NSBLDE4-3000 MOMI (Client version 5.16)				
Black Wood MOMI®	\N:	SBLDE4-3000 -		e 2010/01/29 13:53:35
Back Systems Overview CPUs Processe	s Files S	SubSystems History	Alarms	Configure
System Name Serial # OS Version TMF State	trans/sec	CPU,PIN Process	Pri PFR	Object - Busy%
\NSBLDE4 066666 J06.08.00 Started (MAT at 14%)	0.00	03,00955 \$PIG3A	1	PIG01OT 99.93
CPU 65%		02,00701 \$PIG2A	1	PIG01OT 76.53
Busy 8		02,01117 \$PIG3B	1 R	PIG01OT 76.21
CPU Hist &		01,00798 \$PIG1B	1	PIG01OT 59.06
CPU g		03,00917 \$PIG3C	1 R	PIG01OT 51.98
Info		00,00642 \$PIG0B	1	PIG01OT 40.45
Snet r		01,00790 \$PIG1A	1	PIG01OT 31.75
		02,01133 \$PIG2B	1 R	PIG01OT 23.39
		00,01126 \$PIG0A	1	PIG01OT 20.56
		03,00609 \$PIG3D	1	PIG01OT 19.22
EMS 8		03,00882 \$PIG3E	1	PIG01OT 18.99
		01,00277	255 P	NSNIFAPC 0.07
		03,00276	255 P	NSNIFAPC 0.07
		00,00277	255 P	NSNIFAPC 0.07
0 1 2 3		02,00276	255 P	NSNIFAPC 0.07
Busy % 31 46 88 95		00,01046 \$X0054	170	BWMOMII 0.06
CPU que 0 1 2 2		01,01132 \$X0055	170	BWMOMII 0.05
Pressure 0 0 0 0		03,00438 \$X0057	170 R	BWMOMII 0.05
Disk i/o 0 0 2		00,00271	255 P	NTIMEIP 0.04
	Chat No	t Logged On Hints	On ? He	Print Screen

The Main Overview screen provides the launch point for general information about the health of the System.

The top left side of the screen contains the System name, System serial number and operating system version. The next two fields provide the state of TMF and the current transactions per second. The TMF State displays the percent utilization of the audit trail (largest value is displayed if TMF is configured with auxiliary audit trails). The fields in the lower left handle corner Busy %, CPU que, Pressure and Disk I/O display the Overall CPU busy, average CPU queue depth, memory pressure (a value from 0 to 7 where 7 is the highest) and physical disk I/Os per second respectively. Additionally, these fields are used to relate special information as described below.

If MEASURE is not started, **MEAS** is reported in each affected processor. Use MEASCOM to start the MEAS-URE subsystem (for the system or a particular processor):



If a MOMI CPU collector process does not report in a timely manner, typically after 30 seconds, **STOP** is reported. MOMI then issues a Guardian stop on the collector process and the process is automatically restarted by MOMI (the automatic restart occurs approximately 1 minute after the **STOP** is displayed). Technically, the processor is marked as **HUNG** but this is usually not visible if the CPU collector process stops as directed:



In the event a CPU fails, **DOWN** is reported for the affected CPU. MOMI automatically restarts a collector process approximately 1 minute after the CPU is reloaded:



Later versions of MOMI display a more prominent CPU / MOMI status (the text below are samples, real text appears over the affected CPU).

BWS1-2004 MOMI (Client version 5.16)						×
Black Wood MOMI®	3 <mark>WS1-2</mark>	004 -		Pause	2009/ 13:5	08/07 8:31
Back Systems Overview CPUs Processes Files	SubSystem	s History	Alar	ms (Configure	
System Name - Serial # - OS Version TMF State trans/sec \BWS1 W40344 G06.32.00 Started (MAT at 9%) 0.00	CPU,PIN	Process \$MOMI6	Pri 170	PFR R	Object BWMOMI	Busy% 1.63
CPU 4%	01,00327	\$ZPTM1	201	P	TCP6MON	0.55
Busy 8	01,00397	\$MOMI4	160	R	BWMOMI	0.53
CPU Hist 8	01,00404	\$Z0025	170		BWMOMI	0.45
CPU g	00,00405	\$Z0024	170		BWMOMI	0.40
	01,00394	\$Z0006	170		BWMOMI	0.40
	01,00000	\$MONITOR	201	PR	OSIMAGE	0.38
	00,0000	\$MONITOR	201	PR	OSIMAGE	0.36
	00,00393	\$Z0005	170		BWMOMI	0.35
	01,00407	\$Z0026	166		BWMOMI	0.33
	01,00387	\$MOM0	170	R	BWMOMI	0.32
8	00,00336	\$ZPTM0	201	P	TCP6MON	0.25
₽	01,00273	\$OSS	80	PR	TSYSDP2	0.25
	01,00399	\$Z0015	160	R	BWMOMI	0.21
🔲 Interrupt 🔲 Send 🔲 Overhead 🔜 Busy	00,00398	\$Z0014	160	R	BWMOMI	0.20
Busy % 3 6	00,00394	\$Z0008	80		BWMOMI	0.09
CPU que 0 0	00,00012	\$TMP	204	P	TMFTMP	0.08
Pressure 0 0	00,00347	\$ZWH2	179	P	WANBOOT	0.07
Disk i/o 0 1	01,00339	\$ZWH1	179	P	WANBOOT	0.06
Chat Chat	ot Logged O	n Hints (On ?	He	Ip Print S	Screen

Additional CPU busy information is available for NonStop Blade Systems. Right click on the CPU Busy button and select **Display 3D CPU Busy Chart**. This setting enables the display of individual IPU's (small narrow bar) along with the overall process busy (wide bar). Note on the right side of the screen that it is possible for an individual process to be at (or near 100%) and yet the overall CPU busy is not. A processes percent busy is based on its activity within an individual IPU. An individual process is generally limited to 100% of an IPU the processor itself has N number of IPU's. Overall CPU busy is an average of the IPU activity (yes, it does take some getting used to).

NSBLDE4-3000 MOMI (Client version 5.16)			
Black Wood MOMI®	SBLDE4-3000 -	Paus	e 2010/01/29 13:43:21
Back Systems Overview CPUs Processes Files S	SubSystems History	Alarms	Configure
System Name - Serial # - OS Version TMF State trans/sec \NSBLDE4 066666 J06.08.00 Started (MAT at 14%) 0.00	CPU,PIN Process 03,00386 \$PIG3B	Pri PFR	Object Busy% PIG01OT 99.93
CPU 52%	02,01133 \$PIG2B	1	PIG01OT 77.42
Busy	01,00798 \$PIG1B	1	PIG01OT 59.68
	03,00870 \$PIG3A	1	PIG01OT 51.43
	00,00642 \$PIG0B	1	PIG01OT 39.47
	02,01108 \$PIG2A	1	PIG01OT 38.74
Snet I/O R	01,00790 \$PIG1A	1	PIG01OT 29.83
	00,01126 \$PIG0A	1	PIG01OT 20.32
	02,00276	255 P	NSNIFAPC 0.07
	03,00276	255 P	NSNIFAPC 0.07
	00,00277	255 P	NSNIFAPC 0.07
	01,00277	255 P	NSNIFAPC 0.07
	03,00438 \$X0057	170 R	BWMOMII 0.05
	00,01046 \$X0054	170 R	BWMOMII 0.05
	01,01132 \$X0055	170 R	BWMOMII 0.05
Busy % 30 45 58 75	02,00270	255 P	NTIMEIP 0.04
CPU que 0 1 1 1	02,00612 \$X0056	170 R	BWMOMII 0.04
Pressure 0 0 0	00,00271	255 P	NTIMEIP 0.04
Disk i/o 0 0 0	00,01040 \$MOMI	170	BWMOMII 0.04
Chat No	t Logged On Hints C	Dn ? He	Print Screen

TMF State reports the general status of TMF (Started, Stopped, etc...) along with overflow and other error indicators. The percentage full (i.e. in use) of the largest of the Master (MAT) or Auxiliary (AUXnn) audit trails is also reported in parentheses for most states. Generally speaking, the "worst" state or condition is selected for display.

Below are some sample TMF States:

 TMF State

 Started (MAT at 11%)

 Master audit trail at 11% full

 TMF State

 Started (AUX01 at 33%)
 Auxiliary audit trail 1 at 33% full



ubSystems	History	Alaı	rms	Configure	
CPU,PIN Pro	ocess	Pri -	PFR	Object — B	Busy%
00,00650 \$ Y	01F	150		IRGFSRV	0.55
00,00757 \$Y	01Q	100	R	STDC	0.51
01,01403 \$0	ттс	148		CTSERVE	0.42
00,00433 \$Z	ртмо	201	P	TCP6MON	0.41
00,00000 \$M	IONITOR	201	ΡR	NMONTOR	0.32
00,00867 \$Z	2HJ	180		STCPUR	0.31
01.00882 \$2	2HK	180		STOPUR	0.27

The right side of the screen shows the busiest or top processes on the entire System. The fields listed are the CPU + PIN , process name (blank if unnamed), current priority, PFR fields, object file name and percent busy.

The Busy% field is the percentage of total CPU busy for the process during the last monitored interval (by default MOMI scans the CPUs every 10 seconds).

The Pri field is the current process priority field. The sur-

rounding box is yellow if the operating system has reduced the process priority and the process is a disk. A red color is used for any other process with a reduced priority. Disk processes will assume the priority of the requesting process while waiting for executing time. It is normal to see a disk process running at different priorities. User processes have their priority lowered by the System if they are determined to be CPU bound (i.e. taking a great deal of CPU resources).

The PFR fields indicate with single letter descriptors if the process is P - Privileged, F - page Faulting or R - on the Ready list. A process is Privileged if it has been granted authority to run without security limitations (many System processes are Privileged). A process needing memory space is page Faulting during the time it takes to free or swap needed memory pages. A process is on the Ready list when it is waiting for CPU execution. Additionally, a process can be on the Ready list while waiting on a page Fault.

Placing the mouse over the CPU,PIN field displays a pop-up window presenting additional information for that process. Below is a sample image:

	Proce	ss Detai	1			
Process	\$ZPTM0	Busy%	0.40%			
Cpu,Pin	00,00433	PFR	P			
Memory	2.7 MB	Wait stat	te %015			
State		Runnabl	e			
Process Ac	cess ID	255	5,255			
Login Name SUPER .SUPER						
Process Type Guardian						
File Name \$SYSTEM.SYS00.TCP6MON						
Ancestor	cestor \$ZZTCP					
Hometerm	\$ZHOME					
GMOM	\$ZMOO JobID					
Created 2	Created 2007/07/31 05:58:06 64 07:18:28					
Primary X	Backup 🛛	IPri 2	201 CPri 201			

A right click on the CPU,PIN or Process field will bring up a menu allowing the User to select a variety of jumps or actions using the selected process (the actions available vary depending on the process):

Н	istory Alarn	ns Configure			
с	CPU,PIN	Process	Pri	PFR	Object
)	00,00015	\$ZNET	175	Р	SCP
1	00,00049	View Process Detail		Р	TMFCTLG
]]	00,00041	View ProcessH Entity View PgmRay Screen View File Entity		Р	OZEXP
	01,00405	View SQL Statement View Process History			BWMOMI
	01,00273	Perform Action on Process Display All Processes with s Display this Processes Desc	ame	Р	TSYSDP2
	01,00295	Copy "\$ZNET" to Clipboard		Р	TSYSDP2
	01,00204	\$0M01	185		OMI82OT

The Overview screen may also be configured, on the page <u>Settings / Single Screen</u> to an alternate format that displays EMS information.

(BWS1-2004 MOMI (Client Version 5.16)	
Black Wood MOMI® \BWS1-2004 - Pause	9/12/31
	е
System Name - Serial # - OS Version TMF State trans/sec CPU,PIN - Process Pri - PFR - Object \BWS1 W40344 G06.32.00 Started (MAT at 2%) 0.00 00,00284 \$VDP01 219 P OVDP	Busy% 16.87
CPU g 24%	6.15
Busy ♀ 01,00414 \$20278 93 BWMOMI	4.61
CPU Hist 8	2.33
CPU 융	1.50
Info 00,00276 \$DATA2 220 P TSYSDP2	1.03
Snet I/O 00,00277 \$DATA1 220 P TSYSDP2	2 0.96
	G 0.72
Rate 0 1 01,00331 \$MOMI4 160 BWMOMI	0.71
Info Interrupt Send Overhead Busy 01,00021 \$ZNET 175 P SCP	0.63
Busy % 28 20 01,00341 \$ZPTM1 201 P TCP6MO	N 0.45
CPU que 0 0 93 BWMOMI	0.44
Pressure 0 0 0 01,00323 \$MOMI6 170 BWMOMI	0.37
Disk i/o 0 38 01,00036 \$ZEXP 180 P OZEXP	0.36
EMS Messages	
? Date/Time PName System ID Event Messages Collector="\$0 - EM	
A 12-31 15:28:57 \$22MR BWS.0.0 0 an important system message	
12-51 15.20.22 \$22M DW5.0.0 0 00 you see what i see!	
Chat Not Logged On Hints On ? Help Prin	nt Screen

Placing the mouse over an EMS message display a pop-up detail.

BWS1-2004 MOMI (Client version 5.16)				
Black Wood MOMI®	\BWS1-	2004 -	Pause	2009/12/31 15:30:36
Back Systems Overview CPUs Process	s Files SubSyste	ns History	Alarms Co	nfigure
System Name - Serial # - OS Version TMF State		CPU,PIN Process Pri PFR Object Busy%		
\BWS1 W40344 G06.32.00 Started (MAT at 2%)	0.00	EMS Detail		
CPU 8 Busy 9 CPU 8 CPU 8 CPU 8 CPU 8 Snet 9 I/O 8 Nem 0 Info 1 Mem 0 Info 1 Nem 0 Info 1 Pressure 0 O 1	12 Sys an	Date/Time 31 15:28:57 em ID mportant sys	Process \$Z2MR BWS.0.0	Event Number
	00,000			10.02
PName System ID Event Messages Coll A 12-31 15:28:57 \$Z2MR BWS.0.0 0 an important sys 12-31 15:26:22 \$Z2MR BWS.0.0 0 do you see what Right-click to copy to clipboard	ctor="\$0 - EM em message see?			
	Chat Not Logged	On Hints	On ? Help	Print Screen

Overview CPU History



The Overview CPU History screen charts the busy history of the CPU's on the System with the TMF transaction rate. The last 200 values are retained.

Data for this chart is captured every time the MOMI Client receives an update from the MOMI Server. This chart resets every time the Client connects or reconnects unless the system is being probed (from any sub-screen) on <u>Systems / Probe</u> or <u>Expand / Diagram</u>.

Selection boxes near the bottom of the screen may be unchecked to removed CPUs or the TMF Rate from the display.
Place the mouse over a chart line and click to display the top few processes at that point in time.

CPU 01 a	t 13:25:2	20 reported 2	2% bus	у
CPU,PIN Pro	cess	Object	Priority	Busy%
01,00882 \$Z	2НК	STCPUR	180	0.54
01,01403 \$C	ттс	CTSERVE	148	0.44
01,00000 \$M	IONITOR	NMONTOR	201	0.17
01,00649 \$Z	1V5	STCOMM	150	0.11
01,01474 \$Y	1FT	STCOMM	150	0.11
01,00265		TSMSGIP	255	0.08

Overview CPU Info



The Overview CPU Info charts various values pertaining to a CPU.

Place the mouse over the Bar to see the actual value. Several bars have mouse clicks available to cause a jump to obtain more detailed information about a particular value. For example, pressing the Comp Traps button and clicking on a bar will jump to the Processes / Process Entity screen and configure a process entity measurement to display the highest generators of Comp Traps (Computational Traps) in the particular CPU.

Overview Snet I/O



The Overview Snet I/O screen displays the traffic in and out of the ServerNet interconnects at the CPU level. Certain traffic is counted twice, so the chart is just a general idea of the traffic rate and distribution.

The chart is 3-dimensional and presents data transfers from all CPUs to all CPUs. On older ServerNet systems the chart appears more 3-dimensional than on newer systems. Newer systems display a 3-dimensional effect under heavy load.

The chart presents the Read and Write Requests and the Read and Write Byte rates.

Below is a portion of the same screen from an older system showing the 3-dimensional affect.



Overview TMF Rate

Black Multi-system Online Measure Interface PROD Pause 19Apr-2001 Systems Overview CPUs Processes Files SubSystems History Configuration System Systems Overview CPUs Processes Files SubSystems History Configuration System System Gereal Gos Stated 36.06 03.0300 \$4500 175 RBARS555 5.7 CPU 3.88 Gos	MOMI - Multi-system Online Measure Interface	
Back Systems Overview CPUs Processes Files SubSystems History Configuration System Name Serial # OS Version TMF State trans/sec CPU,PIN Processes Pri PFR Object Busyk VPROD G87661 G06.07 Stated 36.06 0.03080 \$4500 175 RBARS555 5.7 CPU 3.88 Guidant Guidant	Black Wood Systems, Inc. Multi-system Online Measure Interface	\PROD • Pause 19.Apr-2001 08:30:43
System Name Serial # OS Version TMF State trans/sec CPU JIN Process Pri PFR Object Busy% VPROD G87661 G06.07 Stated 36.06 03.0380 \$45500 175 RBARS555 5.7 CPU 3.88 0 05.0533 \$0L04 176 COMNS550 4.6 Hist 2.88 0 0 12.00 176 COMNS550 4.6 INfo Sneet 3.83 0 0 12.00 176 COMNS550 4.6 INfo Sneet 3.83 0 0 12.00 176 COMNS550 4.4 IL00 5 9 0.01 176 COMNS550 4.4 IL00 5 0.03 0.01 176 COMNS550 4.2 IN6 9 0.1 1.2 3.4 5.6 7 8 9 10 11 12 13.008 \$2L13 200 P ReAr5555	- Back - Systems Overview CPUs Processes Files Su	ubSystems History Configuration
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 06,0339 \$0L05 176 COMN\$550 3.7 Data to plot per CPU • BEGIN Transactions / sec 35.43 Avg. Duration 0.22 04,0027 \$TEC4 160 R PATHTCP2 3.7 • ACTIVE Transactions 8.01 • • 0.22 07,0557 \$0L06 176 COMN\$550 3.3 HOME-NET Transactions / sec 0.00 Avg. Duration 0.00 0.00 04,0515 \$4K02 177 RBARS640 3.0	System Name Serial # OS Version TMF State trans/sec VPROD G87661 G06.07 Started 36.06 CPU Busy CPU Hist 2.88 Snet 1/0 TMF Rate CPU Pri 0.88 CPU Pri 0.88 CPU 0.88 CPU 0.88 CPU 1.88 CPU 0.88 CPU CPU CPU CPU CPU CPU CPU CPU	CPU,PIN Process Pri PFR Object Busy% 03,0380 \$4500 175 RBARS555 5.7 05,0535 \$0L04 176 COMNS550 4.6 13,0437 \$0L12 176 COMNS550 4.6 13,0462 \$0L09 176 COMNS550 4.6 01,0512 \$0L00 176 COMNS550 4.6 01,0512 \$0L00 176 COMNS550 4.6 01,0512 \$0L01 176 COMNS550 4.4 11,0340 \$0L01 176 COMNS550 4.4 01,0513 \$0L07 176 COMNS550 4.2 03,0502 \$0L02 176 COMNS550 4.2 03,0502 \$0L02 176 COMNS550 4.0 00,0012 \$TMP 204 P TMFTMP 3.9 13,0406 \$A501 175 RBARS555 3.9
REMOTE Transactions / sec 0.09 Avg. Duration 0.03 10.0353 \$A502 175 RBARS555 3.0 ABORTED Transactions / sec 0.01 Avg. Duration 0.60 10.0486 \$0H01 175 COMNS570 3.0	0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 Data to plot per CPU Image: Comparison of the c	06,0339 \$0L05 176 COMNS550 3.7 04,0027 \$TEC4 160 R PATHTCP2 3.7 07,0557 \$0L06 176 COMNS550 3.3 11,0318 \$0L03 176 COMNS550 3.1 04,0515 \$AK02 177 RBARS640 3.0 10,0353 \$A502 175 RBARS555 3.0 10,0486 \$0H01 175 COMNS570 3.0

The Overview TMF rate chart presents the TMF transaction rate at a per CPU level.

Two options are available. Plotting data at BEGIN shows the count of transactions that were started. Plotting data at ACTIVE shows the number of transactions that were started but not yet completed. ACTIVE transactions are an approximation, based on available information from MEASURE.

Overview Mem Info

		S	ee <u>System Qui</u>	irks
🕮 WSKIT06-3000 MOMI (Client version 4.23)				
Black Wood	1106-3000 🗸	Pause	2007/10 	/03 30
- Back - *Systems Overview CPUs Processes Files Su	bSystems History	Alarms	Configure	
System Name – Serial # – OS Version TMF State trans/sec	CPU,PIN Process	Pri PFR	Object — Bu:	sy%
NSKIT06 054864 H06.10.00 Started (MAT at 10%) 0.00	00,00650 \$Y01F	150	IRGFSRV 0	.90
CPU Virtual Memory	00,00757 \$Y01Q	100 R	STDC 0	.72
	03,00282 \$ZSD03	199 P	NSADPR 0	.62
CPU Hist 6,500	00,00867 \$Z2HJ	180	STCPUR 0	.62
CPU 6,000 6,	01,00882 \$Z2HK	180	STCPUR 0	.54
Info 5,500 5,500 7	01,01403 \$CTTC	148	CTSERVE 0	.44
Snet 5,000	02,00614 \$Z2HL	180	STCPUR 0	.43
	00,00433 \$ZPTM0	201 P	TCP6MON 0	.41
Rate 2 500	00,00000 \$MONITOR	201 P R	NMONTOR 0	.40
Mem & 3,000	03,01800 \$Z2HM	180	STCPUR 0	.38
	00,00343 \$ZZTCP	200 P	TCP6MAN 0	.25
Ē 2,000 / ☐	01,00000 \$MONITOR	201 P R	NMONTOR 0	.21
	00,00922 \$MOMI	160 R	BWMOMII 0	.21
²² 1,000 []	00,00265	255 P	TSMSGIP 0	.15
	00,00299 \$088	220 P	TSYSDP2 0	.15
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	03,00312 \$ZPTM3	201 P	TCP6MON 0	.14
Allocated (Configured)	03,00000 \$MONITOR	201 P R	NMONTOR 0	.13
Reserved (In-use) 🔽 🔷 Available (Free)	02,00000 \$MONITOR	201 P R	NMONTOR 0	.13
Virtual Memory Physical Memory Locked Memory Misc. Memory	03,00420 \$Z1V1	100	STDC 0	.11
Not Logged	On Hints O	n ? Hel	p Print Scre	een

The Overview Mem Info screen presents the status of various aspects of virtual memory.

Each process running in a CPU consumes both physical and virtual memory. Virtual memory is the underlying disk space made available via NSKCOM to each CPU. Typically, a CPU has allocated twice the amount of virtual memory than physical memory.

Physical memory is the memory actually present in the CPU. For example, you have a 2 Gigabyte processor. Not all memory is available for virtual use. When memory is locked, it is not allowed to swap to disk. A certain amount of memory is always locked by the operating system at startup. This amount varies as processes start and stop.

Misc. Memory is a 'catch area' for other useful memory counters.

- Unsponsored memory is memory that is temporarily not owned by any process but must remain allocated.
- Memory pressure is a value from 0 to 7 where 0 is low. It is an indicator of the demand for memory. Systems with plenty of memory have a pressure of 0.
- A page fault is the situation where a memory page is needed but not present. This occurs when a process is first started and continues until all needed memory is accessed at least once. Additionally, a page fault can occur when memory that was previously accessed is no longer present, perhaps due to another process needing memory.
- Memory Queue is an indication of the number of processes waiting for memory. Newer systems do not seem to have a general memory queue. The servicing of page faults is now handled within the context of a user process (via system code in the background). On older machines, a memory queue was a second ready list because a process must first have memory accessible before it can wait to execute.

Overview EMS Msgs

• \N	SKIT	06-300	0 MOMI (Client versio	n 5.08)											×
	la	arn	15						- -	NS	KIT06-3	• 000		Paus	e 2008/	/12/04 89:15
	Ba	ick		Systems	Dverview	CPUs	Proces	ses	Files	Su	ubSystems	History	Alar	ms	Configure	
Syst	em	Name	-Serial #	-OS Versi	on '	TMF State		- 1	rans/s	ec	CPU,PIN	Process	Pri	PFR	Object -	Busy%
\NSKIT06 054864 H06.15.00 Started (MAT at 12%) 0.00 02,01188 1 R CCOMBE 94													94.12			
CPU	C	ollector	\$0 - EM	S LOG	Filte	r NONE				=1	03,01141	\$PIG3	1	R	PIG01OT	76.88
Busy	2	Date/	Time	PName	System	ID		Event	Mes		01,00946	\$PIG1	1	R	PIG01OT	69.41
CPU	E	12-04	14:36:16	\$ZTN5	TANDEM	TELSERV	/.H01	8	Soc		00,00945	\$PIG0	1	R	PIG01OT	59.83
HISC		12-04	14:33:02	\$ZBAT	TANDEM	NETBAT	CH.D30	202	\NS		00.00000	-	201	DR	NMONTOR	1.58
CPU		12-04	14:33:01	\$ZBAT	TANDEM	NETBAT	CH.D30	102	\NS		00,00000	phontron	201	FR	INNONTOK	1.00
Snot		12-04	14:31:57	\$V5DBR	ESQ.100	1.G06		3861	<de< td=""><td></td><td>00,00501</td><td>\$XM00</td><td>199</td><td>P</td><td>MEASCTL</td><td>0.80</td></de<>		00,00501	\$XM00	199	P	MEASCTL	0.80
I/O	Е	12-04	14:31:16	\$ZTNO	TANDEM	TELSERV	.H01	8	Soc		00,00421	\$ZPTM0	201	P	TCP6MON	0.71
TMF	E	12-04	14:26:15	\$ZTN5	TANDEM	TELSERV	.H01	8	Soc		01,00000	\$MONITOR	201	PR	NMONTOR	0.69
Rate	Е	12-04	14:23:24	\$ZPTM0	TANDEM	ZTC6.HO	6	19	0.T4		02.00000	MONITOR	201	DR	NMONTOR	0.64
Mem	E	12-04	14:23:09	\$ZPTM0	TANDEM	ZTC6.HO	6	19	0.T4		02,00000	phone in				
Info		12-04	14:21:57	\$V5DBR	ESQ.100	1.G06		3861	<de< td=""><td></td><td>02,00553</td><td>\$XM02</td><td>199</td><td>P</td><td>MEASCTL</td><td>0.59</td></de<>		02,00553	\$XM02	199	P	MEASCTL	0.59
EMS	E	12-04	14:21:15	\$ZTNO	TANDEM	TELSERV	.H01	8	Soc		01,00508	\$XM01	199	P	MEASCTL	0.55
Msgs		12-04	14:19:06	\$0VM01	TANDEM	OVMON.	H01	2103	1VO		03,00481	\$XM03	199	P	MEASCTL	0.49
	E	12-04	14:18:06	\$0VM01	TANDEM	OVMON.	H01	2133	IVO		00.00265			0	TEMECID	
	E	12-04	14:16:15	\$ZTN5	TANDEM	TELSERV	.H01	8	Soc		00,00265		255	P	TSMSGIP	0.47
		12-04	14:11:56	\$V5DBR	ESQ.100	1.G06		3861	<de< td=""><td></td><td>02,00546</td><td>\$ZPNS</td><td>199</td><td>P</td><td>NS</td><td>0.45</td></de<>		02,00546	\$ZPNS	199	P	NS	0.45
	E	12-04	14:11:15	\$ZTNO	TANDEM	TELSERV	.H01	8	Soc		00,00318	\$OSS	220	P	TSYSDP2	0.45
		12-04	14:06:56	\$Z085	DATADS	GN.2.D20)	10	CON		02.01122	SCITC	148		CTSERVE	0.44
	-	12-04	14:06:54	\$Z085	DATADS	GN.2.D20)	16	CON			+++++				
		12-04	14:06:52	\$Z085	DATADS	GN.2.D20)	10	10O		03,00000	\$MONITOR	201	PR	NMONTOR	0.41
		12-04	14:06:50	\$Z085	DATADS	GN.2.D20)	16	CON		00,00583	\$X8F6	180		STCPUR	0.41
		12-04	14:06:48	\$Z085	DATADS	GN.2.D20)	10	CON	+	00,01029	\$X2MH	180		STCPUR	0.41
	1	17 04	14.06.47	14700E	DATADE		1	16	1CON							
0								Ch	at	Not	Logged O	n Hints (Dn 3	P He	Print :	Screen

The Overview EMS Msgs screen presents EMS log messages from the system log \$0.

Place the mouse over an EMS line and a pop-up window displays the rest of the message.

CPUs

CPUs / CPU Summary

NSBLDE4-3000 MOMI (Client version 5.	.26)			
Black Wood)E4-3000 🔻 [Pause 2012/02/14 10:26:30
- Systems Overview	CPUs Processes	Files SubSystems	History Alarm	s Configure
CPU Summary Memory Detail PC	CBs/TLEs CPU Info	Priority Charts Det	ail Chart	
CPU-Type Busy% All 0% 0 NB54000c 1% 1 NB54000c 0% 2 NB54000c 1% 3 NB54000c 0%	Idle-Intr Ovhd Creating 99 0 99 0 100 0 99 0 100 0	ate Delete Free CIDs Qu 0 1 0 0 0 0 0 0 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	stant Avg Avg PU CPU Mem 1 0.02 0.00 1 0.01 0.00 2 0.02 0.00 1 0.01 0.00	I/Os / Second Total Physical Cache I/O I/O % 11 2 9 81 27 5 22 81 0 0 0 0 12 12 0 0
•		Chat Not Log	ged On Hints Or	n ? Help Print Screen

The CPUs / CPU Summary screen provides high level detail on the activity of each processor in the System.

Busy % breaks down the total CPU busy value into Idle, Interrupts, and Overhead. Idle is the percent of time the processor did nothing. Interrupts is the percent of time the processor serviced low-level disruptions to normal processing such as an I/O completion. Overhead is the percent of time the processor spent creating or deleting processes.

Create and **Delete** show the number of processes new to the system and removed from the system as seen by MOMI. This gives an indication as to the level of process turnover on the System. Typical Guardian-

based processes usually start and stay started. A high process turnover may indicate a problem. OSS-type processes usually have a much higher turnover due to the nature of the UNIX-like environment.

Free CIDs are a MEASURE resource used to contain counters for measurements. Enough Free CIDs should be available to support current and additional measurements.

CPU Queues are reported as Instant, or what is in the queue right now, and Average, which is the queue over the Interval period. The Instant queue is a whole number of processes while the Average is a decimal value. The Average memory queue is only available (i.e. have a non-zero value) on older platforms.

I/Os / Second indicate the gross total disk I/O activity at the CPU level. The physical I/Os plus the I/Os satisfied from cache equal the total I/Os. The percent of cache hits indicates the overall effectiveness of the disk cache. High levels of I/Os with a low cache hit percentage may indicate insufficient cache allocated to disk.

CPUs / Memory Detail

WSBLDE4-3000 MOMI (Client version 5.26)			- • ×
Black Wood	····	NSBLDE4-3000 V Pause	2012/02/14 11:46:51
	Processes Files SubSy	stems History Alarms Configur	e
CPU Summary Memory Detail PCBs/TLEs	CPU Info Priority Charts	5 Detail Chart	
CPU Memory in Megabytes Current Physical Swap Free Lo 0 16,384 16,383 13,593 Lo 1 16,384 16,383 13,824 Lo 2 16,384 16,383 13,410 Lo 3 16,384 16,383 14,677 Lo	Max Locked Lockabl 1,524 1,610 14,33 1,321 1,481 14,33 1,197 1,341 14,33 1,009 1,035 14,33	Page CME HCME Mer Faults Events Pres	nory Memory ssure Q-Len 0 0 0 0 0 0 0 0
•	Chat	ot Logged On Hints On ? Help	Print Screen

The CPUs / Memory Detail screen provides the detail of the physical memory of each processor.

Physical memory refers to what was installed in the CPU, such as a 2 Gigabyte processor. Swappable is the memory available for virtual memory usage. Memory that is locked is forced to remain in the processor and may not be swapped out to disk (i.e. virtual memory). System processes, control blocks and I/O buffers are examples of memory that is usually locked.

Page Faults occur when a process needs to access memory but it is not present. The System must either read the memory from disk or create a new page.

CME Events (Correctable Memory Errors) is the situation where a hardware checksum algorithm indicates a memory bit was in error but the System could recover from the event. CMEs are usually transient in nature. The value reported here comes from the Guardian procedure call PROCESSOR_GETINFOLIST_.

HCME Events (Hard Correctable Memory Errors) is a situation on newer NonStop platforms where a CME memory errors exist but has exceeded an internal threshold triggering for removal the memory page where the error is located. The problem does not necessarily indicate a hardware failure. The value reported here comes from the MEASURE CPU Entity.

UCME Events (Uncorrectable Memory Errors) is the situation on older NonStop platforms where a hardware checksum algorithm indicates a memory bit(s) was in error but the System could NOT recover from the event. If the UCME located in an unused area of memory is 'locked out' from further usage. If the error is located in a User process the operating system may cause the process to abend. If the error is located in a system process or system data area it may cause the operating system to halt the CPU. The value reported here comes from the MEASURE CPU Entity.

Memory pressure is an indication of the need for memory. This value ranges from 0 to 7, with 0 being no pressure and 7 being extreme pressure. Observation of this value indicates it is an average over time that increases rather rapidly but decreases rather slowly.

Memory queue length is the number of processes waiting for memory. Newer platforms do not see a value in this field because memory service occurs within the context of the process itself.

CPUs / PCBs/TLEs

MSBLDE4-3000 MOMI (Client version 5.26)	
Black Wood Systems, Inc. Pause 20	12/02/14 L:48:30
CPU Summary Memory Detail PCBs/TLEs CPU Info Priority Charts Detail Chart	
Low PCB's 143 High PCB's 995 0 349 47 77 208 0 302 355 11,542 0 1 290 43 72 212 0 247 292 11,597 0 73 127 20,000 2 268 23 54 232 0 245 283 11,599 0 125 206 20,000 3 231 30 38 225 0 201 206 11,643 0 70 110 20,000	Failed 0 0 0
Chat Not Logged On Hints On ? Help Pr	int Screen

The CPUS / PCBs/TLEs screen provides details on the availability of Process Control Blocks (PCB) and Time List Elements (TLE).

Each running process on the system requires one PCB. Additionally, a process may require one or more TLEs, if it has requested notification of an elapsed amount of time.

A PCB is considered low if it is allocated within the range of 0 to 254 and is considered high if 256 or greater. Older programs that do not have the High Pin enabled flag set within the executable are limited to the low range.

Any failure to allocate one of these resources shows in RED.

CPUs / CPU Info

HOH	\NS	BLDE4-3000	MOMI (Cli	ient versio	n 5.26)										• X
1	3/a		. mc. ["[.			0%			-	\NSB	LDE4-300	• •	Pause	. 20 1	12/02/14 1:54:56
-	<-		Systems	Overvi	ew CPUs	Pro	cesses	Files	Su	bSyste	ms Histor	y Alarm	s Configur	e	
	CPU	Summary	Memory	/ Detail	PCBs/TLE	s CP	U Info	Priori	ty Ch	arts D	etail Chart	1			
Г	Syst	em				_	Lo	cal Tim	e Offs	et -08:	00 5	vsGen Tim	e 2011/11	/10.14	4.14.11
	Sys	sNN Volume	e <mark>\$</mark>	SYSTEM.	SYS04		xpand S	System	Numb	er 10	2 Co	ldLoad Tim	e 2011/11	/16 09	9:50:50
	CPU	Model	Name	CPU Bus Percent	şy	Irupt %	Send %	OverH %	Idle %	CPU Queue	Avg CPU Queue Len	Memory Queue	Avg Mem Queue Len	Disk I/Os	Cache IP Hits
	0	NB54000c	NSE-AB	0%		0	0	0	99	0	0.02	0	0.00	0	8
	1	NB54000c	NSE-AB	0%		0	0	0	100	0	0.01	. 0	0.00	5	23
	2	NB54000c	NSE-AB	1%		0	0	0	99	0	0.02	0	0.00	0	0
	3	NB54000c	NSE-AB	0%		0	0	0	100	0	0.01	. 0	0.00	11	1
	< []	T													Þ
Ľ	TOOL			N Ka	iteu values										
•								C	Chat	Not L	ogged On	Hints O	n ? Help	Pr	int Screen

The CPUs / CPU Info screen presents an assortment of miscellaneous System and processor information.

SysNN Volume is the location where the Operating System was loaded.

The **Local Time Offset** is a system value used to determine LCT (Local Civil Time) and LST (Local Standard Time). The NonStop System technically maintain internal time as GMT (Greenwich Mean Time) and use the Local Time Offset to present LCT. Internally using GMT provides an easy and safe value for systems networked throughout the world to exchange. The SysGen Time is when the Operating System was generated (via DSM/SCM).

The Cold Load Time is when the system was loaded with the Operating System.

The **SysGen Time** or System Generation time is when the operating system was constructed.

The **Expand System Number** is a unique numeric identifier from 0 to 254 that identifies a System linked on a network.

Other fields of interest are the **System Loads**. This indicates the number of times the operating system was started or loaded from \$SYSTEM. **Breakpoints** are the number of stops or holds placed in an executing process by the system debugger Inspect. Older platforms had to configure the maximum number of breakpoints allowed within a CPU.

CPUs / Priority Charts / Charts





The CPUs / Priority Charts / Charts screens display the relative CPU busy as related to priority.

These screens give several visualizations to the CPU usage. While a CPU could be 100% busy, if 90% was being used at priority 10, the overall CPU health may be good but the processor is currently performing a batch type of operation.

The **Process Priority** up/down selector allows the setting of a threshold in which the lighter color represents a level below the threshold and the darker color of the bar represents the level above the threshold. For example, if the System runs production processes at priority 170 and above, and the indicator is set to 170, the dark portion of the bar presents the CPU usage at and above 170. The lighter color represents the CPU usage below that level. The total bar height still indicates the complete CPU usage.

CPUs / Detail Chart



The CPUs / Detail Chart provides moving graph breakdown of CPU utilization by major category such as disk, communications and user processes.

The following are the field meanings:

User NSK - Guardian processes at or below priority 199 User OSS - OSS processes at or below priority 199 System NSK - Guardian processes above priority 199 System OSS - OSS processes above priority 199 Disk - Disk processes (physical or virtual) Tape - Tape process Comm - Communication processes (i.e. LAN, SWAN) Int.Hardware - CPU interrupt handler routine Int. Process - System Interrupt Processes (i.e. processes at priority 255) Overhead - System time for process startup/shutdown Everything else - all other processing not within an existing category

Placing the mouse over the graph displays a pop-up window on the left showing detail for the area under the mouse.



This chart clears and restarts when a system is selected.

Processes

Processes / Top Processes

	06-3000 MC	DMI (Clie	nt ver	sion 4	1.23	3)							
Black	Wood Systems, the	100 50 0	-			37%				\NSKIT06-3000		Pause 2007, 13:4	/10/03 5:39
<- Bac	k -1>	*Syste	ems ()verv	viev	, C	PUs		Proces	ses Files SubSystems H	listory /	Alarms Configure	
Top Proc	esses La	st Start,	/Stop	All	Proc	ess	es	Pro	ocess l	etail ProcessH Entity Pro	cess Ent	ity PgmRay	
Cpu,Pin	Process	UserID	B IPri	CPri	PT	P F	R	IS	I <mark>Mem</mark>	Object	Busy%	Busy Histogram	~
02,01092	\$Y1LX	93,1	1	1	G		R		0.4	\$DATA01.UTILS.PIG010T	79.84		
00,01021	\$Y1LW	93,1	1	1	G		R		0.4	\$DATA01.UTILS.PIG010T	60.30		
00,00650	\$Y01F	255,255	150	150	G				12.2	\$DATA03.R912.IRGFSRV	0.55		
00,00757	\$Y01Q	255,255	100	100	G		R		10.9	\$DATA03.R912.STDC	0.48		
01,01403	\$CTTC	18,1	148	148	G				2.3	\$VD0603.NCITOOLS.CTSERVE	0.43		
00,00433	\$ZPTM0	255,255	201	201	G	Р			2.7	\$SYSTEM.SYS00.TCP6MON	0.40		
00,00867	\$Z2HJ	11,10	180	180	G				10.0	\$DATA03.R911.STCPUR	0.31		
01,00882	\$Z2HK	11,10	180	180	G				12.3	\$DATA03.R911.STCPUR	0.27		
00,00343	\$ZZTCP	255,255	200	200	G	P			1.0	\$SYSTEM.SYS00.TCP6MAN	0.25		
00,00922	\$MOMI	93,1	160	160	G		R		62.0	\$DATA01.MOMI.BWMOMII	0.24		
00,00000	\$MONITOR	255,255	201	201	G	Р	R		4.2	\$SYSTEM.SYS00.NMONTOR	0.22		
02,00614	\$Z2HL	11,10	180	180	G		R		10.0	\$DATA03.R911.STCPUR	0.22		
02,00000	\$MONITOR	255,255	201	201	G	Р	R		2.9	\$SYSTEM.SYS00.NMONTOR	0.20		
00,00299	\$OSS	255,255	220	220	G	P			43.2	\$SYSTEM.SYS00.TSYSDP2	0.19		
03,01800	\$Z2HM	11,10	180	180	G				14.9	\$DATA03.R911.STCPUR	0.18		~
													>
Select Pr	thing	to view SK Proce SS Proce	sses (sses (K Us S Us	er Pi ser Pi	roce roce	sse: sse	s OD s OTa	sks OPriority Changing opes OInterrupt Processes	O Insp Susp	ect 🚫 Stuck or bended	I/O
Select CF	O to view	usiest	00	01	0	2 0) 3	04	05	06 07 08 09 010 0	11 () 12	2 () 13 () 14 () 1	.5 🗖
•										Not Logged On	Hints On	? Help Print	Screen

The Processes / Top Processes screen presents the top 'hitters' of various system resources.

The screen is configured by starting at the bottom and working your way up. Select the CPU to view, Process type and click one of the highlighted headings at the top of the page (Busy %, Mem, R, F).

The top information presented on this screen is always maintained by MOMI so that the internal computations are made only once per update interval. For example, to view the top memory users in CPU 1 of user processes, click CPU to view 1, Process Type to view Process Only and then click the Mem heading.

In the section "Select Process Type to view":

Everything	Displays all processes
NSK Processes	all Guardian processes
NSK User Processes	all Guardian processes except system processes
OSS Processes	all OSS processes
OSS User Processes	all OSS processes except system processes
Disks	disk process
Tapes	tape process
Priority Changing	processes with priority lowered by system (priority 255)
Interrupt Processes	on TNS/E interrupt processes
Stuck on I/O	processes in wait state of %004 (see IO-STUCK-INTERVAL)
Inspect	any process in Debug / Inspect
Suspended	any process suspended

Processes / Last Start/Stop

10H	MOMI - Multi-system	n Online Me	easure Inte	erf	ace ((Clie	nt	version	3.80)							
1	Black Wood Systems, Inc.	50]-			··· \ E	sws1	. Fast -	2002 🗸	Land I	ause	2004/1	0/28 .:32
-	- Back	Systems	Overview		CPUs	F	ro	cesses	Files	Sub	System	s *Histor	y Con	figure		
•	Top Processes Last	Start/Sto	P All Pro	ce	sses	P	oc	ess Deta	il Pro	cess	H Entity	Process	Entity	PgmF	tay	
Г	Last Processes STA	RTED														
	Date/Time	Cpu,Pin	Process	в	Pri	ΡT	SI	Object				UserID	LoginN	lame	Ancestor	^
	2004/10/28 13:39:35	00,00392	\$DDL		31	G		\$SYSTE	M.SYST	EM.DD)L	100,109	NET.	DW	\$Z2TG	
	2004/10/28 13:35:15	00,00336	\$Z2W3		90	G		\$DATA1	MOMI2	010.B	WMOMI	255,1	SUPER	OPER.	\$MOM0	
	2004/10/28 13:35:04	01,00387	\$Z2W2		90	G		\$DATA1	.MOMI4	.BWM	OMI	100,109	NET.	DW	\$MOMI4	
	2004/10/28 13:31:53	00,00394	\$Z2W1		90	G		\$DATA1	MOMI4.	.BWM	OMI	100,109	NET.	DW	\$MOMI4	
	2004/10/28 13:28:19	00,00114	\$STUCK		149	G		\$DATA1	.DALE.F	UP		100,109	NET.	DW	\$Z2TG	
	2004/10/28 13:27:36	01,00401	\$Z2W0		90	G		\$DATA1	.MOMI4	.BWM	OMI	100,109	NET.	DW	\$MOMI4	~
	C	01 00499	#7007		100	~		#OVOTE:	M eves	O THICT	DECT	100 100	CLINEN	CLINEN	#TMON	
	Last Processes STO	PPED														
	Date/Time	Cpu,Pin	Process	в	Pri	PT	SI	Object				UserID	LoginN	lame	Ancestor	^
	2004/10/28 13:39:30	00,00114	\$STUCK		149	G	SI	\$DATA1	.DALE.F	UP		100,109	NET.	DW	\$Z2TG	
	2004/10/28 13:35:40	00,00336	\$Z2W3		90	G		\$DATA1	MOMI2	010.B	WMOMI	255,1	SUPER	OPER.	\$MOM0	
	2004/10/28 13:35:15	01,00387	\$Z2W2		90	G		\$DATA1	.MOMI4	.BWM	OMI	100,109	NET.	DW	\$MOMI4	
	2004/10/28 13:32:20	00,00394	\$Z2W1		90	G		\$DATA1	MOMI4	.BWM	OMI	100,109	NET.	DW	\$MOMI4	
	2004/10/28 13:30:30	01,00432	\$Z2VZ		180	G		\$SYSTE	M.SYS3	O.INSP	PECT	100,109	SUPER.	SUPER	\$IMON	
	2004/10/28 13:28:30	01,00401	\$Z2W0		90	G		\$DATA1	MOMI4	.BWM	OMI	100,109	NET.	DW	\$MOMI4	
	2004/10/20 12:20:20	00 00024	ACTUCK		140	0	CT	#DATA1	DALES			100 100	NET	DW.	#70TC	
Ľ								DD→E	3							
9							_				Not L	ogged On] ? [Help	Print Sc	reen

The Processes / Last Start/Stop screen presents the last few processes that were created or terminated on the System.

This view of process turnover is as seen by MOMI. As such, short lived processes may not be reported on this screen.

During process creation, there is a short period of time where accurate information is not available. This very initial creation period is ignored by MOMI. A process is not considered stopped until it has been completely removed from the System or replaced by another process.

Processes started by MOMI, and any direct descendants, are not presented on this screen.

Processes / All Processes

	6-3000 N	иом	I (C	lient	vers	ion	4.23)																						
Black	vood	e.	100 50 n						1					 			s	κı	то	6-:	30	00		<mark>۲</mark>		^p ause.		2007/10 13:52:	/03 :43
- Back	× -	. *	Sy	stem	s 0	lver	view	C	PU	5	Pro	oc	esse	5	Fil	es	1	Sut	Sys	ster	ms	H	ist	ory	Alar	ms	Conf	igure	
Top Proc	esses L	ast	Sta	art/S	top	All	Proce	550	es	Р	roce		s De	tai	F	ro	ce	sst	1 En	tity		ro	ce	ss En	tity	Pgm	Ray		
CPU,PIN	Process	LH	в	IPri	CPri	PT	QLen	Р	F	R	IF	L	ols	L	D	c	?	N	SP	Т	M	0	*	Mem		MemB	ytes	Program	
00,00000		L		201	201	G	. 0	Ρ		R								Ν	SP					4.2	2	4,407	,296	\$SYSTEM	1-1
00,00001		L		210	210	G	0	Ρ										N	SP					344.6	5 36	1,381	,888,	\$SYSTEM	1
00,00002 L 210 210 G 0 P N SP 0.4 425,984 \$SYSTEM																													
00,00003	00,00003 \$0 L 201 201 G 0 P ? N SP 1.5 1,622,016 \$SYSTEM																												
00,00004	00,00004 L 211 211 G 0 P N SP 12.3 12,992,512 \$SYSTEM																												
00,00005 \$YMIOP L 205 205 G O P ? N SP 86.2 90,488,832 \$SYSTEM														1															
00,00006	\$ZNUP	L		200	200	G	0	Ρ										Ν	SP					0.3	3	409	,600	\$SYSTEM	1
00,00007	\$Z0	L		200	200	G	0	Ρ										Ν	SP					0.4	1	491	,520	\$SYSTEM	1
00,00008	\$ZOPR	L		201	201	G	0	Ρ										N	SP					0.6	5	720	,896	\$SYSTEM	1
00,00009	\$ZCNF	L		200	200	G	0	Ρ										N	SP					2.8	3	2,998	,272	\$SYSTEM	1
00,00011	\$ZTMOO	L		200	200	G	0	Ρ			F	L		L				N						2.1	L	2,277	,376	\$SYSTEM	1
00,00012	\$TMP	L		204	204	G	0	Ρ			F	Ľ		L				Ν						6.5	5	6,914	,048	\$SYSTEM	1
00,00013	\$ZT00	L		200	200	G	0	Ρ							D			Ν						2.9	9	3,080	,192	\$SYSTEM	1
00,00014	\$ZL00	L		200	200	G	0	Ρ							D				SP					2.1	L	2,293	,760	\$SYSTEM	1
00,00015	\$YPHI	L		167	167	G	0								D									11.0) 1	1,632	,640	\$SYSTEM	1
00,00016	\$NCP	L		199	199	G	0	Ρ							D			Ν	SP					1.1	L	1,196	,032	\$SYSTEM	1
00,00017	\$Z04M	L		150	150	G	0				F	L			D			Ν						0.7	7	802	,816	\$SYSTEM	1
<																												>	
				NSK	/oss	All	Proces	ses	;								No	Fi	lter		Dis	pla	yea	1	1,	199	of	1,1	.99
Clear	Confi	g		Tree		Aut	oUpdat	е			Re	qu	iest] –	d	ata	c	olle	cte	d 2	00	7/1	0/	03 1	3:51	:36			
•														N	ot I	.og	ge	d (Dn]		(Hir	ts On] ?	Help		Print Scr	een

The Processes / All Processes screen presents a comprehensive detail of each process requested. The detail provided is generally everything you wanted to know but were afraid to ask! The information is obtained by Guardian procedure calls.

The AutoUpdate check box causes automatic request of new data.

By default, pressing the request button will gather and report all processes on the System. While the data can be filtered and sorted as needed, the Config button allows the User to partially qualify the desired data.

	All Proces	ses Config Opti	ons	X
All Processes Limit by Type Guardian NSK only OSS only	O CPU O Object name O GMom	O HomeTerm O Ancestor O JobId	gie O UserID/UserName O Process Name O LoadFile Object	Request
U OSS ONLY	Element ID		~	Close

Limits entered on the Config Options pop-up require that the information return match the specified criteria. This reduces the information collected and speeds up the request.

Once data is retrieved, it may also be organized in a Tree View fashion. Pressing the Tree button displays the following:

	X		
 Descendants Current Priority 	○ Object Name ○ Home Terminal	○ User ID ○ Login Name	Request
O GMOM	O Family Tree for		Close

The organization items allow relationships to be better viewed. For example, displaying data by Descendants presents a hierarchy of the order of process creation.

🕮 MOMI (Client version 4.19)	
Black Wood Sustems, Inc. 100 Pause 2006/2 15:12	12/28 2:10
- Back - Systems Overview CPUs Processes Files SubSystems History Alarms Configure	
Top Processes Last Start/Stop All Processes Process Detail ProcessH Entity Process Entity PgmRay	
Process Descendants Tree for NSK/OSS All Processes	X
BWS1-2004 data collected 2006/12/28 15:10:19 = Process-{Priority}-(Login Name)-[Object]	
- \$START	
= \$IMON - {180} - (SUPER.SUPER) - [\$SYSTEM.SYS55.IMON] \$DMOO - {180} - (SUPER.SUPER) - [\$SYSTEM.SYS55.DMON]	
\$DM01 - (180) - (SUPER.SUPER) - [\$SYSTEM.SYS55.DMON]	
\$2BK0 - {180} - (SUPER.SUPER) - [\$SYSTEM.SYS55.INSPERKR]	
\$25500 - {180} - (SUPER.SUPER) - [\$SISTEM.SISSS.INSPENAP] \$25501 - {180} - (SUPER.SUPER) - [\$SYSTEM.SYS55.INSPENAP]	
- \$LSNO - {179} - (SUPER.OPER) - [\$SYSTEM.SYS55.LISTNER]	
$= \{179\} = (SUPER.OPER) = [$SYSTEM.SYS55.LISTNER]$	
\$20007 - {080} - (OPER.MAIN) - [\$DATA1.MOMI2010.BWMOMI]	
-\$21393 - {094} - (OPER.MAIN) - [\$DATA1.MOMI2010.BWMOMI]	
$= \{21396 - (169) - (OPER.MAIN) - [\{DATA1.MOMI2010.BWMOMI] \}$	
\$21399 - (167) - (OPER.MAIN) - [\$DATA1.MOMI2010.BWMOMI]	
- \$21400 - (170) - (OPER.MAIN) - [\$DATA1.MOMI2010.BWMOMI]	
\$21402 - (166) - (OPER.MAIN) - [\$DATA1.MOMI2010.BWMOMI]	-

The Tree View is based on the information gathered from running processes. Processes referenced in a hierarchy that are no longer active may cause gaps in the Tree View (i.e. a process may refer to an ancestor no longer running).

The Find button allows searching for text within the Tree View. This can be useful on large systems with a great deal of data.

MOMI server version 5.24 and later:

If a subtype 30 process is suspended or in debug/inspect a device query (where a message is sent) is avoided and error 160 (ZFIL^ERR^INVALIDSTATE) displayed in the **DI Error** column.

Processes / Process Detail

IDHI VBW	/\$1-	200	4 M	OMI (Client vers	ion 4.23)												
Blac	ck	Wo	od m	Enc.		4%				\BW	VS1-20	04		Pause	2007/10/01 15:25:41		
-	Bac	k	-	Systems	Overview	CPU	s *	Process	es F	iles Su	ubSystems	5 Histo	ory Al	arms Co	nfigure		
Top Processes Last Start/Stop All Processes *Process Detail ProcessH Entity Process Entity PgmRay																	
Proce	ess			#ZNET		Proces	s Enti	ty Time	,			ander The					
Objec	t			ŞZNET			NSR-	usy-11me Busu-Tim	ا آ م		0.35%	keady-IIr Dage-Fau	ne Ita		0.54%		
		\$S	YSTI	EM.SYS67.SCP		ыт	NS-B	usy-Time	- [0.13%	Dispatche	15		7.10		
CPU	0019	4 II 5 1	751	271 User ID E	00017	ā ,	Accel-	Busy-Tim	e [0.02% 1	aunches			0.00		
Memo	ory U	Jsed	P	FS in-use PFS M	ax-used	Ш L	aunch	-WaitTim	e [0.00%	Avg-Laun	ch-Time		0.000000		
8	368,	352		95,784 1	.27,008	문 Recv-Qtime			[0.00 Recv-Qlen-Max				3		
Wait	Wait PFR Code Type Type				Type	Msgs-Received				1.70 Msgs-Sent				3.00			
State				uppable	J Stop	0 Reply-Bytes				159.00 Sent-Bytes				420.00			
Start	\vdash	200	7/04							0.00	Comp-Tra		462.20				
		200	17700	0/27 15:45:12		<u> </u>											
5	à			File	File		Avg	Opener File	File		Messages	Reads	Writes	Updates	Deletes		
ð	Ped	tity	ents	Name	Time	-	Time	Nbr	Descr	iption				Replies	WriteReads		
has	ben	ШШ	eme	\$ZEXP.#ZSPI	0.27%	0.00	0933	20	unstru	ictured	3.03	0.00	0.00	0.00	3.03		
tity	2	per	Stat	\$RECEIVE	0.02%	0.314	4022	0	unstru	ictured	0.00	3.23	0.00	3.23	0.00		
Гс Ш	Liti	isko	SLS												and the second second		
File	le	ā	Ň												>		
Ľ.	<u> </u>			🟦 🗹 Get Files	this proces	s has C)pen	N	IO Filte	n 🗉 Data	a Time 15:2	25:29 - 1	Vext OO:	19			
		Proc	ess	\$ZNET	× 1	\$ ~											
Clea	r	Co	nfig		🗸 Rated V	alues		Sto									
•									Not	Logged	On Ch	at Hint	s On	? Help	Print Screen		

The Processes / Process Detail screen presents a comprehensive look into a process.

Click on the areas in the image above display additional information.

The screen presents resources consumed, files opened by the process, files opened to the process, and SQL Statements activity. The SQL Statements section is not activated by default.

Information on this screen is obtained via Guardian procedure calls and the MEASURE entities of Process, <u>File</u>, <u>DiskOpen</u>, SQL Process and <u>SQL Statement</u>.

Values by default are rated in a "Per Second" mode such as 1.40 Comp-Traps. Uncheck the Rated box causes raw values to display. The window of time for the Process Entity is visible by pushing the Page 3 button. The window of time for the File, DiskOpen and SQL Statements entities are visible by scrolling all the way over to the right.

WS1-2004 MOMI (Client version 4.23) 2007/10/01 Black Wood BWS1-2004 Pause ... 50 15:27:38 Suste - Back *Processes Systems Overview CPUs Files SubSystems History Alarms Configure *Process Detail ProcessH Entity Process Entity PgmRay Top Processes Last Start/Stop All Processes Process Process Entity \$SWAP1 Ready-Time CPU-Busy-Time 臣 0.14% 0.15% Object Page-Faults TNSR-Busy-Time 0.14% 0.00 \$SYSTEM.SYS67.TSYSDP2 PE2 TNS-Busy-Time Dispatches 0.00% 7.20 CPU, PIN IPri CPri User ID Backup Accel-Busy-Time Launches 0.00% 0.00 00,00286 220 220 255,255 01,00274 PE3 Launch-WaitTime Avg-Launch-Time 0.000000 PFS in-use PFS Max-used 0.00% Memory Used Recv-Qtime Recv-Qlen-Max 27,164,672 4,792 44,880 SQL 0.00 3 Wait PFR Code Type Туре Msgs-Received Msgs-Sent 2.70 0.00 317 Ρ TNS/R - Native RISC G **Received-Bytes** Sent-Bytes OSS 9,014.00 0.00 Stop **Reply-Bytes Returned-Bytes** State Runnable 124.80 0.00 U Checkpoints Comp-Traps ч 0.00 0.00 Start 2007/08/27 15:45:11 Disk Disk Request Device Disk Read Write Disk Disk Disk Disk *File Entity has Open à Name QBusy Writes Write Rate AST AST Busy QBusy Reads Read Entity Opened DiskOpen Entity Time Time Time Bytes Bytes Entity 4.60 \$SWAP1 4.60 0.005277 0.004819 0.00% 2.16% 0.00 18,841 2.16% 0 *Disk < File I > 🚓 🔽 Get Disk Entity Volume View NO Filter Data Time 15:27:34 - Next 00:13 **\$**~ Process \$SWAP1 V Clear Rated Values Config Stop Chat Hints On ? Help Not Logged On Print Screen

A Disk process displays similar information except the SQL Statements button is replaced by the Disk Entity.

The operation of the screen may be altered by the Config button:

Process Detail C	Config 🔀
🔲 Simple View	
🔲 Display All records	
Continue on Errors	Close

The **Simple View** will reduce or 'down size' the amount of information presented. By Default, records in the File, DiskOpen and SQL Statements do not display records with zero values (i.e. open but not active).

The Display All records option allows zero value records to be displayed.

The **Continue on Errors** option causes the screen to continue gathering data even when the process being measured has stopped (i.e. the display of data automatically picks back up again if the process is restarted). This is useful for transient processes or during debugging sessions.

Below is a sample screen for the Simple View selection:

BWS1-2004 MOMI (Client version 4.23)													
Black Wood	100 50 0				·	\BV	\ BWS1-2004					/01 07	
- Back	- Back - Systems Overview CPUs *Processes Files SubSystems History Alarms Configure												
Top Processes Last Start/Stop All Processes *Process Detail ProcessH Entity Process Entity PgmRay													
Process	+		Pr	ocess Entity				,					
Object	ŞZN	ET		PU-Busy-Time		0.45%	Ready-Ti	me	0.	91%	Begin-Trans	_	
\$SYS	TEM.SYS67.	SCP		NSR-Busy-Time		D.16%	Page-Fau Dispotebu	iits		<u>0.00</u> [0.0		
CPU,PIN IPri CPri User ID Backup Accel-Busy-Time 0.25% Dispatches											Abort-Irans		
00,00015 175	DES in uno	55 01,000		aunch-WaitTime		0.03%	Avg-Laur	ich-Time	0.00	0.00 [1000]	0.0		
868.352	95.784	127.0	008 R	ecv-Qtime		0.00	Recv-Qle	n-Max	3 File-Open-Calls			ls	
Wait PFR	Code Ty	ре Т	ype M	sgs-Received		1,99 Msgs-Sent				. 0.0			
011 P	TNS - 16-bi	t CISC	G R	eceived-Bytes	2	210.07 Sent-Bytes			553.20 File-Info-Calls			Is	
State	Runnable	s	top R	eply-Bytes	1,1	1,136.15 Returned-Bytes			97	3.78	0.0	0	
Start 2007/	08/27 15:45	:12		heckpoints	0.00 Comp-Traps			59.47					
File Name	File Busy	Avg Op	Opener File	File Type	Messages	Reads	Writes	Updates or	Deletes or	Info Calls	Timeouts	5	
	Time	Time	Nbr	Description				Replies	WriteReads		Cancels		
\$ZEXP.#ZSPI	0.21%	0.000951	20	unstructured	2.24	0.00	0.00	0.00	2.24	0.00	0.00	(
\$RECEIVE	0.02%	0.437433	0	unstructured	0.00	2.28	0.00	2.28	0.00	0.00	0.00	(
			-	1	- 1					_		2	
Proces	\$ZNET		\$	」↔	FILE	No	Filter	Displayed	3	2 of	ļ	2	
Clear Conf	fig	🔽 Ra	ated Valu	Jes 📘 S	top 🗖 Da	ta Tim	e 15:28	:03 - Nex	kt 00:29				
•					Not L	ogged	On	Chat Hir	its On ?	Help	Print Scre	en	

Processes / ProcessH Entity

🕮 \BWS1-2004 MOMI (Client version 4.23)											
Black Wood		<i>6%</i>	\BWS1-200)4 🔽	Paus	e 200	07/10/02 5:21:15				
	/iew	CPU	s *Processes Files SubSystems	History	Alarms	Config	ure				
Top Processes Last Start/Stop All Processes Process Detail *ProcessH Entity Process Entity PgmRay											
Process Object \$ZNET		Code Space ID	Code Range Name	CR Proc Busy Percent	CR Busy Samples	CR Busy Percent	Code (🔨 Name				
STSTEM.STS67.SCP		SCr	CODERANGE-0X80800000-0X81FBFFFF	20.8	34	100.0	\$SYST				
00 00015 175 175 255 01 0001	7	SLr	CODERANGE-0X7C000000-0X7C5DBFFF	14.7	24	100.0	\$SYST				
Memory Used PFS in-use PFS Max-use	<u> </u>	UC	APPL^PROCESSIOREQUEST	6.7	11	12.3	\$SYST				
868,352 95,784 127,00	8	UC	KX^RECEIVEDONE	4.2	7	7.8	\$SYST				
Wait PFR Code Type Ty	pe	UC	KP^CYCLELOOP	4.2	7	7.8	\$SYST				
011 P TNS - 16-bit CISC	G	UC	KP^FILENAMETOSTRING	4.2	7	7.8	\$SYST				
State Ruppable St	op	UC	SCP^SERVERRECEIVE	4.2	7	7.8	\$SYST				
	V	UC	SCP^SERVERSEND	4.2	7	7.8	\$SYST				
Start 2007/08/27 15:45:12		UC	KX^PREPAREDISPTRACE	3.6	6	6.7	\$SYST				
CPU Busy % 0.41%		UC	KP^GETMEMORYTAGGED	3.6	6	6.7	\$SYST				
	=	UC	SCP^PUTMEMORY	3.6	6	6.7	\$SYST				
Comp Traps 547 54.70/se	읙	ULr	CODERANGE-0X7F800000-0X7F827FFF	3.0	5	100.0	\$SYST				
Process samples 16	3	SL	CODERANGE-0X7A000000-0X7A01FFFF	3.0	5	100.0	\$SYST				
Session Time 0:08:32		UC	KP^PUTMEMORY	3.0	5	5.6	\$SYST				
		UC	KPATIMESTATSET	1.8	3	3.3	\$SYST				
		UC	APPL^AWAITIOX	1.2	2	2.2	\$SYST				
Measurement Code Type		UC	KP^PUSHBOTTOM	1.2	2	2.2	\$SYST 💌				
Oser Osystem Oboth		<					>				
Process \$ZNET	~	TOOL	No Filter	Г	29	of	29				
Clear Print List			Stop 🗖 Data Time 16:19:50) - Next (1:40						
•			net.dw Chat	Hints C	in ? He	elp Pri	nt Screen				

The Processes / ProcessH screen presents the locations within the process code where CPU time is spent. This information is obtained from the MEASURE ProcessH entity.

While a process has a busy time, the areas of code where it spends its execution time are of interest to developers and may reveal locations that are not performing efficiently. Generally, only a developer with access to the source code can interpret the meaning of the values given on this screen.

Three types of Measurements are available: User, System, or Both.
User code generally is the area of the program the developer has actually coded. This includes the main object file plus all loadfiles (i.e. SLRs and DLLs) <u>not</u> located in \$SYSTEM.SYSnn or \$SYSTEM.ZDLL.

System code is the area spent in the operating system supplied routines and is defined as the loadfiles (i.e. SLRs and DLLs) located in \$SYSTEM.SYSnn or \$SYSTEM.ZDLL.

Both are a combination of User and System.

The image below shows some of the additional procedure information obtained with **Both** is selected.

📟 \BWS1-2004 MOMI (Client version 4.23)	
Black Wood	\BWS1-2004 V Pause 2007/10/02 16:24:34
	CPUs *Processes Files SubSystems History Alarms Configure
Top Processes Last Start/Stop All Proc	cesses Process Detail *ProcessH Entity Process Entity PgmRay
Process \$ZNET G Object \$SYSTEM.SYS67.SCP I CPU,PIN IPri CPri User ID Backup 00,00015 175 175 255,255 01,00017 Memory Used PFS in-use PFS Max-used 868,352 95,784 127,008 Wait PFR Code Type Type 011 P TNS - 16-bit CISC G State Runnable Stop N Start 2007/08/27 15:45:12 N	Code Code Range Space Name D UC VC KP^CYCLELOOP UC KX^PREPAREDISPTRACE SCr NSK_PCB::ensurePageTablePresent(unsigned long &, unsigned int, unsigned int { SCr NSKM_PTEArray::ensurePagePresent(unsigned long, unsigned int, unsigned int, f SCr WAIT SLr FS_GETEXPLICITSUBVOL_ SCr FS_AWAITIOX_CC_ SLr FNAME32TOFNAME UC KP^FILENAMETOSTRING UC APPL APPLOCESSIOPEQUEST
CPU Busy % 0.46% Comp-Traps 614 Process samples 22 Session Time 0:01:21	UC KP^TIMERECALL SCr DCT_LOCATE_NAME_ UC APPL^AWAITIOX SCr DCT_WAITED_FIND_BY_NAME_ SL SSCHECKBUF SL ZSPI^TCODEEXPND
Measurement Code Type User System O Both Process \$ZNET	No Filter 16 of 16 Stop Data Time 16:24:11 - Next 01:19 16
•	net.dw Chat Hints On ? Help Print Screen

Measuring the System code may be an interesting exercise, but will usually result in reporting locations that don't make much sense. This is due to the fact that documentation on internal operating system routines are not published. On occasion, the code area may have a name that directly relates to a system call initiated by the developer (such as FILE_SETKEY_ (position within an Enscribe file) or malloc (a C memory allocation routine)).

A Code Range with a name of CODERANGE (sample highlighted in yellow above) followed by hexadecimal numbers are locations where time was spent but a procedure (or function) name was not available. More recent releases of MEASURE seem to collect information on the entire process even if only the user area is selected. The Code Range may indicate system code, SRL's or DDL's.

A Code Range is an individual function or procedure within a program. Programs are typically comprised of many functions or procedures. Exceptions to this are COBOL and Java which is interpreted code not supported by this MEASURE entity.

A Code Space is a logical grouping of one or more Code Ranges. This typically could be thought of as all of the Code Ranges within program file comprise a Code Space. However, a process accesses many Code Spaces as each SRL or DLL and the Operating System itself are divided into Code Spaces.

The column CR Proc Busy Percent reports the percentage of the total process busy time the code range was active. This column is the best overall indicator to the activity of a Code Range.

This screen continually gathers data in increasing increments. The initial sample is of a short period of time increasing to longer periods of time. This allows a relatively quick display of initial samples while easing the system load if the measurement is left to run. Internally, MOMI combines data from each measurement and displays the seamless results. You can leave this measurement running for hours to gather data, which is sometimes required.

Security Note: The User ID that MOMI operates under must be able to READ the object file(s) of the process under measurement. MEASURE requires this information in order to obtain procedure/function names and code range locations.

Processes / Process Entity

MOMI - N	MOMI - Multi-system Online Measure Interface (Client version 3.82)												
Black	land	100		uuc 1	Eact - 200	2 rB1	Dawaa	2004/12/03					
Diach N	stoms, Inc.	n		BWS1 Fast - 20				16:38:14					
- Back	-1	Systems Overview CPUs	*Processes Files	Sul	Systems	History Co	nfigure						
Top Proce	sses Last	Start/Stop All Processes	Process Detail Pro	ocessi	l Entity *P	rocess Enti	ty *Pgm	Ray					
CPU, PIN	Process Name	Program File Name	Program Code Type	Init Pri	CPU Busy Time	Ready Time	TNS Busy Time	TNSR A Busy Time					
00,00000	\$MONITOR	\$SYSTEM.SYS31.OSIMAGE	TNSR - Native RISC	201	1.02%	1.14%	0.00%	1.02%					
00,00001	\$VIRTUAL	\$SYSTEM.SYS31.OSIMAGE	TNSR - Native RISC	210	0.00%	0.00%	0.00%	0.00%					
00,00002	\$MSENGER	\$SYSTEM.SYS31.OSIMAGE	TNSR - Native RISC	210	0.00%	0.00%	0.00%	0.00%					
00,00004		\$SYSTEM.SYS31.OSIMAGE	TNSR - Native RISC	211	0.00%	0.00%	0.00%	0.00%					
00,00005	\$0	\$SYSTEM.SYS31.OSIMAGE	TNSR - Native RISC	201	0.02%	0.02%	0.00%	0.02%					
00,00006	\$ZNUP	\$SYSTEM.SYS31.OSIMAGE	TNSR - Native RISC	200	0.00%	0.00%	0.00%	0.00%					
00,00007	\$Z0	\$SYSTEM.SYS31.OSIMAGE	TNSR - Native RISC	200	0.00%	0.00%	0.00%	0.00%					
00,00008	\$ZOPR	\$SYSTEM.SYS31.OSIMAGE	TNSR - Native RISC	201	0.00%	0.00%	0.00%	0.00%					
00,00009	\$ZRMOO	\$SYSTEM.SYS31.OSIMAGE	TNSR - Native RISC	200	0.00%	0.00%	0.00%	0.00%					
00,00010	\$ZTM00	\$SYSTEM.SYS31.TMFMON2	TNSR - Native RISC	200	0.01%	0.03%	0.00%	0.01%					
00,00011	\$ZL00	\$SYSTEM.SYS31.ROUT	Accelerated	200	0.00%	0.00%	0.00%	0.00%					
00,00012	\$TMP	\$SYSTEM.SYS31.TMFTMP	TNSR - Native RISC	204	1.11%	1.62%	0.00%	1.11%					
00,00013	\$ZZLAN	\$SYSTEM.SYS31.LANMAN	TNSR - Native RISC	180	0.00%	0.00%	0.00%	0.00%					
00,00014	\$ZM00	\$SYSTEM.SYS31.QIOMON	TNSR - Native RISC	201	0.01%	0.02%	0.00%	0.01%					
00,00015	\$ZNET	\$SYSTEM.SYS31.SCP	TNS - 16-bit CISC	175	0.00%	0.00%	0.00%	0.00%					
00,00024	\$ZSVR	\$SYSTEM.SYS31.ZSERVER	TNS - 16-bit CISC	149	0.00%	0.00%	0.00%	0.00%					
<								> ~					
Proc	ess Name	\$*	~	No F	ilter Displ	ayed Col	lecting of	10					
Clear	Config	✓ Rated Values	Stop dat	a colle	ected 2004/	12/03 16:3	8:09						
•					Not Logg	ed On 🤶 ?	Help	Print Screen					

The Processes / Process Entity screen presents the MEASURE Process Entity in tabular format for a number of processes.

This screen differs from the <u>Processes / All Processes</u> screen in that MEASURE is used to obtain the information rather than Guardian procedure calls.

The data retrieved may be limited to a single process or all processes in a CPU.

Values by default are rated in a "Per Second" mode such as 5.8 Messages Sent. Uncheck the Rated box will cause raw values to display. The window of time is visible by scrolling all the way over to the right.

Processes / PgmRay

📟 MOMI - Multi-system Online Mea	sure Interface (Client version 3.74)			
Black Wood 50		\BWS1	East - 2002 🗸		2004/05/26
Systems, Inc.		(BH31			09:54:27
- Back - Systems O	verview CPUs *Processes Fi	les *Su	bSystems Histo	ry Configure	
Top Processes Last Start/Stop	All Processes Process Detail	ProcessH	Entity Process	Entity *Pgml	₹ay
General stats	General stats				
Process					
\$MOMT2	started connected	HW			
Object	Ports 14 2	4	Last Task_tcip	error	4120
			Write bytes ne	r sec limit	0
Busy % CPU,PIN	TCP/IP I/O writes	60,101	Write bytes pe	r second	402
0.8% 00,00393	TCP/IP I/O writes saved	11,769	Write limitati	ons	0
IPri CPri Memory (MB)					
160 160 3.9	Accelerated IOs (1-4)	0	0	0	0
PFRI flags User ID					
	Pctrl requests failed	0			
Ancestor Wait State	Process getinfolist Count	0	Unimorm err	0 Deteil	
Creation Date/Time	FICESS_gecIntofise_ counc	, v	onknown err	o pecarr	, and the second se
2004/05/21 17:40:07	Collector subtype 30 error -	Count	0		
Home Terminal		Error	0		
\$YMIOP.#CLCI					
	Page Line User Pages				lestal estal
Process \$MOMI2	F1 F2 F3 F4	+ SFS SF	F7 F8 F9	F10 F11 F12	F13 F14
	TI TI System Pages	1.01.0			
Clear Config Stop					
			Not Loggod 0-		Dwint Councer
• 1		L	Not Logged Un	f Help	Print Screen

The Processes / PgmRay screen presents information using an internal interface into MOMI and other programs written by BlackWood Systems.

Various aspects of internal information such as memory usage, open files, message traffic and task status are available. The function keys F1 through F14 provide generally fixed information. The function keys SF1 through SF14 provide information specific to the program.

This screen is only for use in BlackWood Systems programs. Users should not attempt to use it on other processes because the attempt to open a process and query it for information may affect the operation of programs not expecting this message.

The screen is used internally by BlackWood Systems and may be required in troubleshooting certain enduser problems.

This screen is turned off by default and is enabled on the screen Configure / Client / Single Screen.

Files

Files / File Explorer

📟 \BWS1-2004 MOMI (CI	ient v	version 4.23))										
Black Wood Systems, Inc. BWS1-2004 V Pause 200													
- Back Sy	- Back - Systems Overview CPUs Processes Files SubSystems History Alarms Configure												
File Explorer Enscribe SQL/MP Disk Entity DiskFile Entity DiskOpen Entity File Entity													
NSK OSS \$SWAP1.TAPECAT													
🕤 \$AUDIT	\times	FileName	Code	FileCode		EOF	%Full F	ull Percent gauge	e Mod 🔼				
🛱 \$DATA1		BASETABS	572	NonStop SQL (base	tables) file	12,288	0%		200!				
M \$DATA2		COLUMNS	573	NonStop SQL (colur	mns) file	65,536	0%		200!				
		COMMENTS	574	NonStop SQL (comr	ments) file	0	0%		200!				
		CONSTRNT	575	NonStop SQL (const	traints) file	0	0%		200!				
		CPRLSRCE	587	NonStop SQL (cprls	rce) file	0	0%		200!				
Succession Stress		CPRULES	586	NonStop SQL (cprul	les) file	0	0%		200!				
SWAP1		FILES	576	NonStop SQL (files)	file	12,288	0%		200!				
IPMS		INDEXES	577	NonStop SQL (index	xes) file	12,288	0%		200!				
PLUS1		IXINDE01	577	NonStop SQL (inde:	xes) file	12,288	0%		200!				
R6533ABU		IXPART01	579	NonStop SQL (parti	tions) file	0	0%		200!				
R9552ADH		IXPROG01	580	NonStop SQL (prog	rams) file	0	0%		200!				
R9750AFK		IXTABL01	581	NonStop SQL (table	s) file	12,288	0%		200!				
SAFE		IXUSAG01	583	NonStop SQL (depe	ndancies) file	12,288	0%		200!				
SPI S		KEYS	578	NonStop SQL (keys) file	16,384	0%		200!				
SYCSWAD		PARTNS	579	NonStop SQL (parti	tions) file	0	0%		200!				
STSSWAP		POOL	900	DSM/TC tape catalo	og file	0	0%		200! 🧹				
	<								>				
SYSTEM	Tool				No Filt	er Di	splayed	33 of	33				
Config Update													
•				N	ot Logged On	Cha	t Hints	On ? Help	Print Screen				

The Files / File Explorer screen provides a powerful high level graphical navigator for NSK (i.e. Guardian) and OSS files. Operations such as drag-and-drop, copy-and-paste and other right-click functions are supported.

On the left side of the screen are listed disk volumes and clicking on a disk volume displays its subvolumes. Clicking on a subvolume displays on the right the files under that subvolume. The disk volume displays in color the approximate percentage full for the disk.

Actions that are available are displayed by right-clicking on a file name.

📟 \BWS1-2004 MOMI (Client version 4.)	23)												
Black Wood Sustems, Inc.	\BWS1-2004 V	Pause 2007/10/02 14:12:40											
Back Systems Overview CPUs Processes Files SubSystems History Alarms Configure													
File Explorer Enscribe SQL/MP Disk Entity DiskFile Entity DiskOpen Entity File Entity													
NSK OSS \$SWAP1.IPMS													
🗂 \$AUDIT	Code FileCode	EOF %Full Full P											
SDATA1 R6533ABI	J 991 Compressed IPM/SPR file (SWARCSET to decompress)	792,208 1%											
R9552AD	H 991 Compressed IPM/SPR file (SWARCSET to decompress)	1,264,799 2%											
SDSMSCM R9750AF	601 Compressed TDM/SDD file (SW/ADCSET to decompress)	2,726,255 4%											
SMOMI01	\$5WAP1.IPM5.R9750AFK												
A soss	View File Detail												
A \$SWAP1	View File Contents												
TPMS	View File Contents												
PILIS1	Edit File on PC												
P65330BU	Copy File into Clipboard												
R05520DH	Paste File .												
B075045K	Paste File												
R9750AFK	Purge File												
SAFE	Purge File Data												
SPLS	Rename File												
SYSSWAP	Alter File F Copy "\$SWAP1_IPMS_R9750AEK" to Clipboard												
		>											
SYSTEM	Cancel Displayed	3 of 3											
	· · · · · · · · · · · · · · · · · · ·												
coming opulate -													
•	net.dw Chat Hints On	? Help Print Screen											

Selecting the OSS tab displays a tree view of the OSS file system on the left and files under the currently selected subdirectory. Subdirectories on the left continue to drill-down if selected.

🔤 \BWS1-2004 MOMI (Client	🕮 \BWS1-2004 MOMI (Client version 4.23)													
Black Wood	Black Wood Sustaines, Inc. BWS1-2004 V Pause 2007/10/02 14:15:46													
File Explorer Enscribe S	QL/MP	Disk Entity	DiskFile Ent	tity DiskOpe	en Entit	y File	Entity							
NSK OSS 🖆 /bin/unsupported														
E	🔀 dir	FileName	->	Permissions	Links (Size	Last Mod	Last Acce 🔼						
G	7 9	at	/bin/at	lrwxrwxrwx		7	2006/11/23 20:27:11	2006/11/:						
🖨 🗀 bin	8	atq	/bin/atq	lrwxrwxrwx		8	2006/11/23 20:27:11	2006/11/:						
	8	atrm	/bin/atrm	lrwxrwxrwx		9	2006/11/23 20:27:11	2006/11/:						
share	8	banner	/bin/banner	lrwxrwxrwx		11	2006/11/23 20:27:11	2006/11/:						
	9	batch	/bin/batch	lrwxrwxrwx		10	2006/11/23 20:27:11	2006/11/:						
dev	6	cal	/bin/cal	lrwxrwxrwx		8	2006/11/23 20:27:11	2006/11/:						
etc	<u>9</u>	clear	/bin/clear	lrwxrwxrwx		10	2006/11/23 20:27:11	2006/11/:						
	<u></u>	compress	/bin/compress	lrwxrwxrwx		13	2006/11/23 20:27:11	2006/11/:						
	<u>_</u>	сріо	/bin/cpio	lrwxrwxrwx		9	2006/11/23 20:27:11	2006/11/:						
	<u>_</u>	cron	/bin/cron	lrwxrwxrwx		9	2006/11/23 20:27:11	2006/11/:						
	<u>_</u>	crontab	/bin/crontab	lrwxrwxrwx		12	2006/11/23 20:27:11	2006/11/:						
	<u>_</u>	df	/bin/df	lrwxrwxrwx		7	2006/11/23 20:27:11	2006/11/:						
usr	<u>_</u>	du	/bin/du	lrwxrwxrwx		7	2006/11/23 20:27:11	2006/11/:						
······ var	<u>9</u>	egrep	/bin/egrep	lrwxrwxrwx		10	2006/11/23 20:27:11	2006/11/:						
	<u>9</u>	fgrep	/bin/fgrep	lrwxrwxrwx		10	2006/11/23 20:27:11	2006/11/:						
								>						
	TOOL			No F	ilter	Displa	yed 45 of	45						
Config Update 🗆														
•				net.dw		Chat	Hints On ? Help	Print Screen						

Actions that are available are displayed by right-clicking on a file name.

📟 \BWS1-2004 MOMI (Clie	🕮 \BWS1-2004 MOMI (Client version 4.23)												
Black Wood Systems, Inc. 100	Black Wood Systems, Inc. BWS1-2004 V Pause 2007/10/02 14:23:02												
Back Systems Overview CPUs Processes Files SubSystems History Alarms Configure													
File Explorer Enscribe SQL/MP Disk Entity DiskFile Entity DiskOpen Entity File Entity													
NSK OSS 🖆 /home/dale													
	~		dir	FileName	->	Per	missions	Links	0	Size	Last Mo	d	
		ar		Jimmy		dru	x	Links	-	4,096	2007/08	- 3/11 19:3	c 🛛
⊨ □ bin				test		dru	xrwx			4,096	2007/03	7/31 08:3	c 📗
			9	slink	/home/dale/AST1	lrw	JXTWXTWX			4	2007/03	7/02 11:3	1
share				AST1		-rw	7x			4,030	2007/03	7/26 11:5	3
				AST1 copy 2		-rw	7x			4,030	2007/03	7/02 16:1	ε
dev			E	Big1		-rw	7x			357,949	2007/03	7/25 14:4	8
etc			E	Big11	/home/dale/Big1		¢			357,949	2007/07	7/25 14:3	2
examples				Big2	Edit File on PC		{			357,949	2007/03	7/18 13:1	ε
				с	Copy File into Clipboard	ard	{			4,030	2007/03	7/26 10:5	7
				d	Paste File		{			4,030	2007/07	7/19 08:4	9
				df	Paste File		<u>د</u>			4,030	2007/07	7/19 08:4	2
				EXTDECS0.	Rename File 📐		-rw-rw-			357,949	2007/07	7/18 13:1	8
				MOMIST	Remove File 🐴		-rw-rw-		1	10,011,852	2007/03	7/27 16:1	8
				MOMIST.txt	Unitink		-rw-rw-			9,316,921	2007/03	7/30 13:5	2
	-	<			Create Link							>	
	~	TOOL)		Cancel		Filter	Displa	ayed	1	.4 of		14
Config Update							-						
		1							_		_		
•						net.e	dw	Chat	Hir	nts On ?	Help	Print Sc	reen

Additional pop-up information is displayed if the mouse is placed over the Permissions field. This pop-up provides a more friendly translation for the security screen field.

🕮 \BWS1-2004 MOMI (Client version 4.23)												
Black Wood Systems: Inc. 100 Pause 2007/1 14:25												
- Back - Systems Overview CPUs Processes Files SubSystems History Alarms Configure												
File Explorer Enscribe SQL/MP Disk Entity DiskFile Entity DiskOpen Entity File Entity												
NSK OSS		1	/ho	ome/dale								
E E	^		dir	FileName	->	Permissions	Links	0	Size	Last Mod		
G				Jimmy		drwx			4,096	2007/08/11 19:30		
🖃 🗀 bin				test		drwxrwx			4,096	2007/07/31 08:30		
			9	slink	/home/dale/AST1	lrwxrwxrwx			4	2007/07/02 11:31		
- share				AST1		-rwx			4,030	2007/07/26 11:53		
			AST1 copy 2		-rwx			4,030	2007/07/02 16:18			
ansappore	Cu I			D 1						and and the state of the		

The Config button displays configuration settings for this screen such as the Windows editor to launch when editing a file and sounds played.

		Configure Editor Settings	X
Editor		DOS Format	ASCII File extensions
NOTEPAD.E	XE	UNIX Format	Add
Edit On PC 9	ettings		101 1ST Remove
Download	BEEP	🗾 🔁 🔍	ASP BAT
Upload	BEEP	🚔 🧕	C No File CFM .Ext
Error	BEEP		CGI
		Save	Cancel

The **Editor** field defines the Windows program that is launched when editing a file. Editing a file involves the following steps: 1) the file is transferred from the NonStop System to the PC using an internal transfer method (FTP is not involved), 2) the Editor is launched and, 3) after exiting the Editor the file is transferred back to the NonStop System (if changed)

The **DOS** and **UNIX** format selection determines how line termination is formatted for ASCII files. The DOS Format uses a CR/LF and the UNIX Format uses a LF to terminate a line. This selection determines how the file is prepared for the Editor.

Edit On PC Settings selects various sounds played during file transfers and if an error occurs.

The **ASCII File extensions** determine when a file is consider ASCII, or a readable text file, and edit is allowed. Otherwise, the file is considered binary and is not editable.

Enscribe

Enscribe / Volume

	🗏 MOMI - Multi-system Online Measure Interface (Client version 4.15)													
Bl	Bigstrome, Inc. Bigstrome, Inc. Pause 2006/09/06													
<	– Back	-	-	System	s Overviev	CPUs P	rocesses F	iles SubSys	tems His	story Alarn	ns Configu	ire		
En	scribe	sq	L/MP	Disk En	tity DiskFil	e Entity Di	skOpen Entit	y File Entity	•					
Vo	lume	Sub	Volu	me File	File Open	er File Det	ail View Fil	e Cache Lo	cks					
Vo	lume	L	.DEV	Туре	DiskPath(P) Primary	DiskPath(B) Backup	DiskPath(M) Mirror	DiskPath(MB) MirrorBackup	Capacity (MB)	Capacity (Pages)	FreeSpace (MB)	Free 🔨		
\$A	UDIT	-	160	Magnetic	UP	*UP	UP	*UP	8,837	4,315,357	7,887	3,8		
\$D	ATA1		158	Magnetic	UP	*UP	UP	*UP	8,837	4,315,357	3,260	1,5		
\$D	SMSCM		157	Magnetic	UP	*UP	UP	*UP	17,901	8,740,994	7,066	3,4		
\$M	IOMI01		151	Magnetic	*UP	UP	*UP	UP	17,901	8,740,994	6,065	2,9		
\$P	CS1		150	Magnetic	*UP	UP	*UP	UP	8,837	4,315,357	1,543	7		
\$S	WAP1		140	Magnetic	*UP	UP	*UP	UP	8,837	4,315,357	3,733	1,8		
\$S	YSTEM		6	Magnetic	*UP	UP	*UP	UP	36,099	17,626,876	25,421	12,4		
\$T	EMP1		138	Magnetic	*UP	UP			8,837	4,315,357	2,674	1,3		
\$T	EMP2		137	Magnetic	*UP	UP			8,837	4,315,357	8,713	4,2		
\$V	DP1		133	Virtual	*UP				17,675	8,630,714	11,387	5,5		
\$V	DP2		132	Virtual	*UP				17,675	8,630,714	11,387	5,5		
\$V	PD3		131	Virtual	*UP				17,675	8,630,714	11,387	5,5		
\$V	PD4		130	Virtual	*UP				17,675	8,630,714	11,387	5,5		
\$V	PD5		129	Virtual	*UP				17,675	8,630,714	11,387	5,5 🞽		
<												>		
T00								Total V	olume Cap	acity(MB)		248,648		
	Vo	lume	\$*				🗸 🔁	No Filte	Displa	yed	16 of	16		
C	lear						Request 🗖	data collecte	d 2006/0	9/06 16:18:	39			
0								Not Logg	ed On	Hints On ?	Help Pri	int Screen		

The Enscribe / Volume screen presents the disk present on the System. Virtual and Magnetic (real disk drives) are displayed.

Information displayed includes capacity, free space, fragments, if the volume may have TMF audited files, and drive product number. Mirrored volumes display additional information.

The screen supports drill down by right clicking on a drive to bring up a selection of jump options.

Yolume	Sı	ıb¥olu	me File	File Open	File Opener File Detail				
Volume		LDEV	Type DiskPath(P) DiskPath(B Primary Backup			Dis	;kPath(M) Mirror	Disk Mirro	
\$AUDIT		120	Magnotio	UD	*110		UP		
\$DATA1		\$AUD	IT - View S		UP				
\$DATA2		\$AUD	IT - View Files	for this Volume			*UP	-	
\$DSMSCM	1	\$AUD:	IT - View Oper	ners for this Volu	ume		UP		
\$MOMI01	١.,	Copy	\$AUDIT to C	.lipboard 	<u>.</u>	_	*UP		
\$oss		157	Magnetic		UP				
\$SWAP1		147	Magnetic	*UP	UP		*UP		
\$SYSTEM		6	Magnetic	*UP	UP		*UP		

Enscribe / SubVolume

🖷 MOMI - Multi-system	Online Measure	Interfac	e (Client ve	ersion 4.15)	×
Black Wood Systems, Inc.	100 50	3%		► ► ► ► ► ► ► ► ► ► ► ► ► ► ► ► ► ► ►	05 8
- Back S	ystems Overv	iew CF	PUs Proce	esses Files SubSystems History Alarms Configure	
Enscribe SQL/MP D	isk Entity Disk	File Ent	ity DiskOp	pen Entity File Entity	
Volume SubVolume	File File Or	ener F	ile Detail	View File Cache Locks	
Cublicher	Cubual Circ	Files	o Locaust		
		riles 1	0 OCount		
	0 985 064	28			
COSMSCM SAFE	9,903,004	1	0 1		
	292 352	28	· 1		
\$DSMSCM.SYS	10.322	4			
\$DSMSCM.TESTCAT	1,435,820	24			
\$DSMSCM.XBWS1	61,175,166	118			
\$DSMSCM.XPHIHDB	132,384,502	211			
\$DSMSCM.ZPHI0001	2,981,336,388	6,730			
\$DSMSCM.ZPHI0003	57,558	1			
\$DSMSCM.ZPHI0009	1,117,102,326	1,363			
\$DSMSCM.ZPHI000B	534	1			
\$DSMSCM.ZPHI000D	2,035,572	10			
\$DSMSCM.ZPHI000G	68,529,510	80			
\$DSMSCM.ZPHI000I	2,906	1			
SDSMSCM.ZPHI000J	1.580.748	5		· · · · · · · · · · · · · · · · · · ·	
				Total SubVol Size 10,482,189,024	
Vol.SubVol SDSMS	ICM			✓ ☺ [*] No Filter Displayed 51 of 51	
Clear	No I	Details	📕 Requ	uest data collected 2006/09/05 16:29:16	-
-					2
•				Not Logged On Hints On ? Help Print Scree	en

The Enscribe / SubVolume screen presents a list of subvolumes following the Guardian file naming convention.

The total number of bytes of the files comprising the subvolume, number of files present, if any files are open and the count of open files are displayed.

The option "No Details" directs that the above statistics are not gathered. This speeds the process of gathering data.

Temporary files on a disk are referenced as \$vol.#*. The search specification of \$*.#* displays all volumes with temporary disk files.

Enscribe / File

🏙 MOMI - Multi-system Online Mea	asure Interface (Client version 4.15)		
Black Wood	* \BWS1	2004 🗸 📳 Pause	2006/09/05 16:30:53
- Back Systems O	Verview CPUs Processes Files SubSys	tems History Alarms Confi	gure
Enscribe SQL/MP Disk Entity	DiskFile Entity DiskOpen Entity File Entity	,	
Volume SubVolume File F	ile Opener File Detail View File Cache Lo	rks	
	Code FileCode	EOF %Full Full Percent gau	ige 🔼
\$SYSTEM.SYSTEM.ACLH	101 EDIT-format file	530 0%	
\$SYSTEM.SYSTEM.ADCSHELL	101 EDIT-format file	82,156 0%	
\$SYSTEM.SYSTEM.AHEXOBJ		49,152 4%	
\$SYSTEM.SYSTEM.ALGORICC	101 EDIT-format file	76,180 0%	
\$STSTEM.STSTEM.ALGORITZ	101 EDIT-format file	66,040 0%	
\$STSTEM.STSTEM.ALGORITM	101 EDTI-format file	92,030 0%	
\$STSTEM.STSTEM.APCCDC	100 Object file (TNS)	90,112 0%	
\$STSTEM.STSTEM.APCHEX		14,336 18%	
	101 EDIT format file	134,244 1%	
\$STSTEM.STSTEM.APCMSGS	101 EDIT-formatime	1 700 040 100	
\$STSTEM.STSTEM.APCOBJ	201 TDS (Dethingu) TCL arearen anda fila	1,722,368 1%	
	301 TPS (Pathway) TCL program code file	50,416 2%	
	100 Object file (TNO)	1,536 0%	
\$STSTEM.STSTEM.APCSEC	100 Object file (TNS)	20,480 0%	
			> ~
All	Files	Total File Size(EOF)	523,934,442
File Name \$SYSTEM.SY	STEM 🗸 ଟ No Filter	Displayed 707 of	707
Clear Config	🔳 Request 🗖 data collecte	d 2006/09/05 16:30:32	
•	Not Logg	ed On Hints On ? Help	Print Screen

The Enscribe / File screen presents information about disk files.

Files listed may also include OSS files. The path name is listed in a column further to the right on the scroll bar.

Actions available may be taken by right-clicking on the file name.

📟 MOMI - Multi-system Online M	Aeasure Interface (Client version 4.15)
Black Wood	► ► ► ► ► ► ► ► ► ► ► ► ► ► ► ► ► ► ►
- Back Systems	Overview CPUs Processes Files SubSystems History Alarms Configure
Enscribe SQL/MP Disk Entit	y DiskFile Entity DiskOpen Entity File Entity
Volume SubVolume File	File Opener, File Detail, View File, Cache, Locks
K FileName	Code FileCode EOF %Full Full Percent gauge
\$SYSTEM.SYSTEM.ACLH	SYSTEM SYSTEM ACLH - View File Detail
\$SYSTEM.SYSTEM.ADCSHEL	\$SYSTEM SYSTEM ACLH - View File Contents 82,156 0%
\$SYSTEM.SYSTEM.AHEXOBJ	\$SYSTEM SYSTEM ACLH - View File Contents 49,152 4%
\$SYSTEM.SYSTEM.ALGORIC	\$SYSTEM SYSTEM ACLH - View File Openers 76,180 0%
\$SYSTEM.SYSTEM.ALGORIT	\$SYSTEM.SYSTEM.ACLH - Purge File 66,040 0%
\$SYSTEM.SYSTEM.ALGORIT	\$SYSTEM.SYSTEM.ACLH - Purge File Data 92,030 0%
\$SYSTEM.SYSTEM.APCCDC	\$SYSTEM.SYSTEM.ACLH - Repare File 90,112 0%
\$SYSTEM.SYSTEM.APCHEX	\$SYSTEM.SYSTEM.ACLH - Set File Security 14,336 18%
\$SYSTEM.SYSTEM.APCLMAP	\$SYSTEM.SYSTEM.ACLH - Set File Owner 134,244 1%
\$SYSTEM.SYSTEM.APCMSGS	\$SYSTEM.SYSTEM.ACLH - Set File Code 83,962 21%
\$SYSTEM.SYSTEM.APCOBJ	\$SYSTEM.SYSTEM.ACLH - Set File Max Extents 1.722.368 1%
\$SYSTEM.SYSTEM.APCPCOD	\$SYSTEM.SYSTEM.ACLH - Set File Audited 60.416 2%
\$SYSTEM.SYSTEM.APCPDIR	\$SYSTEM.SYSTEM.ACLH - Set File License
\$SYSTEM.SYSTEM.APCSEC	\$SYSTEM.SYSTEM.ACLH - Set File ProgId 20.480 0%
4SYSTEM SYSTEM ADOTAD	\$SYSTEM.SYSTEM.ACLH - Set File Audit Compress ► 274.432 0%
<	\$SYSTEM.SYSTEM.ACLH - Set File Buffered Writes 🔸 💦 🗸
	\$SYSTEM.SYSTEM.ACLH - Set File Verify Writes Total File Size/FOE
	\$SYSTEM.SYSTEM.ACLH - Set File Serial Writes
File Name \$SYSTEM.	\$SYSTEM.SYSTEM.ACLH - Set File Clear-On-Purge 🕨 ter Displayed 707 of 707
Clear Config	\$SYSTEM.SYSTEM.ACLH - Set File Refresh EOF
	\$SYSTEM.SYSTEM.ACLH - Reset Broken Flag
•	\$SYSTEM.SYSTEM.ACLH - Allocate Extents gged On Hints On ? Help Print Screen
- /	\$SYSTEM.SYSTEM.ACI H - Deallocate Extents

To obtain a limited set of files, the Config button provides several options:

Set Limits	to files returned	X
	Only if File Code is	
	Only if File is Auditied	
- No	🗌 Only if File is Broken	Bequest
Limits	🗹 Only if File is Corrupt	Request
	🗌 Only if File is CrashOpen	
	Only if Roll Forward needed	
	Only if File Full is over 0 %	full Close

Files retrieved with Config limitation imposed attempt to optimize file retrieval for the fastest access. Only those records matching the criteria are returned to the Client. The above example requests only files with the Corrupt attribute. If multiple selections are made, these are 'and'ed' together (meaning everything checked must match).

OSS files displaying on this screen follow different processing rules. Columns such as "% full" and "maximum extents" may not apply or have strange information displayed.

🖷 MOMI - Multi-system Online M	easure Inte	erface (Client v	ersion 4.15)				
Black Wood		11%		BWS1-	2004 🗸	Pause	2006/09/05
Systems, Inc.			_ ل_نـــ	(5001			16:43:42
- Back Systems	Overview	CPUs Proc	esses Files	SubSyste	ms History	Alarms Conf	igure
Enscribe SQL/MP Disk Entit	y DiskFile	Entity Disk0	pen Entity	File Entity			
Yolume SubYolume File	File Opene	File Detail	View File	Cache Lock	s		
FileName	PName	Opener Program	Name	Pri CPILPin	Access Mode	Exclusion Mode	
\$AUDIT.SAFE.GUARD	\$7501	\$SYSTEM.SYS52	OSMON	01.00331	read/write	shared	1
\$AUDIT.ZTMFAT.AA000178	\$TMP	\$SYSTEM.SYS52	TMETMP	00.00012	read/write	shared	0
\$AUDIT.ZTMFAT.AA000178	\$TMP	* \$SYSTEM.SYS52	TMFTMP	01,00011	read/write	shared	0
\$DATA1.#0002512	\$Z19V	\$SYSTEM.SYS52	TACL	00,00155	read only	shared	0
\$DATA1.#0002512		\$SYSTEM.SYS52	OSIMAGE	00,00000	read/write	protected	0
\$DATA1.COMM.SNMPCTL	\$ZTMXA	\$SYSTEM.SYSTE	M.SNMPAGT	01,00353	read/write	shared	1
\$DATA1.DALEMOMI.BWMOMI		\$SYSTEM.SYS52	OSIMAGE	01,00000	read only	protected	0
\$DATA1.DALEMOMI.BWMOMI		\$SYSTEM.SYS52	OSIMAGE	00,00000	read only	protected	0
\$DATA1.DALEMOMI.DCPUS	\$XMM	\$SYSTEM.SYS52	MEASMON	01,00384	read/write	shared	0
\$DATA1.DALEMOMI.DCPUS	\$XM00	\$SYSTEM.SYS52	MEASCTL	00,00385	read/write	shared	0
\$DATA1.DALEMOMI.DCPUS	\$XM01	\$SYSTEM.SYS52	MEASCTL	01,00385	read/write	shared	0
\$DATA1.MOMI2006.BWMOMI1		\$SYSTEM.SYS52	OSIMAGE	01,00000	read only	protected	0
\$DATA1.MOMI2006.BWMOMI1		\$SYSTEM.SYS52	OSIMAGE	00,00000	read only	protected	0
\$DATA1.MOMI2006.BWMTCPOT		\$SYSTEM.SYS52	OSIMAGE	01,00000	read only	protected	0
\$DATA1.MOMI2006.BWMTCPOT		\$SYSTEM.SYS52	OSIMAGE	00,00000	read only	protected	0
SDATA1.MOMI2006.DCPUS	\$XMM	\$SYSTEM.SYS52	MEASMON	01.00384	read/write	shared	n > 🗸
FileName \$*			▼ ⊕ ²	No Filter	Displayed	746 of	746
Clear	🗹 Disks Or	nly 🔳 Req	uest 🗖 dat	a collected	2006/09/05	16:43:29	
				Not Logged	On Hints	On ? Help (Print Screen

Enscribe / File Opener

The Enscribe / File Opener screen presents a list of 'opens' (the establishment of a communication path) from one entity to another. This is the equivalent of the FUP LISTOPENS command.

Generally, only system processes such as the disk process display opener information.

Enscribe / File Detail

🕮 MOMI - Multi-system Online Measure Interface (Client version 4.15)	
Black Wood	VS1-2004 VS1-2006/09/05 16:45:28
-Back Systems Overview CPUs Processes Files Su	bSystems History Alarms Configure
Enscribe SQL/MP Disk Entity DiskFile Entity DiskOpen Entity File E	Entity
Yolume SubYolume File File Opener File Detail View File Cache	e Locks
File	
FileName Code FileCode EOF %Full Full Percent gauge	Modification Date Owner Security O P
S DATALJONK.IEST 0 0 0%	2004/12/15 11:18:39 100,109 CCCC
Partitions	mate Keys
Volume Partition Key PIdx %Full Full Percent gauge Key \$PCS1 "aaaaa" 1 0% "OK"	KeyLen KeyOff FNum NullV N U - I
\$SWAP1 "bbbb",?0 2 0% "dw"	24 12 1
\$MOMI01 "cece" 20 3 0% "sb"	24 12 2
\BWS1.\$MOMI01.JUNK.TEST - View File Detail for this File	
BWS1.\$MOMI01.JUNK.TEST - Allocate Extents	nate Key Files
\BWS1.\$MOMI01.JUNK.TEST - Deallocate Extents	ame ENum %Eull Eull Percent Guag
\$DAT	A1.JUNK.TESTKA 0 0%
\$DAT/	A1.JUNK.TESTKB 1 0%
\$DAT/	A1.JUNK.TESTKC 2 0%
Full FileName \$DATA1.JUNK.TEST	
Clear data col	lected 2006/09/05 16:45:02
Not I	Logged On Hints On ? Help Print Screen

The Enscribe / File Detail screen presents details of the Partitions, Alternate Keys and Alternate Key Files associated with an Enscribe file.

File level detail is the same as presented on the Enscribe / Files screen.

Right clicks are available on the File, Partitions and Alternate Key files.

SQL files may not display correctly. The Guardian procedures do not always return correct information for SQL objects.

Enscribe / View File

📟 MOMI - Multi-system Online Measure Interface (Client version 4.15)	
Black Wood Systems, Inc. BWS1-2004 V Pause 2006/0 16:51	9/05 :07
-Back - Systems Overview CPUs Processes Files SubSystems History Alarms Configure	
Enscribe SQL/MP Disk Entity DiskFile Entity DiskOpen Entity File Entity	
Yolume SubYolume File File Opener File Detail View File Cache Locks	
COMMENT *	
COMMENT * Shows the status of all requests within a selected date	
COMMENT * range. The selected date range is used to report on all the	
COMMENT * requests whose actual start time is greater than or equal to	
COMMENT * the value for the Actual_Start_Time parameter and whose	
COMMENT * actual end time is less than or equal to the value for the	
COMMENT * Actual_End_Time parameter.	
COMMENT *	
COMMENT * Report Parameters : Actual_Start_Time, Actual_End_Time	
COMMENT *	
COMMENT * Related Views : Activity Control	
COMMENT *	
COMMENT ************************************	
SET LIST_COUNT U;	
SET LAYOUT PAGE_LENGTH 57;	
SEI LATOOT RIGHI_MARGIN 132;	~
Full FileNerse Approach Approach The Search	
v Search	
Clear Config Export Lines 53 Request	
net.dw Hints On ? Help Print Sc	reen

The Enscribe / View File screen allows display of the contents of a disk file. The User must Logon in order to perform action on this screen.

The file selected may either be an edit type or other type of file (such as an object file). By default, null characters are converted to \sim (tilde).

Object files, file codes 100, 700 and 800, have a fixed line length of 132 bytes. Edit files have variable length lines. All other files have a line length determined by the file record size.

The Config button display a pop-up window to alter screen defaults, such as not converting unprintable ASCII characters to ~ (tilde). Unstructured files with fixed length lines or lines terminated by particular characters (such as CR/LF) may also be processed.

File View Config Options	X
Display Ruler	
Stop display when Record count is 10 📚	
Display Non-printable ASCII as ?? instead of ~	Request
Allow Multi-Byte Character Sets	
🗌 Line Break when Character count is 👘 🛛 🚖	
Line Break when Characters found <cr><lf></lf></cr>	
Display Line Break Characters	Close

The Export button is used to transfer the displayed information to a file, printer on the local PC or via an Email.

File View Export Options	X
Export File to PC Text File	
Print File to PC Printer	
EMail File	Close

Enscribe / Cache

HDI	MOMI - 1	Multi-syster	n Online M	easure Inter	face (Client	version 4.15)					
1	Black k	vood usterne, tra.	100 50				\BWS	1-2004		ause 20	06/09/05 6:53:21
	d <mark>– Back</mark>		Systems	Overview	CPUs Pro	cesses File	s SubSy	stems Histo	ory Alarm	s Configu	ire
٢	Enscribe	SQL/MP	Disk Entity	DiskFile	Entity Disk	Open Entity	File Entit	:y			
ſ	Volume	SubVolume	e File	File Opener	File Detail	View File	Cache L	ocks			
	Volume	Current Stats Time		Reset Stats Time		Elapsed Stats Time	Total Cache KBytes	Writes per ControlPoint	512 bytes Blocks Requested	512 bytes Blocks Allocated	512 bytes Blocks In Use
	\$AUDIT	2006/09/	05 16:53:13	3 2006/08/2	25 23:23:33	10 17:29:40	5,888	0.00		512	0
	\$DATA1	2006/09/	05 16:53:13	3 2006/08/2	25 23:23:33	10 17:29:40	67,328	0.00		512	4
	\$DSMSCM	2006/09/	05 16:53:13	3 2006/08/2	25 23:23:33	10 17:29:40	25,792	0.00		512	6
	\$MOMI01	2006/09/	05 16:53:13	3 2006/08/2	25 23:24:12	10 17:29:01	29,792	0.00		512	0
	\$PCS1	2006/09/	05 16:53:13	3 2006/08/2	25 23:23:33	10 17:29:40	29,792	0.00		512	0
	\$SWAP1	2006/09/	05 16:53:13	3 2006/08/2	25 23:24:11	10 17:29:01	29,792	0.00		512	2
	\$SYSTEM	2006/09/	05 16:53:13	3 2006/08/2	25 23:23:40	10 17:29:32	17,792	0.00		512	14
	\$TEMP1	2006/09/	05 16:53:13	3 2006/08/2	25 23:24:11	10 17:29:01	12,992	0.00		512	16
	\$TEMP2	2006/09/	05 16:53:13	3 2006/08/2	25 23:24:10	10 17:29:02	5,888	0.00		512	2
Volume \$* Volume 1											
	Clear			AutoUpda	ite 📕 Re	quest 🗖 da	ita collect	ed 2006/09,	/05 16:53:1	12	
q						(net.	dw Hi	nts On ?	Help Pr	int Screen

The Enscribe / Cache screen presents the cache allocated and statistics about cache efficiency.

Disk cache is memory allocated in the disk process that is referenced prior to a physical access to disk. Data found in the cache reduces physical disk access and is inherently faster.

Disk cache is divided into 4 groups or block sizes. A block size is specified when a disk file is created. Cache blocks are allocated to each size. The sum of these blocks represents the Total Cache size.

A high percentage of "Cache Read Hits" and "Cache Write Dirties" are desired. Generally, additional cache blocks are allocated (via SCF) until percentages in the 90's are achieved. However, Users should also give attention to the Cache Faults counter. If a processor is running low on memory, the memory manager can take memory allocated to the disk cache. This counter indicates the frequency of this event. Consideration should be given to reducing the amount of disk cache or increasing memory in a processor when cache faults is constantly incrementing.

Clicking on a disk will bring up an SCF-like output containing detail for that volume:

\$SYSTEM	Disk	Volume Ca	che Detail		X
1 +	Cache Block Size	512	1024	2048	4096
Cache Bytes	Blocks Requested			512	4,000
	Blocks Allocated	512	512	512	4,000
	Blocks in Use	14	46	85	4,000
Current Time	Blocks Dirty	0%	0%	0%	0%
2006/09/05	Cache Reads	100%	90%	99%	95%
16:53:13	Cache Read Hits	95%	99%	89%	99%
Counter Reset Time	Cache Read Misses	5%	1%	11%	1%
2006/08/25 23:23:40	Cache Writes	0%	10%	1%	5%
I Elanced Time	Cache Write Dirties	0%	30%	0%	62%
10 17:29:32	Cache Write Cleans	0%	68%	100%	37%
Writes/Control Point	Cache Write Misses	0%	2%	0%	1%
0.00	Cache Calls	312	14,322	5,378	8,076,915
Craphia	Cache Faults	0	0	0	0
ClipBoard	Audit Forces	0	0	0	0

Enscribe / Locks

see System Quirks



The Enscribe / Locks screen presents file and record lock information similar to the FUP LISTLOCKS command.

This screen only functions on systems running G06.26 or later.

The information is presented in a tree-view format. The first level is the file name, the second level a file level or record level type of lock and the third level the locking process.

The following are descriptions of the columns:

File_Name = File Name that has the Lock
Lock Type = Type of Lock (File or Record)

The underlying Guardian procedure to return locking information does not include the requesting process name if a Transaction ID is returned. MOMI queries TMF and requests the process name that initiates the TMF transaction. This is not necessarily the process performing I/O to the listed file.

If a lock cannot be granted, indicated by a space in the Lock_Granted column, then the request is placed in a queue until the lock is granted or the requesting process times out.

SQL/MP

SQL/MP / Catalog

scribe SOL/MP	Disk Entity	DiskFile	Entity	DiskO	nen Entity	File	Entity		story Com	inguie
atalog Base Tahl	e Table Fil	e Pa	rtition	Index	Table D	etail	Program	Usane	Statement	1
ustem Catalog			ración	Index	Tuble D	ctun	rrogram	osage	Statement	•
atalog Name Sub	System Name	Version	/ersion	Upgrade	Status Me	ssage				
DSMSCM.SQL SOL		A345								
ser Catalogs										
atalog Name	SubSystem Na	me Vers	ion Ver	sion Upg	rade	Statu	s Message			
DATA1.TESTCAT	SQL	A3	50 200	2/09/25	16:34:49					
DATA1.TESTCAT2	SQL	A3	50							
DSMSCM.TESTCAT	SQL	A3	50							
DSMSCM.XBWS1	SQL	A3	50							
OSMSCM.XPHIHDB	SQL	A3	50							

The SQL/MP / Catalog screen presents the SQL/MP Catalog of the System and User Catalogs defined on the system.

The NonStop System itself has a version number for SQL/MP. This version is shown in the lower right hand corner of the display. The System and User Catalogs are usually at or below the version of SQL/MP of the system.

The column Status Message displays an error message if a simple query of the listed User Catalogs fails. An error in this column either indicates that MOMI does not have security access to the catalog or that the catalog is not present. Any error message in this column indicates that MOMI will encounter errors on other SQL/MP screens.

Ourstans Outstan

SQL/MP / Base Table

							see <u>Syste</u>	
🖷 MOMI - Multi-	system Onli	ne Measur	e Interface (Cli	ent ve	rsia	on 3.50)		
PI III	100						r⊠1 _ 200	03/10/06
DIACK WOOD	δητ. 50		b l d			\BWS1 Fast - 2002	Pause 16	5:31:59
- Back	Syste	ms Over	view CPUs	Pro	es	ses Files * SubSystems H	listory Configure	
Encoribe SOL	/MP Dick	Entitu D	ickEilo Entitu	Dick)00	n Entity Eile Entity		
Elisci ibe			ISKFILE Ellicity	DISK	he	n Endty File Endty		
Catalog Base	Table Ta	ble File	Partition	Index	۲.	Table Detail Program Usage	Statement	
Catalog Name	Table	Name		ТС	ΤI	FileName	Stats Time	Row 🔨
\$DATA1.TESTCA	AT \$DATA	A1.TESTCA	T.BASETABS		ТΙ	\$DATA1.TESTCAT.BASETABS	2002/09/20 16:03:08	
\$DATA1.TESTCA	AT \$DATA	A1.TESTCA	T.COLUMNS		ΤI	\$DATA1.TESTCAT.COLUMNS	2002/09/23 10:02:33	
\$DATA1.TESTCA	AT \$DATA	A1.TESTCA	T.COMMENTS		ТΙ	\$DATA1.TESTCAT.COMMENTS		
\$DATA1.TESTCA	AT \$DATA	A1.TESTCA	T.CONSTRNT		ТΙ	\$DATA1.TESTCAT.CONSTRNT		
\$DATA1.TESTCA	AT \$DATA	A1.TESTCA	T.CPRLSRCE		ΤI	\$DATA1.TESTCAT.CPRLSRCE		
\$DATA1.TESTCA	AT \$DATA	A1.TESTCA	T.CPRULES		ΤI	\$DATA1.TESTCAT.CPRULES		
\$DATA1.TESTCA	AT \$DATA	A1.TESTCA	T.FILES		ΤI	\$DATA1.TESTCAT.FILES		
\$DATA1.TESTCA	AT \$DATA	A1.TESTCA	T.INDEXES		ΤI	\$DATA1.TESTCAT.INDEXES		
\$DATA1.TESTCA	AT \$DATA	A1.TESTCA	T.KEYS		ΤI	\$DATA1.TESTCAT.KEYS		
\$DATA1.TESTCA	AT \$DATA	1.TESTCA	T.ORDERS			\$DATA1.TESTCAT.ORDERS		
\$DATA1.TESTCA	AT \$DATA	1.TESTCA	T.ORDERS2			\$DATA1.TESTCAT.ORDERS2		
\$DATA1.TESTCA	AT \$DATA	1.TESTCA	T.PARTNS		ΤI	\$DATA1.TESTCAT.PARTNS		
\$DATA1.TESTCA	AT \$DATA	1.TESTCA	T.PROGRAMS		ΤI	\$DATA1.TESTCAT.PROGRAMS		
\$DATA1.TESTCA	AT \$DATA	1.TESTCA	T.TABLES		ΤI	\$DATA1.TESTCAT.TABLES		
\$DATA1.TESTCA	AT \$DATA	1.TESTCA	T.TRANSIDS		ΤI	\$DATA1.TESTCAT.TRANSIDS		~
		1 TESTON	THEACES	1	TI	CONTAL TESTONT USAGES		>
Catalog	\$*.*				1	No Filter Displayed	207 of	207
Table	\$*.*.*					/		
	÷••							
Clear			L	Req	ues	data collected 2003/10/	06 16:31:56	
								-1.6
						Not Logged C	n ? Help Pri	nt Screen

The SQL/MP / Base Table screen presents information about base tables.

Base tables are physically present and are not a logical 'view' of the data. SQL tables are made up of rows and columns. A row can be thought of as a record, and a column is a field in a record.

SQL/MP / Table

														S	ee <mark>Sys</mark>	stem Qu	<u>irks</u>
MO	- IM	Multi-syste	m Online	Measure	Interface (Cl	ient ver	sion 3	.50)									Ъ×
D/	11	11	100			: : :	: :								2	003/1	0/06
B/a	CKV	VOOD	50					·· \ \	BW	S1 F	ast - :	2002		Paus	e 1	6:43	:46
/-	Back		Sustame	Quan		Droc		File	c	* 6.	hCuct	ame U	ictoru	Confi			
_	DUCK	·	Systems	Over	new CPUS	PIUL	esses	1.110.	_	· 30	inaâst	enis	istory	Conn	yure		
Ensci	ribe	SQL/MP	Disk Ent	ity Di	skFile Entity	DiskO	pen Er	ntity	File	e Enti	ity						
Cata	log	Base Tabl	e Table	File	Partition	Index	Tab	le De	tail	Pro	gram	Usage	State	ement			
Catal	log Na	ame	Table Nan	ne		Туре	Code	Cols	Use	rID	Creat	e Time		Invali	d Time	e	~
\$DAT	A1.TI	ESTCAT	\$DATA1.T	ESTCAT	BASETABS	TA	572	9	255	,255	2002/	09/25 16	:30:40	2002/	09/25	16:30:3	<u>;</u>
\$DAT	A1.T	ESTCAT	\$DATA1.T	ESTCAT	.COLUMNS	TA	573	26	255	,255	2002/	09/25 16	:30:40	2002/	09/25	16:34:4	
\$DAT	A1.T	ESTCAT	\$DATA1.T	ESTCAT	COMMENTS	TA	574	5	255	,255	2002/	09/25 16	:30:41	2002/	09/25	16:30:3	3
\$DAT	A1.T	ESTCAT	\$DATA1.T	ESTCAT	CONSTRNT	TA	575	4	255	,255	2002/	09/25 16	:30:42	2002/	09/25	16:30:3	3
\$DAT	A1.T	ESTCAT	\$DATA1.T	ESTCAT	CPRLSRCE	TA	587	3	255	,255	2002/	09/25 16	:34:54	2002/	09/25	16:34:4	+
\$DAT	A1.T	ESTCAT	\$DATA1.T	ESTCAT	.CPRULES	TA	586	6	255	,255	2002/	09/25 16	:34:54	2002/	09/25	16:34:4	4
\$DAT	A1.T	ESTCAT	\$DATA1.T	ESTCAT	.FILES	TA	576	26	255	,255	2002/	09/25 16	:30:41	2002/	09/25	16:34:4	ł
\$DAT	A1.T	ESTCAT	\$DATA1.T	ESTCAT	INDEXES	TA	577	15	255	,255	2002/	09/25 16	:30:41	2002/	09/25	16:34:4	ł
\$DAT	A1.T	ESTCAT	\$DATA1.T	ESTCAT	.KEYS	TA	578	5	255	,255	2002/	09/25 16	:30:41	2002/	09/25	16:34:4	1
\$DAT	A1.TI	ESTCAT	\$DATA1.T	ESTCAT	.ORDERS	TA	0	5	100	,109	2002/	09/24 09	:37:56	2002/	10/15	12:28:5	5
\$DAT	A1.TI	ESTCAT	\$DATA1.T	ESTCAT	ORDERS2	TA	0	5	100	,109	2002/	10/16 13	:22:14	2002/	10/16	13:22:3	3
\$DAT	A1.T	ESTCAT	\$DATA1.T	ESTCAT	.PARTNS	TA	579	5	255	,255	2002/	09/25 16	:30:41	2002/	09/25	16:30:3	3
\$DAT	A1.TI	ESTCAT	\$DATA1.T	ESTCAT	.PROGRAMS	TA	580	19	255	,255	2002/	09/25 16	:30:41	2002/	09/25	16:34:4	•
\$DAT	A1.T	ESTCAT	\$DATA1.T	ESTCAT	TABLES	TA	581	12	255	,255	2002/	09/25 16	:30:41	2002/	09/25	16:34:4	
\$DAT	A1.T	ESTCAT	\$DATA1.T	ESTCAT	TRANSIDS	TA	582	3	255	,255	2002/	09/25 16	:30:42	2002/	09/25	16:30:3	~
<		ESTCOL		ESTONT	IN ACCEV.	1 10	283	7	755	755	1911197	10775 16	1311/12	120027	nu//s	>	
TOOL	Cat	alog 🚺 🛸	*				*		No	Filte	er Dis	splayed		226	of	2	26
	т	able s*.*	k_ *				~								,		
Class		φ.	•			Decu											_
Clea	ar				L	Requ	est	dat	a co	llect	ed 20	03/10/	06 16:	39:17			
•											NotLe	o hone	D 2	Hele		rint Sc	roop
•											NOULU	iggeu O		men		Thit St	reen

The SQL/MP / Table screen presents information about tables.

A table is logical representation of data in a database.

SQL/MP / File

														S	see <u>Systen</u>	n Quirks
MOMI - Multi	-syste	m Online M	easure	Inter	face (Cli	ient vers	ion 3	8.50)								
Black Wala	7	100							ทเมส				гВ		2003	3/10/06
DIACK WOOD	Inc.		1 1				1 1		BW	51 Fasi	- 2002	2	L _g	Paus	^{.e} 17:	03:00
- Back	~	Systems	Overs	view	CPUs	Proces	sses	Files	5	* SubS	ystems	His	tory	Conf	igure	
Enscribe SQL	/MP	Disk Enti	ty Dis	skFile	Entity	DiskOp	en E	ntity	File	Entity						
Catalog Base	e Tabl	e Table	File	Pa	rtition	Index	Tal	ole Det	tail	Progra	m Usa	ige	State	ement		
Catalog Name		File Name					EOF	%Full	Full F	Percent	jauge	F	T Ac	tIndx	BlockSize	Pri 🔨
\$DATA1.TESTCA	AT	\$DATA1.TE	STCAT	BASET	TABS	12,	288	0				ŀ	<	1	4,096	
\$DATA1.TESTCA	AT	\$DATA1.TE	STCAT	.COLUI	MNS	49,	152	0				H	<	1	4,096	
\$DATA1.TESTCA	AT	\$DATA1.TE	STCAT	.COMM	ENTS		0	0				ŀ	<		4,096	
\$DATA1.TESTC	AT	\$DATA1.TE	STCAT	.CONS	TRNT		0	0				ŀ	< _		4,096	
\$DATA1.TESTC	AT	\$DATA1.TE	STCAT	.CPRLS	RCE		0	0				ŀ	< _		4,096	
\$DATA1.TESTC#	AT	\$DATA1.TE	STCAT	.CPRUI	ES		0	0				H	<		4,096	
\$DATA1.TESTCA	AT	\$DATA1.TE	STCAT	FILES.		16,	384	0				ŀ	<	1	4,096	
\$DATA1.TESTCA	AT	\$DATA1.TE	STCAT	INDEX.	ES	16,	384	0				ŀ	<	1	4,096	
\$DATA1.TESTCA	AT	\$DATA1.TE	STCAT	IXIND.	E01	12,	288	0				ŀ	<	1	4,096	
\$DATA1.TESTCA	AT	\$DATA1.TE	STCAT	.IXPAR	T01	12,	288	0				ŀ	<	1	4,096	
\$DATA1.TESTCA	AT	\$DATA1.TE	STCAT	.IXPRC	G01		0	0				ŀ	<		4,096	
\$DATA1.TESTCA	AT	\$DATA1.TE	STCAT	.IXTAB	L01	12,	288	0				ŀ	<	1	4,096	
\$DATA1.TESTCA	AT	\$DATA1.TE	STCAT	IXUSA.	G01	221,	184	0				ŀ	<	1	4,096	
\$DATA1.TESTCA	AT	\$DATA1.TE	STCAT	.KEYS		20,	480	0				ŀ	<	1	4,096	
\$DATA1.TESTCA	AT	\$DATA1.TE	STCAT	ORDE	RS		0	0				ŀ	<		4,096	t 🗸
	лт	400701 TE	STOAT	ODDE	002		0	0				L	/		1 006	>
Catalog	\$*.*	ĸ					*				Total F	ile Siz	ze		81,5	27,808
File	\$*.*	·.*					*		No	Filter	Display	ed 🗌		384	of	384
Clear						Reque	st	data	a co	llected	2003/1	10/00	6 17:	02:0	В	
•																
•										Not	Logge	d On] ?	Hel	p Print	t Screen

The SQL/MP / File screen presents information about files.

A file is the physical entity where data or descriptive information is stored.

The Actual Index (ActIndx) column displays the number of index levels in the file at the time of the screen display. This value does not come from the catalog. A high number of index levels can affect System performance. Sorting the screen by this column allows index levels to be quickly checked.

SQL/MP / Partition

	oce oyotem duinto
MOMI - Multi-system Online Measure Interface (Client version 3.50)	
	2003/10/06
	^{se} 17:09:17
	figure
Enscribe SQL/MP Disk Entity DiskFile Entity DiskOpen Entity File Entity	
Catalog Base Table Table File Partition Index Table Detail Program Usage Statement	t
Catalog Name File Name Primary Partition Name Catalog Part Nam	e 🛛 First Key V 🔨
\$DATA1.TESTCAT \$DATA1.TESTCAT.ORDERS Y \$DATA1.TESTCAT.ORDERS \$DATA1.TESTCAT	
\$DATA1.TESTCAT \$DATA1.TESTCAT.ORDERS \$PCS1.TESTCAT.ORDERS \$DATA1.TESTCAT	5000
\$DATA1.TESTCAT \$DATA1.TESTCAT.ORDERS \$SWAP1.TESTCAT.ORDERS \$DATA1.TESTCAT	6000
\$DATA1.TESTCAT \$DATA1.TESTCAT.ORDERS2 Y \$DATA1.TESTCAT.ORDERS2 \$DATA1.TESTCAT	-
\$DATA1.TESTCAT \$DATA1.TESTCAT.ORDERS2 \$PCS1.TESTCAT.ORDERS2 \$DATA1.TESTCAT	2 (5000)
\$DATA1.TESTCAT \$DATA1.TESTCAT.ORDERS2 \$SWAP1.TESTCAT.ORDERS2 \$DATA1.TESTCAT	(6000)
\$DATA1.TESTCAT \$PCS1.TESTCAT.ORDERS Y \$DATA1.TESTCAT.ORDERS \$DATA1.TESTCAT	
\$DATA1.TESTCAT \$PCS1.TESTCAT.ORDERS \$PCS1.TESTCAT.ORDERS \$DATA1.TESTCAT	5000
\$DATA1.TESTCAT \$PCS1.TESTCAT.ORDERS \$SWAP1.TESTCAT.ORDERS \$DATA1.TESTCAT	6000
\$DATA1.TESTCAT \$SWAP1.TESTCAT.ORDERS Y \$DATA1.TESTCAT.ORDERS \$DATA1.TESTCAT	
\$DATA1.TESTCAT \$SWAP1.TESTCAT.ORDERS \$PCS1.TESTCAT.ORDERS \$DATA1.TESTCAT	5000
\$DATA1.TESTCAT \$SWAP1.TESTCAT.ORDERS \$SWAP1.TESTCAT.ORDERS \$DATA1.TESTCAT	6000
\$DATA1.TESTCAT \$SWAP1.TESTCAT.ORDERS2 Y \$DATA1.TESTCAT.ORDERS2 \$DATA1.TESTCAT	
\$DATA1.TESTCAT \$SWAP1.TESTCAT.ORDERS2 \$PCS1.TESTCAT.ORDERS2 \$DATA1.TESTCAT	(5000)
\$DATA1.TESTCAT \$SWAP1.TESTCAT.ORDERS2 \$SWAP1.TESTCAT.ORDERS2 \$DATA1.TESTCAT	(6000)
CONTAL FETCAT COMPANY ADD TESTOAT ODDEDS2A Y COCST TESTOAT ODDEDS2A CONTAL TESTOAT	~
	2
Catalog \$*.* No Filter Displayed 24	of 24
File \$*.*.*	
Clear Request data collected 2003/10/06 17:09:0	9
Not Logged On ? He	lp Print Screen

The SQL/MP / Partition screen presents information about how large logical files are split across multiple smaller physical files.

As files grow in either physical size or number of accesses, partitions are used to spread the load across multiple disk drives. Multiple drives provide more physical space and/or better access time by overlapping I/O across more hardware.

SQL/MP / Index

BWS1-2004 MOMI (Client version 5.28) 2012/06/01 BUCK Wood Line Systems Overview CPUs Processes Files SubSystems History Alarms Configure File Explorer Enscribe SQL/MP Disk Entity DiskFile Entity DiskOpen Entity File Entity Catalog Base Table Table File Parition Index Table Detail Program Usage Statement Catalog Name Table Name Index Name Code Cols Create Time Key + \$DATA1.TESTCAT \$DATA1.SQLTEST.ORDERS2 \$DATA2.SQLTEST.ORDERS2C 0 6 2009/09/09 14:14:56 Image: \$DATA1.TESTCAT \$DATA1.SQLTEST.ORDERS2 \$DATA2.SQLTEST.ORDERS2C 0 6 2009/09/09 14:14:59 Image: \$DATA1.TESTCAT \$DATA1.SQLTEST.ORDERS2 \$DATA2.SQLTEST.ORDERS2C 0 6 2009/09/09 14:14:150 Image: \$DATA1.TESTCAT \$DATA1.SQLTEST.ORDERS2 \$DATA3.SQLTEST.ORDERS2C 0 6 2009/09/09 14:14:150 Image: \$DATA1.TESTCAT \$DATA1.SQLTEST.ORDERS2 \$DATA3.SQLTEST.ORDERS2C 0 6 2009/09/09 14:14			see <u>System Quirks</u>
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The SQL/MP / Index screen presents information about files used to provide ordered access to data.

Indexes are comprised of data accessible in an ordered manner. As indexes physically grow in size, the number of levels within the index also increase, which can affect performance. Generally speaking, access to a data record requires the number of index levels plus 1. As such, it is advisable to maintain index levels

as low as possible. Note that disk cache generally favors indexes over data so the number of physical drive I/Os is usually reduced by adding cache.

The screen columns ActIndx, IndexL and IndxVar, as shown below, provide the Actual Index levels at the time of screen display, the Index levels recorded in the associated Catalog and the difference. Sorting by and/or comparing these values provides two pieces of information: 1) how many index levels are physically present, and 2) SQL/MP compiles may not be choosing the most optimum access path if the catalog differs greatly from the physical underlying files.

HOH	AV8001-2004 MOMI (C	Client version 5.28)											x
	Black Wood		10%				\ B	WS1-	2004		Pause.		/06/01 04:23
	System	ems Overview	CPUs Pro	cesses	Files	S	ubSyst	tems H	istory	Alarms	Configu	re	
	File Explorer Ensc	ribe SQL/MP	Disk Entity	DiskFi	le Entit	v D	isk0p	en Entit	v File E	ntity			
ľ				Index									
	Catalog Base Tab	le Table File	Partition	Index	Table	e Det		rogram	Usage	Stater	ment		
	Catalog Name	Table Name			KeyTag	UV	VDef	VData	ActIndx	IndexL	IndxVar	RowSize	File 🔺
	\$DATA1.TESTCAT	\$DATA1.SQLTEST	.ORDERS2	54	2		VDef	VData	0	0	0	24	\$D/ =
	\$DATA1.TESTCAT	\$DATA1.SQLIEST	.ORDERS2	56	3		VDef	VData	0	0	0	28	\$D/
	\$DATAL TESTCAT	\$DATAL SQUIEST	ORDERS2	5/	4		VDef	VData	0	0	0	24	\$D/
	*DATAL TESTCAT	CATAL SQUIEST	ORDERS2	01	5		VDef	VData	0	0	0	24	\$0:
	\$DATA1.TESTCAT	SDATAL SQUTEST	ORDERS2	02	7		VDef	VData	0	0	0	24	\$0
	\$DATA1.TESTCAT	\$DATA1.SQLTEST	ORDERS2	04	8		VDef	VData	0	0	0	24	\$0
	\$DATA1.TESTCAT	\$DATA1.SOLTEST	ORDERS2	52	1		VDef	VData	0	0	0	24	\$51
	\$DATA1.TESTCAT	\$DATA1.TESTCAT	INDEXES	43	1	UV	VDef	VData	1	0	1	104	\$D/
	\$DATA1.TESTCAT	\$DATA1.TESTCAT	PARTNS	43	1		VDef	VData	1	0	1	105	\$D/
	\$DATA1.TESTCAT	\$DATA1.TESTCAT	PROGRAMS	44	1		VDef	VData	0	0	0	40	\$D/
	\$DATA1.TESTCAT	\$DATA1.TESTCAT	TABLES	43	1		VDef	VData	1	0	1	40	\$D/
	\$DATA1.TESTCAT	\$DATA1.TESTCAT	USAGES	44	1		VDef	VData	1	0	1	112	\$D/
	\$DATA1.TESTCAT2	\$DATA1.SQLTEST	ORDERS2	52	1		VDef	VData	0	0	0	24	\$D/
	\$DATA1.TESTCAT2	\$DATA1.TESTCAT	2.INDEXES	00	1	UV	VDef	VData	1	0	1	104	\$D/
	\$DATA1.TESTCAT2	\$DATA1.TESTCAT	2.PARTNS	01	1		VDef	VData	1	0	1	105	\$D/
	•				III								•
	Catalog \$*.*	*			-		No	Filter	Display	ed	185	of	185
	Table s*.*	* *			•								
			ſ										
	Clear			Re	quest	d	ata co	llected	2012/06	5/01 14	:03:54		
					C	hat		net.dw		Hints On	? Help	Print	Screen

OH I	MOMI	- Multi-syste	m Online M	easure Inter	face (Cli	ient ve	ersion	3.50)					∎₽⊠
E	Black	Wood Systems, Inc.	100					\вw	'81 Fast -	2002 🗸	F <mark>enne</mark> F	^o ause	2003/10/07 18:02:36
-	Bac	:k	Systems	Overview	CPUs	Pro	cesses	; Files	* SubSys	tems Hi	story	Configu	re
E	nscribe	SQL/MP	Disk Entit	y DiskFile	Entity	Disk	Open E	ntity File	e Entity				
0	Catalog	Base Tab	le Table	File Pa	artition	Inde	x Tal	ble Detail	Program	Usage	Statem	nent	
-	Base Ta	able											
	Catalog	Name	Table Name		Т	с ті	FileNa	me		Stats T	ime		Row Count
	\$DATA1	L.TESTCAT	\$DATA1.TES	TCAT.ORDE	RS		\$DATA	A1.TESTCA	T.ORDERS				1
	<												>
	Table		I		1-		[1-		^
	Catalo	g Name	Table Name	e 	1	Гуре	Code	Cols User	ID Creat	e Time	I	nvalid Ti	me
	\$DATA	A1.TESTCAT	\$DATA1.TE	STCAT.ORDE	RS	TA	0	5 100,	109 2002/	09/24 09:	37:56 2	002/10/	15 12:28:5
	<	J											<u> </u>
	Partiti	ons											
	Catalo	g Name	File Name		Prir	mary	Partition	n Name		Catalog Pa	art Name	First Ke	ey Values
	\$DATA	1.TESTCAT	\$DATA1.TE	STCAT.ORDE	RS	Y	\$DATA1	LTESTCAT.	ORDERS	\$DATA1.T	ESTCAT		
	\$DATA	1.TESTCAT	\$DATA1.TE	STCAT.ORDE	RS		\$PCS1.	TESTCAT.C	RDERS	\$DATA1.T	ESTCAT	5000	
	\$DATA	1.TESTCAT	\$DATA1.TE	STCAT.ORDE	RS		\$SWAP:	1.TESTCAT	ORDERS	\$DATA1.T	ESTCAT	6000	
	1												×
	<												>
	Ca	atalog \$DA	TA1.TESTC	AT			*						
F	ull Table	eName <mark>\$DA</mark>	TA1.TESTC	AT.ORDERS	5		~						
	Clear					Req	uest	data co	ollected 20	003/10/	07 18:0	2:23	
~													Duint Courses
									Not L	.oggea O		негр	Print Screen

The SQL/MP / Table Detail screen presents the details associated with a Base Table.

All link-able entries to a Base Table are displayed. These include table(s), partition(s), index(es) and program usage(s). A scroll bar is used to display off-screen data.

If a non-Base Table is selected, available information is displayed

SQL/MP / Program

see System Quirks

🖷 MOMI - Multi-syste	em Online Measure Interface (Cl	ient version 3.50)			- 7 🛛
Black Wood			\BWS1 Fast - 2002	Pause	2003/10/07 18:07:28
-Back	Systems Overview CPUs	Processes Fil	es * SubSystems	History Configure	
Enscribe SQL/MP	Disk Entity DiskFile Entity	DiskOpen Entity	File Entity		
Catalog Base Tab	le Table File Partition	Index Table D	etail Program Usage	e Statement	
Catalog Name	Program Name	UserId Securit	y Create Time	ReCompile Time	AC N
\$DATA1.TESTCAT2	\$DATA1.DALEMOMI.SQL02OC	100,109 CCCC	2002/10/15 12:53:15	2002/10/15 12:53:1	5 AC '
\$DSMSCM.SQL	\$SYSTEM.SYSTEM.SQLCI2	255,255 NUNU	2002/09/26 11:08:29	2002/09/26 11:08:2	9 AC '
\$DSMSCM.TESTCAT	\$DATA1.JUNK3.TOOC	100,109 CCCC	2002/10/16 14:02:26	2002/10/16 14:02:2	6 AC '
\$DSMSCM.TESTCAT	\$DATA1.JUNK3.T100OC	100,109 CCCC	2002/10/16 14:11:57	2002/10/16 14:11:5	7 AC '
\$DSMSCM.TESTCAT	\$DATA1.JUNK3.T101OC	100,109 CCCC	2002/10/16 14:12:02	2002/10/16 14:12:0	2 AC '
\$DSMSCM.TESTCAT	\$DATA1.JUNK3.T102OC	100,109 CCCC	2002/10/16 14:12:08	2002/10/16 14:12:0	B AC '
\$DSMSCM.TESTCAT	\$DATA1.JUNK3.T103OC	100,109 CCCC	2002/10/16 14:12:15	2002/10/16 14:12:1	5 AC '
\$DSMSCM.TESTCAT	\$DATA1.JUNK3.T104OC	100,109 CCCC	2002/10/16 14:12:21	2002/10/16 14:12:2	1 AC '
\$DSMSCM.TESTCAT	\$DATA1.JUNK3.T105OC	100,109 CCCC	2002/10/16 14:12:27	2002/10/16 14:12:2	7 AC '
\$DSMSCM.TESTCAT	\$DATA1.JUNK3.T106OC	100,109 CCCC	2002/10/16 14:12:34	2002/10/16 14:12:3	4 AC '
\$DSMSCM.TESTCAT	\$DATA1.JUNK3.T107OC	100,109 CCCC	2002/10/16 14:12:42	2002/10/16 14:12:4	2 AC '
\$DSMSCM.TESTCAT	\$DATA1.JUNK3.T108OC	100,109 CCCC	2002/10/16 14:12:48	2002/10/16 14:12:4	B AC '
\$DSMSCM.TESTCAT	\$DATA1.JUNK3.T109OC	100,109 CCCC	2002/10/16 14:12:55	2002/10/16 14:12:5	5 AC '
\$DSMSCM.TESTCAT	\$DATA1.JUNK3.T100C	100,109 CCCC	2002/10/16 14:03:36	2002/10/16 14:03:3	6 AC '
\$DSMSCM.TESTCAT	\$DATA1.JUNK3.T1100C	100,109 CCCC	2002/10/16 14:13:02	2002/10/16 14:13:0	2 AC '
	4DATA1 10003 T11100	1100 100 0000	2002/10/16 14:13:08	2002/10/16 14:13:0	
Catalog \$*.	*	*	No Filter Displayed	1.003 of	1.003
			Dispidyee	.) 1,000 011	1,000
Program \$*.	*.*	*			
Clear		Request 🗖 da	ta collected 2003/10,	/07 18:07:22	
-)
•			Not Logged (On ? Help	Print Screen

The SQL/MP / Program screen presents programs registered in the SQL/MP catalog.

An SQL-compiled program is by default registered in the catalog. This allows for cross reference and gauging of possible impacts when table changes are made. Not all users of SQL/MP tables need to be registered in the catalog.

SQL/MP / Usage

see System Quirks

🖷 MOMI - Multi-syste	m Online Measure Interface (Clie	nt versio	n 3.50)				
Black Wood			\в	WS1 Fast - 2002		Pause	2003/10/07 18:12:13
- Back	Systems Overview CPUs	Process	ses Files	* SubSystems	History	Config	ure
Enscribe SQL/MP	Disk Entity DiskFile Entity D) iskOpe	n Entity Fi	le Entity			
Catalog Base Tabl	e Table File Partition I	ndex	Table Detai	l Program Usag	je State	ement	
Catalog Name	Used Object Name	UType	RType Usin	g Object Name		DType	Used Catalog
\$DATA1.TESTCAT	\$DATA1.TESTCAT.ORDERS2	TA	DP \$PC	S1.TESTCAT.ORDER	S2H	IN	\$DATA1.TES
\$DATA1.TESTCAT	\$DATA1.TESTCAT.ORDERS2	TA	DP \$PC	S1.TESTCAT.ORDER	S2G	IN	\$DATA1.TES
\$DATA1.TESTCAT	\$DATA1.TESTCAT.ORDERS2	TA	DP \$PC	S1.TESTCAT.ORDER	S2F	IN	\$DATA1.TEST
\$DATA1.TESTCAT	\$DATA1.TESTCAT.ORDERS2	TA	DP \$PC	S1.TESTCAT.ORDER	S2E	IN	\$DATA1.TEST
\$DATA1.TESTCAT	\$DATA1.TESTCAT.ORDERS2	TA	DP \$PC	S1.TESTCAT.ORDER	S2D	IN	\$DATA1.TEST
\$DATA1.TESTCAT	\$DATA1.TESTCAT.ORDERS2	TA	DP \$PC	S1.TESTCAT.ORDER	S2C	IN	\$DATA1.TES
\$DATA1.TESTCAT	\$DATA1.TESTCAT.ORDERS2	TA	DP \$PC	S1.TESTCAT.ORDER	S2B	IN	\$DATA1.TEST
\$DATA1.TESTCAT	\$DATA1.TESTCAT.ORDERS2	TA	DP \$PC	S1.TESTCAT.ORDER	S2A	IN	\$DATA1.TEST
\$DATA1.TESTCAT	\$DATA1.TESTCAT.ORDERS	TA	DP \$DA	TA1.DALEMOMI.SQL	020C	PG	\$DATA1.TES
\$DATA1.TESTCAT	\$DATA1.TESTCAT.VIEWS	TA	DP \$DA	TA1.TESTCAT.VIEWS	S	IN	\$DATA1.TES
\$DATA1.TESTCAT	\$DATA1.TESTCAT.VERSIONS	TA	DP \$DA	TA1.TESTCAT.VERSI	ONS	IN	\$DATA1.TEST
\$DATA1.TESTCAT	\$DATA1.TESTCAT.USAGES	TA	DP \$DA	TA1.TESTCAT.USAG	ES	IN	\$DATA1.TES
\$DATA1.TESTCAT	\$DATA1.TESTCAT.TRANSIDS	TA	DP \$DA	TA1.TESTCAT.TRANS	SIDS	IN	\$DATA1.TES
\$DATA1.TESTCAT	\$DATA1.TESTCAT.TABLES	TA	DP \$DA	TA1.TESTCAT.TABLE	S	IN	\$DATA1.TEST
\$DATA1.TESTCAT	\$DATA1.TESTCAT.PROGRAMS	TA	DP \$DA	TA1.TESTCAT.PROG	RAMS	IN	\$DATA1.TES
CONTAL TESTONT	ADATA1 TESTOAT DADTNS	I TA		TAI TESTOAT DADTA	10	TN	
	ж.						
Catalog \$*.	.*	1		lo Filter Displaye	d i i	4,632 (of 4,632
All Object: 💙 💲	*.*	~	·				
Clear		Request	t 🗆 data d	collected 2003/10)/07 18:	10:51	
•				Not Logged	On ?	Help	Print Screen

The SQL/MP / Usage screen presents relationships within the SQL/MP environment.

Relationships recorded in the USAGES table:

- Program uses view, table, or index
- View uses view or table
- Index uses table
- Table, view, index, or program uses collation

SQL/MP / Statement

🛄 момі - М	Multi	system	n Online	e Mea	sure Inte	rface (Cl	ient ver	sion 3.	50)							
Black	1000	1 Inc.	50 50						\BW	S1 Fa	st - 20	002 🗸		Pause	2	:003/10/07 L8:30:53
- Back			System	s O	verview	CPUs	Proce	esses	Files	* Sub	Syste	ms His	story	Config	jure	
Enscribe	SQL	/MP	Disk Ei	ntity	DiskFil	e Entity	DiskO	pen Ent	tity File	Entit	y					
Catalog	Base	e Table	Tabl	e F	ile P	artition	Index	Table	e Detail	Prog	ram l	Jsage	Stat	ement		
Process Na	ame	Run Uni	it				Index	Calls	BusyTin	ne Tin	ne/Call	Recs U	sed F	Recs Acc	ess	Disk Reads
01,00179		SQLR		07525	81536145	553379	1	62.38	33.3	77 0.0	006321	165	5.53	206	.92	0.00
01,00179		SQLR		07525	81540628	546612	0	2.88	0.4	42 0.0	001736	0).96	0	.96	0.00
01,00179		SQLR	TDU_0	07525	81540628	546612	1	1.26	0.:	15 0.0	001445	0).42	0	.42	0.00
01,00179		SQLR	TDU_0	07525	81542030	140151	0	0.34	0.0	0.0	001673	0).11	1	.38	0.00
01,00179		SQLR	TDU_0	07525	81542030	140151	2	2.19	0.3	33 0.0	001806	0).73	8	.76	0.00
01,00179		SQLR	TDU_0	07525	81541900	713156	0	0.36	0.0	05 0.0	001987	0).12	3	.12	0.00
01,00179		SQLR	TDU_0	07525	81541900	713156	4	0.16	0.0	02 0.0	002010	0	0.04	1	.04	0.00
01,00179		SQLR	TDU_0	07525	81525665	445811	0	0.16	0.0	01 0.0	001437	0	0.04	0	.08	0.00
01,00179		SQLR	TDU_0	07525	81525665	445811	4	0.32	0.0	0.0	001760	0	0.08	0	.08	0.00
01,00179		SQLR	TDU_0	07525	81550005	246418	3	0.25	0.0	02 0.0	002081	0	80.0	0	.08	0.00
01,00179		SQLR	TDU_0	07525	81550005	246418	8	0.33	0.0	03 0.0	002450	0	80.0	0	.41	0.00
01,00179		SQLR	TDU_0	07525	81541617	056117	5	1.08	0.:	18 0.0	004252	0).83	0	.83	0.00
01,00179		SQLR	TDU_0	07525	91916499	255466	1	0.25	0.0	01 0.0	001244	0	00.0	0	.00	0.00
01,00179		SQLR	TDU_0	07525	81531391	.312014	1	0.25	0.9	51 0.0	052080	0	00.0	213	.91	2.33
<										r:14-						>
Proc	cess	Name	01,00)179				*	NO	Filter	Disp	layed		14	of	14
Clear	Con	fig			Rated \	/alues 💶	Requ	est 🗖	data co	llecte	d 2003	3/10/0	7 18	:30:51		
•										N	ot Log	ged On	?	Help		Print Screen

The SQL/MP / Statement screen provides a way to drill-down further within a process that uses SQL to see the level of activity performed by individual SQL statements. This information is obtained from MEASURE via the SQLSTMT entity.

The SQL Statement entity describes the cost in terms of time and I/O associated with individual SQL statements in a process. The statements are identified by an Index (0,1,2,3, etc...) obtained from a listing during SQL compilation (specify the SQLMAP option to SQLCOMP).

To use this screen, find a busy SQL application process on your system, perhaps from the Overview screen. Enter the process name (or CPU,PIN) in the Process Name field and push request. After 30 seconds or so, if
the process is active and using SQL/MP statements, the results are displayed. The screen continues to update with progressively longer update intervals.

Generally, in order to interpret the output for this screen, you need to work with your DBA and/or application developer as the SQL Statement index is obtained during program compilation. Even with the statement index, usually only the application developer and/or DBA could determine if the SQL statement is executing as intended (knowledge of the data layout, meaning of the data and accesses available into the data really help).

If you are dealing with SQL/MX, things get a little strange as SQL/MX has the requirement that an SQL Statement measurement must be in place prior to starting the program. This is really backward (and does not make much sense to us) but in theory allows reduced measurement overhead. SQL/MX really did things differently from a historical NonStop perspective. Unfortunately, it may be better to a) run MEASURE manually to collect the data OR b) manually start an external measurement and then go into this screen within MOMI. In the latter case, the measurement that MOMI launches is internally "latching into" an existing measurement which allows data to be obtained.

This screen is disabled by default. See the CONFMOMI keyword <u>DISABLE-MEAS-SQLSTMT</u> for additional information.

Files / Disk Entity

момі - м	ulti-system	n Online Mea	asure Interi	face (Cli	ient versio	n 3.70)						
Black We	ood	50				·	BWS1 Fas	t - 2002		Pa	use 200 14	4/05/13 :20:44
- Back		Systems 0	verview	CPUs	Processes	s *Files	s *SubSys	tems His	story	Confi	gure	
Enscribe	SQL/MP	*Disk Entity	DiskFile	Entity	DiskOpen	Entity	File Entity	ſ				
Disk Name	Disk Busy Time	Read QBusy Time	Write QBusy Time	Disk Reads	Disk Read Bytes	Disk Writes	Disk Write Bytes	Read QTime	Read QLen Max	Read Busy Time	Write QTime	Writi QLei Ma:
\$DATA1	24.36%	2.76%	21.59%	5.10	20,957	24.86	89,361	0.02	2		0.21	
\$SWAP1	6.67%	0.33%	6.33%	0.96	3,959	6.73	23,688	0.00	2		0.06	
\$PCS1	5.55%	0.27%	5.28%	0.76	3,140	4.93	17,544	0.00	2		0.05	
\$AUDIT	0.13%	0.00%	0.13%	0.00	0	0.06	136	0.00	0		0.00	
\$MOMI01	0.00%	0.00%	0.00%	0.00	0	0.00	0	0.00	0		0.00	1
\$TEMP1	0.00%	0.00%	0.00%	0.00	0	0.00	0	0.00	0		0.00	1
\$TEMP2	0.00%	0.00%	0.00%	0.00	0	0.00	0	0.00	0		0.00	1
\$SYSTEM	0.00%	0.00%	0.00%	0.00	0	0.00	0	0.00	0		0.00	1
\$DSMSCM	0.00%	0.00%	0.00%	0.00	0	0.00	0	0.00	0		0.00	
<												>
Disk	Name	\$*			*		No Filter	Displaye	d		9 of	9
Clear (Clear Config Volume Rated Values Stop Data Time 14:20:33 - Next 00:36											
•							No	t Logged	On	? Н	elp Prin	t Screen

The Files / Disk Entity screen presents the MEASURE Disk Entity which reports statistics at a physical disk volume level.

The Disk Entity provides information on all four possible disk paths (primary, primary backup, mirror and mirror backup) for both the primary and mirror drive. By default, MOMI consolidates this information into a single line of performance information. The combining of this information can result in percentages of usually up to 200% when mirrored drives are present. For example, if the Write-QBusy-Time is 145%, this effectively means that 72.5% of the time of each disk (145 / 2) is being consumed. Uncheck the **Volume** selection to display information in the original or native format as seen below:

MOMI - N	Aulti-syster	n Online Me	asure Inter	face (Cl	lient versio	n 3.70)							
Black W	ood stoms, trc.	100 50 0				···· \	BWS1 Fast	- 2002	<u>~</u> [Pause	20 14	04/05 4:21:	/13 42
<- Back		Systems	Overview	CPUs	Processe	s *Files	SubSyst	tems Hi	istory	Configure			
Enscribe	SQL/MP	*Disk Entit	9 DiskFile	Entity	DiskOper	Entity	File Entity						
Disk Name	Disk Busy Time	Read QBusy Time	Write QBusy Time	Disk Reads	Disk Read Bytes	Disk Writes	Disk Write Bytes	Read QTime	Read QLen Max	Read N Busy Q Time	Write Time	Write QLen Max	^
\$PCS1	13.93%	0.88%	13.04%	1.31	5,376	10.22	36,522	0.00	1		0.13	1	
\$PCS1	11.71%	0.74%	10.96%	0.95	3,925	10.22	36,522	0.00	1		0.10	1	
\$SWAP1	9.19%	0.79%	8.40%	1.08	4,437	9.72	34,730	0.00	1		0.08	1	
\$SWAP1	8.82%	0.69%	8.13%	1.08	4,437	9.72	34,730	0.00	1		0.08	1	
\$DATA1	1.93%	0.08%	1.84%	0.18	1,898	2.10	8,341	0.00	1		0.01	1	
\$DATA1	1.83%	0.10%	1.73%	0.20	810	2.10	8,341	0.00	1		0.01	1	
\$AUDIT	0.10%	0.00%	0.09%	0.02	10	0.08	160	0.00	1		0.00	1	
\$AUDIT	0.06%	0.00%	0.06%	0.02	10	0.08	160	0.00	1		0.00	1	
\$MOMI01	0.05%	0.00%	0.05%	0.02	10	0.02	10	0.00	1		0.00	1	
\$TEMP2	0.04%	0.00%	0.04%	0.02	10	0.02	10	0.00	1		0.00	1	
\$MOMI01	0.03%	0.00%	0.03%	0.02	10	0.02	10	0.00	1		0.00	1	
\$TEMP1	0.03%	0.00%	0.03%	0.02	10	0.02	10	0.00	1		0.00	1	
\$MOMI01	0.00%	0.00%	0.00%	0.00	0	0.00	0	0.00	0		0.00	0	
\$SWAP1	0.00%	0.00%	0.00%	0.00	0	0.00	0	0.00	0		0.00	0	
\$PCS1	0.00%	0.00%	0.00%	0.00	0	0.00	0	0.00	0		0.00	0	
\$TEMP1	0.00%	0.00%	0.00%	0.00	0	0.00	0	0.00	0		0.00	0	~
Disk	Name	\$*			*		No Filter	Display	ed 🗌	25 of	f	:	25
Clear	Config 🛛	Volume	Rated Valu	ies 🔳	Stop	□ data	collected 2	2004/05	/13 14	4:21:39			
•							Not	t Logged	On	? Help	Pri	nt Scr	een

In the non-Volume view, the ServerNet Location (Group:Module:Slot) on newer platforms can be used to distinguish between primary and mirror drives.

Detailed disk cache information for a particular entry may be presented in a consolidated window by rightclicking on a disk name and selecting **View Disk Entity Detail** as seen below. MEASURE does not provide the same level of detail concerning cache as SCF (hence a few screen differences) and not all disk paths return cache information.

📟 MOMI - Multi-	-system Online Measur	e Interface (Client ve	ersion 3.70)										
Black Wood	6 .		\вw	S1 Fast - 2002	2 🗸 📳 Paus	se 2004/05/13 14:22:26							
- Back													
Enscribe SQL	Enscribe SQL/MP *Disk Entity DiskFile Entity DiskOpen Entity File Entity												
Disk Name	\$SWAP1	Disk - 8GB	(4608/4609)		Disk Entity	Detail 🗙							
\$PCS1	Disk Busy Time			Cache KB	ytes Allocated 📗	34,560							
\$SWAP1	18.02%	Cache Block Size	512	1024	2048	4096							
\$DATA1	Reads 2.16	Blocks Allocated	512	512	512	8,192							
\$AUDIT	Read Bytes	Blocks in Use	0	4	0	8,192							
\$MOMI01	8,874	Blocks Dirty	0%	0%	0%	2%							
\$TEMP2	Writes	Cache Calls	0	0	0	29							
\$TEMP1	19.45 Write Bytes	Cache Hits	0%	0%	0%	96%							
\$SYSTEM	69.461	Cache Misses	0%	0%	0%	3%							
\$DSMSCM	Requests	Cache Write Dirties	0.9%	0%	0%	160/							
	6	Cache Write Dirues	0%	100%	0%	710/							
	Request Busy Time	Cache Write Cleans	0%	100%	0%	/1%							
	0.21%	Cache white Misses	0%	0%	0%	1270							
	Swaps	Cache Faults	0	0	0	0							
	0.00	Audit Forces	0	0	0	0							
	ClipBoard	Block Splits	0	0	0	0							
<		1											
Disk Nan	Disk Name \$* No Filter Displayed 9 of 9												
Clear Conf	ig 🔽 Volume 🔽 Rat	ted Values 🔳 🛛 S	itop 💻 data col	llected 2004/0	5/13 14:22:20								
•				Not Logge	d On ? He	Print Screen							

This is an approach to consider when diagnosing disk drive performance issues:

- Drill down starting at the volume level, working down sequentially through the DiskFile, DiskOpen and finally to the process level.
- Starting from the Disk Entity screen, click on a volume and select <u>DiskFile Entity</u> to see all of the active files on the disk.
- On an entry on the DiskFile Entity screen, click to select <u>DiskOpen Entity</u> which displays all of the processes accessing the file.

On an entry on the DiskOpen screen, click on the Opener Process Name to view <u>Process Detail</u> of the opener process of that file. (you can also click on the File Name to view the <u>File Entity</u> which provides different I/O counters).

Files / DiskFile Entity

									<u>e ejete</u>	TT Qui	<u>KS</u>
BWS1-2004 MOMI (Client ver	sion 5.06)								(X
									<mark>200</mark> 	8/07/ :01::	'24 51
- Back Systems	Overview	CPUs Processe	s *Fi	les SubS	ystems	Histo	ry Ala	rms C	onfigur	е	
File Explorer Enscribe SQL/MP Disk Entity *DiskFile Entity DiskOpen Entity File Entity											
File Name	File Size (EOF)	File Type Description	File Code	Requests	Driver Input Calls	Driver Output Calls	Cache Read Hits	Cache Write Hits	Cache Write Cleans	Block Split:	
\$SYSTEM.SYS72.OSIMAGE	63,954,944	unstructured	0	0.07	0.14	0.00	0.11	0.00	0.00	0.00	
\$SYSTEM.SYSTEM.USERID	7,168	key-sequenced	540	0.03	0.07	0.00	0.07	0.00	0.00	0.00	
\$SYSTEM.SAFE.OTHER	12,288	key-sequenced	542	0.29	0.59	0.00	0.59	0.00	0.00	0.0(
\$SYSTEM.SAFE.GUARD	0	key-sequenced	542	0.07	0.00	0.00	0.00	0.00	0.00	0.00	
\$SYSTEM.ZLOG72.ZZEV0002	98,304	entry-sequenced	843	0.22	0.22	0.00	0.22	0.00	0.00	0.0(
\$SYSTEM.SYS72.TMFDR	1,814,528	unstructured	100	0.14	0.00	0.00	0.00	0.00	0.00	0.0(
\$SYSTEM.ZSERVICE.ZZSV0045	598,016	entry-sequenced	843	0.22	0.22	0.00	0.22	0.00	0.00	0.0(
\$SYSTEM.SYS72.MEASFH	739,328	unstructured	100	0.77	2.51	0.00	2.51	0.00	0.00	0.0(
									_	>	
File Name \$SYSTEM		~	8 ~	No Filt	ter D	isplayed		8	of		8
Clear Config	Rated Valu	ies 📕 Stop) — [Da	ata Time 1	4:01:3	2 - Nex	t 00:13				
•			Chat	Not Log	jged Or	Hin	ts On	? Help	Prin	t Scre	en

Ourstand Outstand

The Files / DiskFile Entity screen presents information about the MEASURE DiskFile entity.

The MEASURE DiskFile entity displays one record for each open (or active) file on a disk volume. This can be considered the next level down from the Disk Entity.

This is an approach to consider when diagnosing disk drive performance issues:

- Drill down starting at the volume level, working down sequentially through the DiskFile, DiskOpen and finally to the process level.
- Starting from the Disk Entity screen, click on a volume and select <u>DiskFile Entity</u> to see all of the active files on the disk.
- On an entry on the DiskFile Entity screen, click to select <u>DiskOpen Entity</u> which displays all of the processes accessing the file.
- On an entry on the DiskOpen screen, click on the Opener Process Name to view Process Detail of the opener process of that file. (you can also click on the File Name to view the File Entity which provides different I/O counters).

Files / DiskOpen Entity

MOMI - Mult	ii-syste	m Online A	<i>leasure</i>	Inter	face (Clie	ent version 3.50)								ðX
Black Woo	d s, hre.	50					\BWS	1 F	ast - 2002	2 ~ [‡	Pau	ise 2	:003/1 L 9:13	0/07 :54
- Back	-	Systems	Overv	iew	CPUs	Processes * I	iles 🔹	^k Su	ıbSystems	Histo	ry Co	nfigure		
Enscribe SQ	L/MP	* Disk E	ntity *	Disk	File Enti	ty * DiskOpen	Entity	*	File Entity					
File Name			Opener Process Name	Op CF	ener PU,Pin	File Type Description	Requ	ests	SQL Operation Time	Driver Total Calls	Driver Input Calls	Driver Output Calls	Cache Read Hits	Cac Wr ⊦
\$SYSTEM.SYS10	6.OSIM	AGE	00,000	0 00	0,00000	unstructured	C).10	0.00	0.00	0.00	0.00	0.00	0
\$SYSTEM.ZSER	VICE.Z	ZSV0019	\$Z01V	00	0,00040	entry-sequenced	0	.10	0.00	0.10	0.10	0.00	0.10	0
\$SYSTEM.ZLOG	16.ZZE	V0000	\$Z01S	00	0,00039	entry-sequenced	0	.10	0.00	0.10	0.10	0.00	0.10	0
\$SYSTEM.SAFE.	.GUARD)	\$ZS00	00	0,00333	key-sequenced	0	.10	0.00	0.00	0.00	0.00	0.00	0
\$SYSTEM.SYSTE	EM.USE	RID	\$ZS01	0:	1,00329	key-sequenced	0).10	0.00	0.20	0.20	0.00	0.20	0
\$SYSTEM.SAFE.	.GUARD)	\$ZS00	00	0,00333	key-sequenced	0	0.10	0.00	0.00	0.00	0.00	0.00	0
\$SYSTEM.SAFE.	OTHER		\$ZS01	0:	1,00329	key-sequenced	0	0.06	0.00	0.13	0.13	0.00	0.13	0
\$SYSTEM.SAFE.	OTHER		\$ZS00	00	0,00333	key-sequenced	0	.46	0.00	0.93	0.93	0.00	0.93	0
														>
File Nar	me	\$SYSTEM				*	Nol	-ilte	Display	ed	1	B of		8
Clear Con	fig		🗹 Rate	d Val	lues 💻	Pause 🗖 Da	ta Tim	e 19	9:13:47 -	Next O	0:37			
•									Not Logge	d On	? Н	elp F	Print Sc	reen

The Files / DiskOpen Entity screen presents the MEASURE DiskOpen entity.

The MEASURE DiskOpen entity is I/O activity on a file from an opener process perspective. One entry is present for every open to a file.

The MEASURE DiskOpen entity does not store the Opener Process Name, only the Opener CPU and Opener PIN. The Opener Process Name column is derived by looking up the current process name at the CPU & PIN currently running at that location.

This is an approach to consider when diagnosing disk drive performance issues:

- Drill down starting at the volume level, working down sequentially through the DiskFile, DiskOpen and finally to the process level.
- Starting from the Disk Entity screen, click on a volume and select <u>DiskFile Entity</u> to see all of the active files on the disk.
- On an entry on the DiskFile Entity screen, click to select <u>DiskOpen Entity</u> which displays all of the processes accessing the file.
- On an entry on the DiskOpen screen, click on the Opener Process Name to view Process Detail of the opener process of that file. (you can also click on the File Name to view the File Entity which provides different I/O counters).

Files / File Entity

MOMI - Multi-system	online M	easure In	erface (C	lient version 3.	50)					- 7 🛛
Black Wood	100 50 0				∖в₩	'S1 Fa	st - 2002		Pause	2003/10/07 19:29:39
- Back - S	Systems	Overvie	v CPUs	Processes	* Files	* Sub	Systems	History	Configur	e
Enscribe SQL/MP	Disk Entit	y DiskF	le Entity	DiskOpen En	tity * F	ile Ent	tity			
File Name	Op Pro Na	ener Ope ocess CPU me	ner O I,Pin Pi N	pener rogram ame			File Busy Time	Avg Op Time	Opener File Nbr	File Type Description
\$RECEIVE		01	00179 \$	DSMSCM.XPHIH	B.PHIHD	BMG	0.73%	0.056545	0	unstructured
\$DSMSCM.XPHIHDB.PHI	IH13B	01	00179 \$	DSMSCM.XPHIH	B.PHIHD	BMG	0.85%	0.001028	10	key-sequence
\$DSMSCM.XPHIHDB.PHI	IH19B	01	00179 \$	DSMSCM.XPHIH	B.PHIHD	BMG	0.04%	0.016492	11	key-sequence
\$DSMSCM.XPHIHDB.PHI	IH29B	01	00179 \$	DSMSCM.XPHIH	B.PHIHD	BMG	0.00%	0.001362	12	key-sequence
\$DSMSCM.XPHIHDB.PHI	IH11B	01	00179 \$	DSMSCM.XPHIH	B.PHIHD	BMG	88.12%	0.000878	13	key-sequence
\$DSMSCM.XPHIHDB.PHI	IH24B	01	00179 \$	DSMSCM.XPHIH	B.PHIHD	BMG	0.00%	0.000646	14	key-sequence
\$DSMSCM.XPHIHDB.PHI	IH33B	01	00179 \$	DSMSCM.XPHIH	B.PHIHD	BMG	0.62%	0.001673	15	key-sequence
\$DSMSCM.XPHIHDB.PHI	IH18B	01	00179 \$	DSMSCM.XPHIH	B.PHIHD	BMG	0.03%	0.001271	16	key-sequence
\$SYSTEM.SYSTEM.SQLM	ISG	01	00179 \$	DSMSCM.XPHIH	B.PHIHD	BMG	6.86%	0.019218	18	key-sequence
<										>
File Name 0	1,00179			*	N	o Filter	Displaye	d 🗌	9 of	9
Clear Config	l	🗹 Rated	Values 💶	Pause 🗖	Data Ti	me 19:	:29:28 - N	lext 01:19)	
•						N	lot Logged	On ? (Help	Print Screen

The Files / File Entity screen presents the MEASURE File Entity.

The MEASURE File entity is I/O activity on a file. A file is a communication path from one process to another and is **not** necessarily to a disk file. This entity is unique with its ability to track and report on all sorts of different I/O activity from inter-process, TCP/IP, OSS and process to disk.

The File entity is measured from the perspective of the opener. A process on a remote system opening a local file cannot be measured on the local system using this entity.

A local process opening a remote file can be measured locally. For example, if you are on system \BWS1 and want to see the file level activity across Expand, you would enter in the File Name field \BWS2.\$*.*.*.

SubSystems

Logs

EMS Msgs

BWS1-2004 MOMI (Client version 5.24)									
Black Wood	5%	\BWS	1-2004 • Pause 2012/01/12 11:15:36						
	PUs Processes Files Su	bSystems	History Alarms Configure						
Logs Spooler TCP/IP OSS Expa	nd User Defined								
EMS Msgs VHS Log MOMI Log EMS EventCX EMS EventBX									
-?-Date/Time(LogLct) Process	System ID E	vent Mess	sage (13 of possible 100)						
2008/07/08 14:03:04 \$Z1574	TANDEM.CLOCK.F40	102 Syst	em time reset						
2008/07/08 14:03:04 \$Z1574	BWS.0.0	0 BWSS be S seco	GG -> SNTP:System time will SET by MOMI forward 0.608772 onds						
2008/07/08 13:56:45 \$Z1570	BWS.0.0	200 BWMC Per thre	<pre>MI -> Spooler \$S Collector - ccent full at 9% (over shold of 1%)</pre>						
2008/07/08 13:56:19 \$Z1570	BWS.0.0	200 BWMC DOWN	MI -> Expand \$EP2BWS2 is N						
2008/07/08 13:55:45 \$MOMI4	BWS.0.0	200 BWMC resu	MI -> Alarm processing med - time expired						
2008/07/08 13:55:13 \$Z1570	BWS.0.0	200 BWMC Alar	MI -> Spooler \$S: All						
2008/07/08 13:55:13 \$Z1570	BWS.0.0	200 BWMC Alar	OMI -> Expand \$EP2BW52: All						
2008/07/08 13:55:13 \$MOMI4	BWS.0.0	200 BWMC	MI -> Alarm processing +						
Single Line - Scroll Speed +	Client Filter								
Compress			Filter NO Filter PreFilter Define						
Clear Config Export Mini-Report	s 📕 Resume								
	Chat	Not Log	ged On Hints On ? Help Print Screen						

The EMS Msgs screen presents information logged to an EMS collector or from an EMS log file. Messages may be displayed from one or more collectors/log files, filtered on-the-fly and color coded based on content.

EMS messages provide a means for system and user programs to communicate and record significant events on the system.

To display current EMS messages from \$0, the primary system collector, press the **Request** button.

To view messages from an alternate EMS collector or to change other display options, press the **Config** button. In the pop-up window, enter or select the various fields. Press the right pointing arrow to add to the list and **Request with new options** when finished.

Request Display	EMS configuration options	X
Collector or LogFile \$0 - EMS LOG \$	Collector Lists <none> Save Delete Collector Distributer Filter Template File Queued Status</none>	
Now 2012/02/03 ▼ 14:29:59 🚔		
STOP date/time		Request with new
STOP message count		options
Distributor Filter <none></none>		
Template file <none></none>		
		Close

Collector or LogFile determines which EMS collector or file to obtain information. The two buttons to the right display either a list of EMS collector processes or a disk file picker keyed to EMS log files (i.e. file code 843).

START date/time is the time location to begin retrieving records.

STOP date/time is the time location to stop retrieving records. By default records are read until End of File is reached.

STOP message count determines how many EMS messages are retrieved. The actual number of message returned may exceed this value somewhat due to internal optimizations.

Distributor Filter allows the use of a pre-compiled EMS filter. A pre-compiled filter is a very efficient means to limit information reported, based on the filter criteria, as this functions as a pre-filter at the distributor level and only provides to MOMI records with matching criteria. This filter is may be used in addition to on-the-fly or client based filtering described later.

Template file allows the definition of templates that are used when converting the EMS tokens to text. This is equivalent to specifying the TACL DEFINE =_EMS_TEMPLATES.

Request Display EM	IS configuration options	X
Client Filter <pre></pre>	<none> Save Delete</none>	
Display Order Reversed Scrolling (Last at Bottom) Message Count	Collector Distributer Filter Template File Queued Status	Request
Display/Set Highlight Colors		with new options
		Close

Client Filter allows the selection of a client based filter previously saved. The filter applies to all data displayed on this screen.

Display Order option of **Reversed Scrolling (Last to Bottom)** causes new messages to initially appear on the bottom of the grid and scroll up. By default, new messages appear at the top of the grid and scroll down.

Msg Count determine the maximum number of messages available in the scrollable window area. EMS collectors or EMS log files only provide records from a start time moving forward. No 'backward' ability is available. MOMI allows the user to determine how many EMS messages are loaded with the screen window and to scroll through these messages. When the number of message exceeds the Msg Count, the oldest message is discarded. When filtering messages, described later in this section, the action of **Filter** and **Pre-Filter** determine if messages are actually present in the screen buffer but hidden (**Filter**) or if messages are actually discarded when the filtering criteria is met (**PreFilter**). Turning a filter off (**No Filter**) causes hidden messages to appear.

Multiple EMS collectors or log files may also be selected. After entering or selecting an EMS collector or log file, press the right array button. The collector and any precompiled EMS filter, now appear in Collector Lists area. Add as many collectors/log files as desired. Press **Request with new options** to display EMS records from the entered collectors/log files. A single entry may be removed by clicking on it then pressing the left arrow. The left arrow labeled ALL clears the **Collector Lists** area.

Request Display	MS configuration options	X
Collector or LogFile	<pre>Collector Lists </pre> < Save Delete	
START date/time Now 2012/01/12 ▼ 14:17:15 🚔 📫	Collector Distributer Filter Queued Status	
STOP date/time	ŞALOG	Request
Distributor Filter <none> ▼ 🕤</none>		options
Client Filter		
	Í	Close

Clicking on a displayed EMS message displays a pop-up window with additional information. The **Detail** tab contains the entire EMS message followed by Cause/Effect/Recovery information retrieved from the EVENTTX file (an HP supplied file located on the system).

Emphasis		EMS Message Detail	Log \$SYSTEM.ZLOG72.ZZEV0001
Date/Time (Lo	gLct)	2008/07/08 13:10:01.247132	Process
System ID		TANDEM.CLOCK.F40	Event Message number 104
Message 1	Detail	EventCX EventBX Tokens	
/ Prev	Error r	eading Service Processor clock, err	or code: 162
∇ Next		** Cause ** Effe	ect ** Recovery **
EventCX Definitions EventBX Definitions	104	reading Service Processor clock or code: status	
Text Clipboard Graphic Clipboard	Hin	t: Select text then right click to add te	ext to filter/Color Close

The **EventCX** tab displays any user defined information associated with the EMS message from the HP defined file. See <u>EVENTCX</u> for additional information.

Emphasis		EMS Messag	je Detail		Log \$SYS	TEM.ZLOG72.Z	ZEV0001	X
Date/Time (Log	gLct)	2008/07/08	3 13:10:01.2	247132	Process			
System ID		TANDEM.CLO	OCK.F40		Event M	essage number	104	
Message 1 Text	Detail	EventCX	EventBX	Tokens				
<pre>/ Prev ∇ Next</pre>								
EventCX Definitions EventBX Definitions								
Text Clipboard Graphic Clipboard								Close

The **EventBX** tab contains any user defined information associated with the EMS message from a Black-Wood defined area. See <u>EventBX / Define</u> for additional information.

Emphasis	EMS Messa	ige Detail		Log \$SYSTEM.ZLOG72.ZZE	V0001	X		
Date/Time (LogL	Lct) 2008/07/0	8 13:10:01.2	247132	Process				
System ID	TANDEM.C	OCK.F40		Event Message number	104			
Message 1	Detail EventCX	EventBX	Tokens					
✓ Prev C ✓ Prev C ✓ Next st	AUSE: ause. The operat laintenance Interfa tatus code for the	ing system en ice (RMI) cloc reason why tl	encountered an error when reading the Remote clock while trying to reset the system time. Check the by the error occurred.					
EventCX Definitions	FFECT: ffect. The system ailed. <u>(my edit)</u>	n time is not a	utomatical	ly initialized. The RMI clock mi	ght have			
EventBX Definitions A Text Clipboard	ECOVERY: single event does scalate to HP Syst ore hours.	not require es ems if the eve	scalation. E ent is recei	email HP Systems on multiple e ved on a recurring hourly inter	vents vals - 2 or	Ŧ		
Graphic Clipboard					Clo	se		

The Tokens tab contains all of the EMS tokens within the EMS message. EMS messages may contain additional tokens that are not displayed in the template that formats the text output located under the **Detail** tab.

Emphasis		EMS Messag	je Detail		ι	.og \$SYSTEM	I.ZLOG72.Z	ZEV0001	. 🗶
Date/Time (Lo	gLct)	2008/07/08	13:10:01.	247132		Process			
System ID		TANDEM.CLO	OCK.F40			Event Messa	age number	104	
Message 1	Detail	EventCX	EventBX	Tokens	5				
		Proce	ess-Descrip	ptor:	"\E	BWS1.\$:0:0:12	263176"		
/ Prev		ZEMS-	TKN-REDUN	DANT:	F				
		Sug	press-Disp	play:	F				
1 NEXT			Use	erid:	255	5 255			
			Subject-1	Mark:*					
EventCX			SP-c	lock:	"SE	PCLOCK_"			
Definitions	TANDEM	.CPU.0	CPU-	Type:	S70	0000 (9)			
EventBX	TANDEM	.CPU.0	CPU-m	odel:	NSE	R-T (1)			=
Definitions	TANDEM	.GUARDLIB.0	TOS-ver:	sion:	81	6			-
			SP-IO-e:	rror:	%HA	A2			
Text			Interval-	wora:-	DII	tierence is (0.000000 s	econds	-
Clipboard									+
Graphic					-				
Clipboard									Close

Displayed messages may be easily filtered "on-the-fly" to remove unneeded messages or only display particular messages. This is accomplished by clicking on a message to bring it up in detail (you might need to **Pause** the screen), highlight the text (left-click and hold then drag mouse over the desired text) and then right-click over the highlighted text. A menu selection provides filtering to include the item or exclude it. *Note: Highlighting text then placing the mouse over it does not change the mouse pointer to a hand cursor.*



Filters constructed on-the-fly may be saved for later reuse. Press the **Define** button to display all of the current filter criteria. Saved filters may be viewed, edited, selected or deleted. Fields searched within the EMS message may be limited by the **Limit by type** button. In the sample image TANDEM.CLOCK is only searched in the SSID portion of the EMS message. If no limit is specified, the search is through the entire EMS message.

🔤 \BWS1-2004 MOMI (Client version 5.28)
Black Wood Pause 2012/06/
Logs Spooler TCP/IP OSS Expand User Defined
EMS Msgs VHS Log MOMI Log EMS EventCX EMS EventBX
\$0 Define and View Filter
Current Filter names Current Filter names
Filter criteria
E Include if ANY <*SSID>TANDEM.CLOCK
*Include if ALL
E Exclude if ANY ros
E Exclude if ALL - oci
sfi sfi
Limit Action/Emphasis flags
Clear Filter name to save temp Save Filter Use Filter Close
clock TSM OSS Measure TANDEM.TAPE TMF
Single Line - Scroll Speed + Client Filter
Compress Filter PreFilter Define Find
Clear Config Export Mini-Reports Resume Reading record at 2012-06-01 11:00:03.049697
Chat Hints On ? Help Print Scre

Saved filters may be selected from a drop-down box in the **Client Filter** area (or on the **Config** pop-up window). Once a filter is selected, the **Filter**, **No Filter** and **PreFilter** buttons are available.

The **Filter** button enables logic that alters only the display of the EMS messages with matching criteria. The messages are stored within memory and may be redisplayed by pressing the **No Filter** button. EMS messages are stored until the screen queue is filled and then the oldest message is discarded to make room for the newest.

The **PreFilter** button enables logic that discards any EMS message with matching criteria. Discarding the record means it is not stored in memory and pressing the **No Filter** button does not alter the messages currently displayed.

The Find button allows



Messages may be color highlighted based on their content.

	\BW	/S1-2004 N	NOMI	(Client v	ersio	n 5.24)			
E	3/a	ck Woo	d	e.			7%		3WS1-2004 V Pause 2012/01/12 12:56:59
-	<-		Sys	tems	Over	view CP	Us Processes File	s SubSy	stems History Alarms Configure
L	ogs	Spool	er 1	CP/IP	059	S Expan	nd User Defined		
E	MS	Msgs V	HS Lo	og MOI	4I Lo	EMS E	ventCX EMS EventB	ĸ	
	-?-	Date/Ti	me (I	logLct)	Process	System ID	Event	Message (71 of possible 100)
		2008/07	/09	12:51:	:48	\$DATA2	TANDEM.DISK.G07	5066	LDEV 0163 DP2 REFRESH cache flush initiated, performance loss is possible.
		2008/07	/09	12:51	:48	\$ZZSTO	TANDEM.STORAGE.G	06 1007	SCF CONTROL DISK \$DATA2, REFRESH executed at terminal \BWS1.\$ZS1. #PTZP33D by user 255,255.
		2008/07	/09	12:51:	:44	ŞSYSTEM	TANDEM.DISK.G07	5066	LDEV 0006 DP2 REFRESH cache flush initiated, performance loss is possible.
		2008/07	/09	12:51:	:44	\$ZZSTO	TANDEM.STORAGE.G	06 1007	SCF CONTROL DISK \$SYSTEM, REFRESH executed at terminal \BWS1.\$ZS1.#PTZP33D by user 255, 255.
		2008/07	/09	12:03	:09	\$Z1609	TANDEM.CLOCK.F40	102	System time reset
ľ									label
		clock			TS	M	OSS	Measu	TANDEM.TAPE TMF
G	℃	Single L	ine ess	- Sci	roll S	peed +	Client Filter		▼ Filter NO Filter PreFilter Define
	Clea	Cont	fig	Export	Mi	ni-Reports	Resume		
0								Chat	net.dw Hints On ? Help Print Screen

To activate this feature, right click on the color guides near the bottom of the window and select **Display/Change Color Sections...** Enter the label text and message content text that should cause that color to be displayed. By default, the entered text is considered "one string" for comparison purposes. Multiple strings may be entered by separating them with a | (i.e. vertical bar) character. Enclose the entered text in quotes (i.e. " ") to retain leading and/or trailing spaces. Press **Save** when complete.

BWS1-2004 MOMI (Client version 5.24)				
Black Wood		\BWS	51-2004 - Pause 20	012/01/12 4:30:30
	s Processes Files	SubSysten	ms History Alarms Configure	
*Logs Spooler TCP/IP OSS Expan	d User Defined			
*EMS Msgs VHS Log MOMI Log EMS E	ventCX EMS EventBX			
-?-Date/Time(LogLct) Process	System ID	Event M	Message (9 of possible 100)	•
2008/07/09 12:51:48 \$ZZSTO	TANDEM.STORAGE.G06	1007 S	SCF CONTROL DISK \$DSMSCM,	
Label identifier Message	contents La	bel identifi	er Message contents 🗴	
	cloc	k	CLOCK	
2	TSM		TSM	
	OSS		OSS	
2	Mea	sure	TANDEM.MEASURE	
	TAN	DEM.TAPE	TANDEM.TAPE	
	TMF		TMF	
Save			Close	
	TANDEM CTODACE COS	1007 10		
clock TSM	OSS	Measure	TANDEM.TAPE TM	F
Single Line - Scroll Speed +	Client Filter		Filter NO Filter PreFilter	Define
Clear Config Export Mini-Reports	Pause End o	of File reac	hed	
•	Chat	Not Log	gged On Hints On ? Help P	rint Screen

The scanning of text for color determination stops after the first match and is performed in the following order:

light yellow light orange light green light blue light red light purple bright yellow bright orange bright green bright blue bright red bright purple

The **Mini-Reports** button displays a pop-up to provide a quick summary of counts by different criteria. The totals are computed based on the messages currently displayed and in the message buffer (i.e. these are the messages you can scroll up/down and see on the screen).

EMS Mini-Reports								X
By Owner	Owner	SubSys	Event	Count	%	% of Total (23)		
	TANDEM	OSM	1108	4	17%		E	
By SubSystem	TANDEM	TELSERV	2	3	13%			
By Event Number	BWS	0	0	3	13%			
	TANDEM	CLOCK	107	3	13%			
By Process Name	TANDEM	OSM	1101	3	13%			
By Severity	TANDEM	OSM	1102	2	8%			
	TANDEM	EMS	520	1	4%			
By Color	TANDEM	EMS	514	1	4%			
By Collector	TANDEM	CLOCK	104	1	4%		-	

VHS Log

BWS1-2004 MOMI (Client version 5.16)	
Black Wood	Image: Second state Image: Second state
-Back Systems Overvie	ew CPUs Processes Files SubSystems History Alarms Configure
Logs Spooler TCP/IP OSS Expa	nd User Defined
EMS Msgs VHS Log MOMI Log EMS	EVENTCX
Mag Date/Time PName Cpu.Pin	Text
2007/03/07 15:03:03 0,466	Save file created: \BWS1.\$DATA1.VHSDUMP.SAVE0059
2007/03/07 15:03:03 0,466	001,0,466-SAVE \BWS1.\$DATA1.VHSDUMP.SAVE0059;LOW;D;T;S
2007/03/07 15:03:02 0,466	VOLUME \$DATA1.DALE
2007/03/07 15:03:02 0,466	SYSTYPE GUARDIAN
2007/03/07 15:03:02 0,466	SYSTEM
2007/03/07 15:03:02 0,466	SOURCE SYSTEM
2007/03/07 15:03:02 0,466	SCOPE TDS^MAIN(0)
2007/03/07 15:03:02 0,466	PROGRAM BWMOMI
2007/03/07 15:03:02 0,466	LOG (Logging turned off)
2007/03/07 15:03:02 0,466	LANGUAGE TAL
2007/03/07 15:03:02 0,466	DIRECTORY /G/DATA1/DALE
2007/03/07 15:03:02 0,466	001,0,466-HIGH;ENV
2007/03/07 15:03:02 \$Z41T 00,00495	-BWMOMI-INSPECT ONCE FILE \$SYSTEM.SYSTEM.INSPECT;HIGH;SET PROMPT P P,L
2007/03/07 15:03:02 \$Z41T 00,00495	Executing command file \$DATA1.DALE.INSPCSTM
2007/03/07 15:03:02 \$Z41T 00,0049	001,00,00466 BWMOMI #TDS^MAIN.#2920(TDS01HT)
Scroll Speed and Direction	-> Filters Filter NO Filter Define
Clear Config Export	Resume
	Chat net.dw Hints On ? Help Print Screen

The VHS Log screen presents information collected by a VHS process.

VHS, or the Virtual Hometerm Subsystem, provides a stable location for processes to log message usually related to a problem or status update. Messages received by VHS are logged to a file which may be viewed on this screen. If the screen is going forward in time and reaches the end of file, new messages are automatically displayed shortly after they are written. However, if VHS switches to a new log file, the screen will stop displaying new messages. The user must manually select a new log file in order to continue viewing new messages. The log file used by VHS does not have a unique file code assigned by default, so It is necessary to logon to MOMI and have the necessary security to view a VHS Log.

To start viewing VHS Log files, press the Config button and Specify a log file. To aid in selecting a log file, press the locator button to display the File Locator pop-up window. Unfortunately, MOMI cannot automatically determine the active LogFile as VHS does not provide such a mechanism. However, using the File Locator, usually the file with the highest sequence number, or LOG0001 in the image below, is the current file.

BWS1-2004 MOMI (Client version 5.16)	
Black Wood	\BWS1-2004 ▼ Pause 2009/12/21 15:53:15
Back Systems Overview CPUs Processes Fil	File Locator (VHS Logs only)
Logs Spooler TCP/IP OSS Expand User Defined	\$DATA1.TESTCAT2
EMS Msgs VHS Log MOMI Log EMS EVENTCX	\$DATA1.TESTOSC
Msg Bate/Time PName Cpu.Pin Text	\$DATA1.TIE
2007/03/07 15:03:03 0,466 Save file created: \BWS	\$DATA1.UTILDD
2007/03/07 15:03:03 0,466 001,0,466-SAVE \BWS1.\$D	\$DATA1.UTILDT
2007/03/07 15:03:02 0,466 VOLUME \$DATA1.	\$DATA1.UTILS
2007/03/07 15:03:02 0,466 SYSTYPE GUARDIA	\$DATA1.VHS
2007/03/07 15:03:02 0,466 SYSTEM	- \$DATA1.VHSLOG
2007/03/07 15:03:02 0,466 SOURCE SYSTEM	SDATA1 VHSLOG LOG0001
2007/03/02 15-02-02 0 466 CODE TRANKI	\$DATA1.VHSSTART
2007/03/ VHS Log File Config Options	\$DATA1.VIEWPT
2007/03/ Specify LogFile	\$DATA1.ZSPIDEF
2007/03/ \$DATA1.VHSLOG.LOG0002 - 🗑	*DATA1.ZYS00000
2007/03/ Specify Starting Date/Time Request A	SDATA2
2007/03/ Now 2009/12/21 - 00:00:00 🚔	Code Size Creation Date
2007/03/ Display Order I	0 458,752 2006/03/10 14:19:24
2007/03/ Reversed Scrolling (Last at Bottom)	Security Owner Modification Date
2007/03/	NUUU 100,109 2007/03/07 15:20:23
Scroll Speed and Direction -> Filters	
	,
	Use File Close
Chat	net.dw Hints On ? Help Print Screen
Chat	

Once a file is selected, you may scroll continuously at different speeds with the slider, forward or back one line at a time < >, 10 lines at a time << >> or stop X.



A default location where the File Locator drills-down to may be set with the CONFMOMI keyword <u>SELEC-TION-DEFAULT-VHS</u>. This keyword provides two functions. First, the File Locator automatically drills down to the subvolume specified (the File Locator may display files other than VHS log files). Second, the special name of "CURRENT VHS LOG FILE" appears and will automatically select the current VHS Log file based on modification date. The automatic selection only occurs when Request is pressed.

VHS Log File Config Options	X
Specify LogFile	
CURRENT VHS LOG FILE	
Specify Starting Date/Time	Request
Now 2007/03/05 💉 15:29:56 😴	
Display Order	
Reversed Scrolling (Last at Bottom)	Close

After selecting the log file, press Request. Use the scroll bar to move forward and backward in time through the file.

MOMI Log

HOH	∦ \B	SWS	1-2004	MON	MI (Clier	nt versi	on 5.16)
	B/a	aci	k Woo	d	Inc. 11	"[BWS1-2004 Pause 2009/12/21
Ŀ	<	- B	ack	$-\!$	- S	ystem	s Overview CPUs Processes Files SubSystems History Alarms Configure
	Log	gs	Spoo	ler	TCP/	IP OS	SS Expand User Defined
	EM	15 M	Isgs	VHS	Log	MOMI	LOG EMS EVENTCX
ľ	S	Ms	g Dat	e/T:	ime		Text
		200	09/12/	/17	13:3	2:05	CPU 0 Busy percent at 53% (under threshold of 80%)
		200	09/12/	/17	13:3	2:00	CPU 0 Busy percent back under threshold of 80%
		200	09/12/	/17	13:3	2:00	CPU 0 Busy percent back under threshold of 80%
		200	09/12/	/17	13:3	1:56	Alarm internally deleted (perhaps server failure)
		200	09/12,	/17	13:3	1:56	Error sending email: 301 / Cannot send email - SMTP server not specified
		200	09/12,	/17	13:3	1:56	CPU 1 is DOWN
		200	09/12/	/17	13:3	1:56	MOMI Process \$20232 in CPU 1 stopped due to CPU FAILURE (Purpose 11 / det
	_	200	09/12/	/17	13:3	1:55	MOMI Process \$20221 in CPU 1 stopped due to CPU FAILURE (Purpose 1 / deta
	_	200	09/12/	17	13:3	0:15	CPU 0 Busy percent at 13% (under threshold of 80%)
	_	200	09/12/	17	13:3	0:15	CPU 1 Busy percent at 6% (under threshold of 80%)
		200	19/12/	11	13:3	0:13	Direxpected error - alarm entry not functioning (\$CLOG)
	•				C		Disartian to all
	TOOL		<- SCI		speed	and	Direction -> Filters
		Г					→ Filter NO Filter Define
	C	lear	Co	nfig	Exp	ort	
(١ſ						Chat net.dw Hints On ? Help Print Screen

The MOMI Log screen displays records from the MOMI log file, provides an export capability and the definition of an export script. Records in this file are specific to MOMI.

Pressing the Request button, when the screen is clear, causes the client to read and display the last or most recent records in the file. The client then goes into a mode where new records are automatically displayed. Once data is display, used the slider to scroll forward and backward in time through the file.

The Config button is used to configure the starting location for record retrieval.

MOMI Log File Config Optio	ns 🗙
Specify Starting Date/Time	
Now 2006/02/07 💙 16:33:38 😂	Request
Display Order	
Reversed Scrolling (Last at Bottom)	Close

Once a starting time is selected, you may scroll continuously at different speeds with the slider, forward or back one line at a time < >, 10 lines at a time << >> or stop X.

<-	Scroll Speed	and Direction ->		
			5	

The Report/Export button is used to generate a report, export records or create an export script. To create a report or export data, first select report/export. Second, select a single day or multiple days. Third, select to report on all records or on specific Alarm records. Press Create Report... to begin generation (a pop-up window is displayed to select the Report/Export file name and location).

	MOMI LogFile Report/Export	X
 1st select Export Oreate Report Export Data 	Data or Create Report	
 2nd select date at Single Day Multiple Days 3rd set Selection All Items 	Single Day Start Time O Today 00:00:00 ♀ Image: Organization of the start of the st	
Alarms Only Selected Items	Report Create Export Script Close	

The Create Export Script button provides a means to define a script to define an export operation launched via the MOMI PC client run-time parameter <u>SCRIPT-LOG</u>. A script is defined and saved prior to referencing it via the run-time parameter. To place the current date within the Export File Name, in YYYYMMDD format, insert the field <date> (see the tool-tip over this field for an example).

	Export Script Cre	ation	X
Current Script names		V Dela	ete Selected Script Clear
System to Export	<u></u>		Execute Script
\BW\$1-2004	Set by Current Monitored System		
Export Date and Time Today O This W Yesterday O Last W	'eek 🔿 This Month 'eek 🔿 Last Month	Start Time 00:00:00 Stop Time 23:59:59	
Export Data Type			Settings Tab-Delimited
🔿 Alarms Only			O HTML Ouptut
○ Selected Items			
Export File Name (including D	Directory)		
C:\Documents and Settings	\dwood\Desktop\ExportFileName.txt		
Name of Script to save	TempScript	Sav	e Script Close

See <u>LOG01DB</u> for additional information.

EMS EVENTCX

🕮 MOMI - Multi-system Online Measure Interface (Client version 4.13)									
Black Wood Systems, Inc.			4%			BWS1-:	2004 🗸	Pause	2006/05/17
- Back	Systems	Overview	CPUs	Processes	Files	SubSyste	ms History	Alarms Co	nfigure
Logs Spool TCP/	IP OSS	Expand							
EMS Msgs VHS Log	MOMI LO	g EMS EVE	NTCX						
Owner TANDEM	able Cause	SubSystem	8		E	vent Nbr	0		
L1 - this is the prob	able cause	for the proble	;m						
L2									
L3									
L4									
L5									
L6									
User Defined Recor	mmended /	Action							
this is line 1 of the	recommend	led action							
this is line 2 of the	recommend	led action							
L3 - RA									
L4 - RA									
L5 - RA									
L6 - RA									
Prev Vext	Clear		visplay		Save	New	Change		Delete
•						net.dw	Hints	On ? Help	Print Screen

The EMS EVENTCX screen allows the creation, display and maintenance of records in the EVENTCX file. This file is defined by Viewpt.

The EVENTCX file allows a user defined probable cause and recommended action for EMS events. An EMS message displayed in detail will add the content of this record if a matching Owner, SubSystem and Event Number is found.

The field layout of this file is not really 'user friendly' as it stores the SubSystem number and not the Sub-System name. For example, Tandem.8 is the equivalent of Tandem.Pathway. MOMI attempts to help in this area as it will automatically convert a SubSystem name into the SubSystem number if it is valid for that Owner. It is necessary that EMS Templates be present (which is built-in for Tandem subsystems) for this conversion to occur.

The screen provides navigation through the file in that the **Prev** and **Next** buttons allow scrolling forward and backwards through the file. Pressing **Next** with a blank screen displays the first record in the file. Pressing **Prev** with a blank screen displays the last record in the file.

See the CONFMOMI keyword EVENTCX for additional information.

EMS EventBX

EMS EventBX / Define

INVS1-2004 MOMI (Client version 5.29)									
Black Wood Systems, Inc. Wood									
Systems Overview CPUs Processes Files SubSystems History Alarms Configure									
Logs Spooler TCP/IP OSS Expand User Defined									
EMS Msgs VHS Log MOMI Log EMS EventCX EMS EventBX									
Define List-Import-Export									
Owner TANDEM SubSystem ZTC6 Event Nbr 25 Last Update 2012/08/24 14:33:40									
Reset Copy Cut Paste Undo Verdana - 10 - N B i U A - Find									
CAUSE: An IP address was resolved with an Ethernet/MAC address. EFFECT: This is an informational event that occurs when an IP address is resolved with a MAC address. No other effect should occur in the PTCPIP subsystem. This event is usually observed when the subnets are first configured and brought up. If this event happens continuously, report the incident to your service provider. RECOVERY: Prod: if we are inundated with them they are very important and Ops should contact both HP Systems and the Network folks. However, an occasional small set of these (usually one per processor , there are 10 processors on PR1,), is normal and not an issue. Prev Clear Display Save New Change Delete									
Chat Det.dw Hints On 2 Help Print Screen									

The EMS EventBX / Define screen provides for the definition and maintenance of user supplied information associated with an EMS message. The information is keyed by an EMS SSID (also known as the Owner.Subsystem & event number).

Information entered here is available on the <u>EMS Msgs</u> detail screen and could be considered a super-set of the EventCX file functionality.

EMS records by themselves may not contain enough information for an operator or system administrator to determine an action. This screen provides a method for storing additional details and/or actions associated with an EMS message. The information entered here is free form and virtually unlimited in size.

To use the feature, enter the EMS **Owner**, **SubSystem** and **Event Nbr**. Enter the desired text and press **Save New**. Existing entries may be alter or deleted.

The tool bar across of the text entry area is used to format text such as selecting different fonts or choosing bold, underline and italic to selected text. Information may also be copied and pasted from external sources.

EMS EventBX / List-Import-Export

WS1-2004 MOMI (Client version 5.24)										
Black Wood	BWS1	-2004 - Pause 2012/01/23 15:26:58								
- Systems Overview CPU	Js Processes Files SubSystems	History Alarms Configure								
Logs Spooler TCP/IP OSS Expand User Defined										
EMS Msgs VHS Log MOMI Log EMS EventCX EMS EventBX										
Define List/Import/Export										
List	Import	Export								
TANDEM.TMF.126 TANDEM.TMF.202 TANDEM.TMF.203 TANDEM.TMF.204 TANDEM.TMF.283 TANDEM.TMF.283 TANDEM.TMF.295 TANDEM.TMF.445 TANDEM.TMF.445 TANDEM.TMF.78 TANDEM.TMF.78 TANDEM.TMS.1100 TANDEM.TTY.207 TANDEM.TTY.207 TANDEM.TTY.208 TANDEM.TTY.208 TANDEM.TTY.208 TANDEM.TTY.208 TANDEM.TTY.208 TANDEM.TY.208 TANDEM.TY.207 TANDEM.TTY.208 TANDEM.TY.208 TANDEM.TY.208 TANDEM.TY.208 TANDEM.TY.208 TANDEM.ZTG.14 TANDEM.ZTG6.11 TANDEM.ZTC6.19 TANDEM.ZTC6.20 TANDEM.ZTC6.25	 Delete all old records first Overwrite matching old records Do not replace matching records 	 Export formatted (Rich-Text) Export non-formatted (plain-text) 								
	,									
Chat Not Logged On Hints On ? Help Print Screen										

The EMS EventBX / List-Import-Export screen provides for 1) a list definitions, 2) import of definitions and 3) export of the definitions.

A list of current definitions displaying the Owner.SubSystem.Event Nbr is obtained by pushing **Request** List. Clicking an item in the list jumps to the <u>Define</u> screen and displays the record.

Existing information may be exported. The Rich-Text format is internal to MOMI and used to move data from one MOMI environment to another. The plain-text format is a simple open format.

To move EventBX data from one MOMI environment to another. Under Export, select Export formatted (Rich-Text) to create a file. Connect to another MOMI environment and then select Import. Options are provided to completely replace any existing definitions, just overwrite existing definitions (which leaves existing non-

matching data alone) or don't replace any existing definitions. Note that the exact same MOMI PC Client version must be used for both export and import.

Export non-formatted records creates an ASCII text file using one line per record with the following format:

Owner <ETB> SubSystem <ETB> Event Nbr <ETB> Text <CRLF>

Where -

Owner is the overall creator of the record (i.e. Tandem, BWS, etc...) SubSystem is the particular group of software generating the record (i.e. Pathway, Storage, etc...) Event Nbr is the particular message being generated Text is the line-by-line of information

ETB is the ASCII control character with the value 23 CRLF are the ASCII control characters carriage return line feed with the values of 13 + 10

Any embedded CRLF within Text is converted to an ETX with a value of 3

Spool

Spool / Spooler



The Spool / Spooler screen presents the Spoolers present on the System and their state.

MOMI supports both the standard Spooler and Spooler Plus. See <u>FNAME-SPOOLER-PLUS-n</u> for additional information concerning configuration considerations for Spooler Plus.

The processes listed on this screen are the supervisor, or controlling process, for a Spooler. A Spooler is generally comprised of a single supervisor and then one or more of the following: collector, device, location and print process.

Spool / Collector

🕮 MOMI - Multi-system Online Measure Interface (Client version 4.07)													
Bla	ickl	vood .	100			46		\B	ws1	-2004		Pause.	2006/02/08
CIDDAE		ystems, Inc.		~ ~ ~								F	10:24:31
-													
Log	Logs Spool TCP/IP OSS Expand												
Spe	ooler	Collecto	Device	Job	Loc	Print	View Job						
Pro	cess	Collector	State	Full%	Percent	Full Gaug	le	Last Error	UnitSz	UnitAlloc	UnitTotal	PageSz	DataFile
\$SF	LS	\$S	ACTIVE	2.6%					4	2,135	79,996	60	\$SWAP1.SPLS.SI
\$SF	LS	\$S1	ACTIVE	0.0%					4	0	3,998	60	\$SWAP1.SPLS.SI
\$SF	LS	\$S2	ACTIVE	0.0%					4	0	3,998	60	\$SWAP1.SPLS.SI
\$PL	US1	\$SC1	ACTIVE	0.1%					4	14	7,998	60	\$SWAP1.PLUS1.
\$PL	US1	\$SC2	ACTIVE	0.0%					4	0	7,998	60	\$SWAP1.PLUS1.
\$PL	US1	\$SC3	ACTIVE	0.0%					4	0	7,998	60	\$SWAP1.PLUS1.
			\$5C3 - Vie	w Collec	tor Job	5							
			\$5C3 - Start	Collector									
			poco - Drain	Collector		_							
1													>
								_					
TOOL) Spo	oler *	v C	ollector	*	*		N	o Filter	Displa	yed	6	of 6
Cle	Clear AutoUpdate Request data collected 2006/02/08 16:19:54												
									+100-	ad On	Hists Os	2 Hale	Duint Courses
									or Logg		HINTS UN	f Helt	Print Screen

The Spool / Collector screen presents the state and status of the Spooler collector processes.

A Spooler collector process is a system location where process output is directed. This output is usually formatted in a manner for printing. The collector process has an underlying data file where space for each output (i.e. job) is allocated. A space available in the data file is organized in units where a unit is equal to 1024 bytes.
Spool / Device

HDI	момі -	Multi-sy	stem Onlin	e Meası	ire Int	erfa	ace ((Clie	nt v	/er	sion	3.82)								
I	Black	lood ustama, tr	100 50 0]				\F	3WS1 F	ast - 20	002 🗸		Pause	e 200	04/12/ 5:25::	'03 13
	<- Back		Systen	ns Ove	erviev	, (CPUs		roc	es	ses	Files	SubSy	stems	Histor	y Con	figure			
ſ	EMS Msgs	Spool	TCP/IP	OSS	Ехра	and														
ſ	Spooler	Collect	or Device	e Job	Lo	c	Pri	nt	Vie	ew	Job	1								
ľ	Process	Device	State	Last Er	ror B	F	тр	Ы	ніх		E	rmName	RetryI	RetryX	Sneed	PrintP	lob#	Param	Width	R
	¢PLUS1	¢SD1	WAITING	Edot El	0	-		-			1.0		5	360	100	¢SP1	500#	1088	maan	-~
	Bit Stress Bussien BBWS1 Fast - 2002 Pause 2004/12/03 Interview Overview CPUs Processes Files SubSystems History Configure EMS Msgs Spool TCP/IP OSS Expand Expand SubSystems History Configure Process Device Job Loc Print View Job View Job<																			
	¢PI11S1	¢SD2	WAITING		0			+	-	+	-		5	360	100	\$SP3		1088		-11
	¢PI11S1	\$SD4	WAITING		0			-	-	+	-		5	360	100	\$SP4		1088		-11
	MOMI - Multi-system Online Measure Interface (Client Version 3.18/2) 2004/12/03 (6:25:13) Image: Second Systems Overview CPUs Processes Files SubSystems History Configure 2004/12/03 (6:25:13) Image: Spool TCP/IP OSS Expand SubSystems History Configure Spooler Collector Device Job Loc Print View Job Process Process Device State Last Error B E T P D H X F FormName Retryl RetryX Speed PrintP Job# Param Width R \$PLUS1 \$SD1 WAITING 0 5 360 100 \$SP1 1088 \$PLUS1 \$SD2 WAITING 0 5 360 100 \$SP3 1088 \$PLUS1 \$SD4 WAITING 0 5 360 100 \$SP3 1088 \$SPLUS \$HP2 WAITING 0 5 360 100 \$SP3 1088 \$SPLUS \$HP2 WAITING 0 5 360 100 \$SP3 1088 \$SPLUS \$HP2 WAITING 0 5 360 100 \$SP3 1088 \$SPLS \$HP2 WAITING 0 5 360 100 \$SP3 1088 \$SPLS \$HP3 WAITING 0 5 360 100 \$SP3 1088 \$SPLS \$HP3 WAITING 0 5 360 100 \$SP4 1088 \$SPLS \$HP3 WAITING 0 5 360 100 \$SP4 1088 \$SPLS \$HP3 WAITING 0 5 360 100 \$SP4 1088 \$SPLS \$HP3 WAITING 0 5 360 100 \$SP4 1088 \$SPLS \$HP5 brain Device 5 360 100 \$SP4 1088 \$SPLS \$HP5 brain Device 5 360 100 \$SP5 1088 \$HP5 brain Device \$S 360 100 \$SP5 1088		-11																	
	\$SPLS	\$HP2	WAITING		0				-	+			5	360	100	\$PP2	1	1088		-11
	\$SPLS	\$HP3	WAITING		0			+	-	+	-		5	360	100	\$PP3		1088		-11
	\$SPLS	\$HP4	WAITING		0			-	-	+	-		5	360	100	\$PP4		1088		-11
	\$SPLS	\$HP5.	WAITING		.0				-	+			5	360	100	\$PP5		1088		-11
	40120		\$HP5 - Start I	Device	Ū					-				500	100	pri o		1000		-11
			\$HP5 - Drain	Device																
					_															
																				21
	Spo	oler *	*	Devid	ce *		*						No Filt	er Dis	played		9	of		9
	Clear	PLS \$HP2 WAITING 0 5 360 100 \$PP2 1088 PLS \$HP3 WAITING 0 5 360 100 \$PP3 1088 PLS \$HP4 WAITING 0 5 360 100 \$PP3 1088 PLS \$HP4 WAITING 0 5 360 100 \$PP4 1088 PLS \$HP4 WAITING 0 5 360 100 \$PP4 1088 PLS \$HP5 \$HP5 \$Start Device \$ \$ 360 100 \$PP5 1088 \$HP5 - Drain Device \$HP5 - Drain Device \$																		
																_				
•													L	Not Log	gged Or	1 ?	Help	Pri	nt Scre	en

The Spool / Device screen presents the status of the devices that handle generation of hard-copy from the Spooler.

Each hard-copy device in the Spooler is represented and associated with a print process. The print process is an actual process running on the NonStop System.

Spool / Job

HOH	м	OMI - Mu	lti-sys	tem On	line Measur	e Interfac	ce (Cli	ent ve	rsio	n 4	4.07)							
F	3/a	ck Woo	d	100							=	\BWS	51-200)4 🗸		Pause	2006/0	2/08
		Syste	ms, Inc				<u></u>			-					-8-		16:36	:22
_	<-	Back	-	Syste	ems Over	view CF	PUs	Proce	sse	5	Files	Sup2	ystems	History	Aları	ms Co	nfigure	
L	ogs	5 Spoo	І ТСР	/IP O	SS Expa	and												
	Spo	oler Co	llecto	r Devi	ice Job	Loc	Print	Viev	v Jo	Ь								
	\times	Process	Job#	State	Location	Collector	Repor	rt	C	н	A P	PageSz	OwnerId	Copies	Pages	Lines	Time Oper	
		\$SPLS	16	READY	#MOMIDT	\$S	NET	DW			4	60	100,109	1	959	47,914	2006/02/0	
		\$SPLS	19	READY	#MOMIDT	\$S	NET	DW			4	60	100,109	1	959	47,931	2006/02/0	
		\$SPLS	20	READY	#MOMIDT	\$S	NET	DW			4	60	100,109	1	959	47,932	2006/02/0	
		\$SPLS	21	READY	#FILES	\$S	NET	DW			4	60	100,109	1	1	11	2006/02/0	
	<																>	
	TOOL	Spooler	*	*	Collector	*	 Jo)b *		~	•	No Fil	ter Dis	played		4 of		4
	Cle	ar			Jsers 🗌 Au	JtoUpdate		Requ	iest]_	da	ta colle	cted 200	6/02/08	16:36	:15		
0											(ne	t.dw	Hints	On ?	Help	Print Sc	reen

The Spool / Job screen presents the status and state of data waiting in the Spooler.

Data is organized in the Spooler in units known as jobs. Generally, a job represents the output of a single process sending data to the Spooler.

Jobs are displayed when the User presses the Request button. In the logged off state, all jobs are displayed. If a User is logged on, only the user's jobs are displayed by default. Checking the All Users box will cause all jobs to be displayed.

Display of Jobs may also be limited by selecting the Spooler and/or Collector in which to retrieve jobs. Limiting the processes in which data is retrieved helps reduce overhead on the System.



Right clicking on a job brings up a menu of actions. Actions require the User to be logged on.



The security of the Spooler subsystem itself (not MOMI) gives any "Super Group" User the right to perform an action regardless of the owner of the job.

Spool / Loc

момі	- Multi-system Online I	Measure Int	erface (Clie	Client version 4.07)
Black	Systems, Inc.			\BWS1-2004 ∨ Pause 2006/02/08 16:38:22
- Bac	k Systems	Overview	CPUs I	Processes Files SubSystems History Alarms Configure
Logs S	pool TCP/IP OSS	Expand		
Spooler	Collector Device	Job Loo	: Print	t View Job
	"			
Process		B Device	Font	
\$SPLS	#BACKSYS.PORTIBI			
\$SPLS	#BACKSYS.DEFAULT	-		_
\$SPLS deduc	#BWIKSTS.DEFAULT		DODT10	— ·
\$SPLS	#BW1.DEFAULT	\$TP4		_
\$SPLS dedice	#BW1.LAND100	\$0P4	LANDIO	
\$SPLS dedice	#BW1.LAND10D	фири фири	LAND10D	,
¢SDIS	#BW1LAND12D	¢HD4		
¢SDIS	#BW1LAND16D	\$HP4	LAND16	·
\$SPL5	#BW1LAND16D	\$HP4	LAND16D	
\$SPLS	#BW1.LIST16D	\$HP4	LISTD	·
\$SPLS	#BW1.PORT10D	\$HP4	PORT10	
\$SPLS	#BW1.PORT10D	\$HP4	PORT10D	
\$SPLS	#BW1.PORT12D	\$HP4	PORT12	
\$SPLS	#BW1.PORT12D	\$HP4	PORT12D	
\$SPLS	#BW1.PORT16D	\$HP4	PORT16	
\$SPLS	#BW1.PORT16D	\$HP4	PORT16D	> · · · · · · · · · · · · · · · · · · ·
Spo	ooler 🔹 🔽 Lo	ocation *		▼ No Filter Displayed 115 of 115
Clear		AutoUp	date 🔳	Request data collected 2006/02/08 16:38:05
9				Not Logged On Hints On ? Help Print Screen

The Spool / Loc screen presents information about the locations in the Spooler.

A location defines the device to receive a job. Locations have various attributes associated with them, such as font. If no Device is defined, the job waits in the Spooler.

Locations are defined as associated with a Device and optionally a Font. Locations are statically and dynamically created. Static locations are created when the Spooler is configured. Dynamic locations are created when a process opens a Spool Collector and outputs to a location not statically defined. Dynamic locations generally cause jobs to sit in the Ready state until they are either deleted or their location is changed to a Static, which in turn causes the Job to print.

OH	мом	II - Mi	ılti-sy	ste	m Onlin	e I	Mea	sure	Interf	iace (Clie	ent v	rsio	n 4.07)						
F	B/ack	K Wo	od ,	v	100 50	1				5% 				∖B	ws	51-2	2004	• •	Pause	2006/02/08 16:39:12
-	<- ва	ack	-		System	15	0	verv	iew	CPUs F	Proc	esses	File	5 9	SubS	yster	ns H	istory	Alarms Cor	figure
L	ogs	Spoo	ы тс	P/	IP OSS	;	E	храі	nd											
[Spoole	er C	ollect	or	Device	1	Jot		Loc	Print	Vie	ew Jot)							
ľ	Proces	s Pr	nt Is	tat	e	A	D	Las	t Error	Program	File		-		Pri	Bak	Pri	Param		
6	\$SPLS	\$P	P1 [MANT					\$SYSTEM	1.SY	STEM.	ASTP	ГСР	1	0	145	0		
	≸SPLS	\$P	P2 [MANT					\$SYSTEN	1.SY	STEM.	ASTP	ГСР	0	1	145	0		
	\$SPLS	\$P	P3 [MANT					\$SYSTEM	1.SY	STEM.	ASTP	ГСР	1	0	145	0		
	\$SPLS	\$P	P4 [OR	MANT					\$SYSTEM	1.SY	STEM.	ASTP	ГСР	0	1	145	0		
	\$SPLS	\$P	P5 [OR	MANT					\$SYSTEM	4.SY	STEM.	FASTP	ГСР	1	0	145	0		
	\$PLUS1	1 \$S	P1 [OR	MANT					\$SYSTEM	1.SY:	STEM.	FASTP	ГСР	1	0	145	0		
	\$PLUS1	1 \$S	P2 [OR	MANT					\$SYSTEM	1.SY:	STEM.	FASTP	ГСР	0	1	145	0		
	\$PLUS1	1 \$S	P3 [OR	MANT					\$SYSTEM	1.SY:	STEM.	FASTP	ГСР	1	0	145	0		
	\$PLUS1	1 \$S	P4 C		MANT					\$SYSTEM	1.SY	STEM.	FASTP	ГСР	0	1	145	0		
			_	\$5P	4 - Start D	evi	ice	1												
	TOOL S	poole	r *		*		Pr	int	*	*				N	o Fil	ter	Displ	ayed	9 of	9
	Clear]						Aut	oUpdat	e 🔳	Req	uest		ata c	ollec	ted 2	2006/	02/08	16:39:08	
0				-		-								No	ot Log	gged	On	Hints (On ? Help	Print Screen

Spool / Print

The Spool / Print screen presents the status of the Spool Print processes.

A Print process handles the actual transfer of data from the Spooler to the hard-copy device or to another Spool Collector.

Spool / View Job

та момі - н	Aulti-system	n Online Me	asure Inter	face (Client	version 4.(07)					
Black W	ood sterns, Inc.	100 50				\ BWS	1-200	4 🗸	P	ause	2006/02/08 16:40:58
<- Back		Systems C)verview	CPUs Pro	cesses Fi	les SubSy	stems	listory	Alarm	s Con	figure
Logs Sp	ool TCP/I	P OSS I	Expand								
Spooler	Collector	Device Jo	b Loc	Print ¥	iew Job						
>*FormFee	d*<]
\$DATA1.DA	LE										
A	ADSIZERE	AFRED	ALOOP	AOT	ARCH	AST	BOT				
BST	BSY020T	BSY02ST	COT	CPTO1OT	CPTO1ST	CREAT	CSC				
CST	DATA1	DATAM	DATAM2	DATM	DOT	DSAPCSTM	DSKO1OT				
DSKO1ST	DSK020T	DSKO2ST	DST	EMSCOMP	EMSTEST	EMSTESTO	EOT				
EST	FFREP	FILE	FOT	FST	FUPA	FUPCSTM	INSPEST	м			
INSPSRC	LIBOT	LIBST	LOCK20T	LOCK2ST	LOCKOT	LOCKST	LOG				
MAY220	NERODIGI	NOFCSTM	NULLOT	NULLST	NULXXOT	NULXXST	0B				
082	READ20T	READ2ST	READOT	READST	SCFCSTM	SCFPLAM4	SCFZZPAL	м			
SHHISTOR	TACLCSTM	TALOT	TALST	TEDPROFL	TIE	TIEG	TIEGS				
TIESO	TODO	TRAN20T	TRAN2ST	TRANSOT	TRANSST	TRANOT	TRANST				
VHSCSTM	WORKDB	WORKDB1	WRITEOT	WRITEST	WRTOT	WRTST	ZZSA001				
ZZSAIIII											
1											
Spool	er \$SPLS	V Job	22	Lines	16	Search		*	Search	∇Z	Found
Clear	Config	Export To	ols	📕 Re	quest 🗆						
•							duu	Hints	0.0.2	Help	Print Screen

The Spool / View Job screen displays the contents of a Spooler Job.

The User must be logged on. Standard Spooler security will apply before the contents of a Spooler job may be viewed.

Pressing the Config button brings up a pop-up window. This window can be used before a job is requested to allow limiting the number of pages downloaded and displayed. This is particularly useful for large jobs where only a few pages need to be examined. The characters F and L represent First page and Last page

with an optional + / - followed by a number. In the screen below, only the last page of the job is retrieved and displayed.

Spooler View Job	Config Options	X
Limit Pages Displayed Starting Page L-1 V Limit Pages Ending Page	Adjust Font Size	Request
	and Setmodes	Close

After a job is displayed, bring up the Config window to change font size. Press Close or X to leave the existing job in place. It is not necessary to re-request the job to just change the font size.

In the display window, special lines present various Spooler operations rather than a line of data. Below are examples:

```
>*Controlbuf*<
>*Setmode* Function ##### Param1 ##### Param2 #####<
>*Control* Operation <?INT16> Param <?INT16><
>*FormFeed*<</pre>
```

The Export Tools button displays a window to allow the displayed job to 1) export to a text file on the PC, 2) sent to a PC printer, or 3) loaded into an Email (MOMI invokes the default email client configured for the PC).

Spooler View Job Export Options	X
Export Job to PC Text File	
Print Job to PC Printer	
EMail Job	Close

TCP/IP

TCP/IP / Process Info

HD	МОМІ - І	Multi-system	Online Meas	ure Inte	erface (C	lient vers	sion 4.07)								
	Black h	stems, Inc.					· · · · · · · ·	\BWS:	1-2	2004		Pau	ise	2006 22:	/02/09 27:38
	<- Back	s	ystems Ov	erview	CPUs	Proces	ses Files	s SubSy	ste	ms Histo	ry A	larms	Conf	figure	
ſ	Logs Sp	ool TCP/IF	OSS Ex	pand											
ſ	Process 1	info Proces	ss Status Su	ubnet	Route										
	Process	HostID	HostName	e	TcpSend	TCDRecv	UdpSend	UdpRecv	A	AckDelay	010	Kidle	Kinty	Kont	MinO
	\$ZTCH1	0.0.0.0	BWS1swa	anh1	8,192	8,192	9,216	20,800	A	5	100	45	45	8	5
	\$ZTCP1	0.0.0.0	tsmlany		8,192	8,192	9,216	20,800	А	5	100	45	45	8	5
	\$ZSAM1	192.168.10.1	L1 BWS1p		61,440	61,440	9,216	42,080	A	20	100	75	75	8	128
	\$ZTC0	0.0.0.0	BWS1LAM	10	30,000	30,000	9,216	20,800	А	5	100	45	45	8	5
	\$ZTCH2	0.0.0.0	BWS1swa	anh2	8,192	8,192	9,216	20,800	А	5	100	45	45	8	5
	\$ZTCP0	0.0.0.0	tsmlanx		8,192	8,192	9,216	20,800	А	5	100	45	45	8	5
	< п а. тср/	IP Process	*					No Filte	19	Displayed	1		6 of		>
	Clear			AutoUp	date [Reque	st 🗆 da	ta collect	ed	2006/02/	09 22	:27:23			
•							(net.	dw	Hin	ts On) ? [•	lelp (Print	Screen

The TCP/IP / Process Info screen presents the TCP/IP processes or protocol stacks running on the System.

The TCP/IP process is the IOP (Input/Output Process) responsible for handling the TCP/IP traffic for a communication interface.

S-Series systems always have two TCP/IP processes used in support of the system console. These are \$ZTCP0 and \$ZTCP1. Most systems have a \$ZTC0 TCP/IP process running, which is the default selection for socket programs.

At a TACL prompt, the default TCP/IP process is changed by using a DEFINE. Below is an example which sets the default process to \$ZSAM1 and then starts an FTP:

1> ADD DEFINE =TCPIP^PROCESS^NAME, FILE \$ZSAM1

2> TRACER www.hp.com

TCP/IP / Process Status

ти момі -	Multi-sy	ystem Online Me	asure	Interface (Client	versi	on 4.0	7)							
Black	Wood	50		0%			\BV	VS1-2	2004	<mark>۲ [</mark>	Paus	e 20	06/02 2:29	2/09 :12
- Bac	:k`	Systems ()vervi	ew CPUs Pr	ocesse	es Fil	es Su	bSyste	ms His	tory A	larms	Configu	Jre	
Logs S	pool T	CP/IP OSS	Expan	d										
Duococc	Tofo P	rocess Status	Cubac	tBouto										
Process		Totess statas	SUDIR	C ROULE										
Process	State	Local Addr	LPort	Foreign Addr	FPort	Proto	SendQ	RecvQ	SokQ	SokQL	PcbQ	PcbQL	MultiCa	^
\$ZTCH1	ESTAB	192.168.5.100	1026	192.168.5.111	5000	ТСР	0	0	65,535	24,942	26,673	0		
\$ZTCH1	ESTAB	192.168.5.100	1025	192.168.5.111	5001	ТСР	0	0	65,535	24,942	26,673	0		=
\$ZTCH1	LISTEN	192.168.5.100	9000	0.0.0.0	0	ТСР	0	0	65,535	24,942	26,673	0		
\$ZTCH1		192.168.5.100	1025	0.0.0.0	0	UDP	0	0	65,535	24,942	26,673	0		
\$ZTCH1		0.0.0.0	161	0.0.0.0	0	UDP	0	0	65,535	24,942	26,673	0		
\$ZTCH1		192.168.5.100	162	0.0.0.0	0	UDP	0	0	65,535	24,942	26,673	0		
\$ZTCH1		192.168.5.100	68	0.0.0.0	0	UDP	0	0	65,535	24,942	26,673	0		
\$ZTCH1		192.168.5.100	67	0.0.0.0	0	UDP	0	0	65,535	24,942	26,673	0		
\$ZTCH1		192.168.5.100	69	0.0.0.0	0	UDP	0	0	65,535	24,942	26,673	0		
\$ZTCP1	ESTAB	192.168.10.221	23	192.168.10.200	3781	ТСР	0	0	65,535	30,976	0	0		
\$ZTCP1	ESTAB	192.168.10.221	5988	192.168.10.200	4163	ТСР	0	0	65,535	30,976	0	0		
\$ZTCP1	LISTEN	0.0.0.0	5988	0.0.0.0	0	ТСР	0	0	65,535	30,976	0	0		
\$ZTCP1	LISTEN	0.0.0.0	9990	0.0.0.0	0	ТСР	0	0	65,535	30,976	0	0		
\$ZTCP1	LISTEN	0.0.0.0	9991	0.0.0.0	0	ТСР	0	0	65,535	30,976	0	0		
\$ZTCP1	LISTEN	0.0.0.0	23	0.0.0.0	0	ТСР	0	0	65,535	30,976	0	0		
*7TOD4	LICTEN	0000	24		0	TOD	0	0	45 FOF	20.074	0	0	>	
										_		_		
TCI	P/IP Proc	ess 🌁 🗸 🗸					No	Filter	Display	red	112	of	1	.12
Clear	Mini-R	eports	Auto	Update 🔳 R	eques	t – G	lata col	lected	2006/0	2/09 23	2:28:38			-
			_		-					-, -, -, -,				
9								net.dw		Hints On) ? [He	elp Pr	int Sci	reen

The TCP/IP / Process Status screen presents all of the active sockets.

A socket is the term for a TCP/IP communications connection. The states of connection displayed include Listen (waiting for a connection), Established (where communication is taking place) or Closing (where the communications connection is terminating).

Established TCP level sockets will have an LPort (local port) that is the same as the listening port but will have a randomly chosen FPort (foreign port). The combination of the local address, local port, foreign address and foreign port make a socket unique to the TCP/IP stack.

The Mini-Reports button brings up a pop-up screen that provides quick statistics for the count of local and foreign ports based on the address.

TCP/IP Mini-Reports X	Local Addr	LPort	Count 🔨
Count Local Ports	0.0.0.0	7	4
	192.168.20.11	21	1
Count Foreign Ports	0.0.0	21	4
	192.168.20.10	23	1
	192.168.20.11	23	2
	192.168.10.220	23	1
	0.0.0	23	4
	192.168.10.221	23	1
Close	192.168.6.100	67	1 🚩

The column State has the following meaning when the Proto is TCP:

CLOSING

waiting for a terminate connection request acknowledgment from the remote site.

CLOSE-WAIT

waiting for a terminate connection request from the local user.

ESTAB

connection is open and the user can send and receive data. This is the normal state for data transfer.

FIN-WAIT-1

waiting for a terminate connection request from the remote TCP site or if waiting for acknowledgment of the terminate connection request that the process has sent previously.

FIN-WAIT-2

waiting for a termination of data to be received after having sent a FIN (termination of data being sent).

LISTEN

waiting for a connection request from any remote TCP site.

LAST-ACK

waiting for acknowledgment of the terminate connection request previously sent to the remote site (which includes an acknowledgment of its terminate connection request).

SYN-RCVD

waiting for an acknowledgment of a SYN-ACK sent in response to a SYN.

SYN-SENT

waiting for a SYN-ACK after having sent a SYN.

TIME-WAIT

waiting for sufficient time to pass (about two round trips) to be sure that stray packets are flushed from the network.

TCP/IP / Subnet

HOH	MOMI - I	Multi-syste	em Online N	leasure Interi	face (Client versio	on 4.07	7)						
1	Black h	vood ysterne, tra.	100 50				\BWS1-	2004 🗸 [9 9	Pause	e	2006/02 22:30	2/09 :14
•	<- Back	-1-	Systems	Overview	CPUs Processe	s File	es SubSyste	ems History /	Alar	ms	Confi	igure	
٢	Logs Sp	ool TCP	IP OSS	Expand									
ſ	Process 1	Info Prod	ess Status	Subnet R	oute								
ľ	Desses	Cublick	Ctoto	Ture a			Mask/Hay	Mask/Dask	Le			мти	Sub
	AZTOU1	#LOODO	STADTED		127.0.0.1	/o	Mask(Hex)	Mask(Dec)	G	QR	A	22720	SUD
	\$2TCH1	#COOP0	STARTED	ETHERNET	192 168 5 100	/0	%hFFFFFF00	255 255 255 0		0	~ ^	1500	
	\$ZTCP1	#100P0	STARTED	LOOP-BACK	127.0.0.1	/8	%bFF000000	255.0.0.0		~	Δ	32728	
	\$ZTCP1	#SN1	STARTED	ETHERNET	192.168.10.221	/24	%hFFFFFF00	255.255.255.0		0	A	1500	
	\$ZSAM1	#SN1	STARTED	ETHERNET	192.168.20.11	/24	%hFFFFFF00	255.255.255.0		0		1500	
	\$ZSAM1	#LOOP0	STARTED	LOOP-BACK	127.0.0.1	/8	%hFF000000	255.0.0.0		-		32768	
	\$ZTC0	#LOOP0	STARTED	LOOP-BACK	127.0.0.1	/8	%hFF000000	255.0.0.0			A	32728	
	\$ZTC0	#SN1	STARTED	ETHERNET	192.168.20.10	/24	%hFFFFFF00	255.255.255.0		Q	A	1500	
	\$ZTCH2	#LOOP0	STARTED	LOOP-BACK	127.0.0.1	/8	%hFF000000	255.0.0.0			Α	32728	
	\$ZTCH2	#SN1	STARTED	ETHERNET	192.168.6.100	/24	%hFFFFFF00	255.255.255.0		Q	Α	1500	
	\$ZTCP0	#LOOP0	STARTED	LOOP-BACK	127.0.0.1	/8	%hFF000000	255.0.0.0			A	32728	
	\$ZTCP0	#SN1	STARTED	ETHERNET	192.168.10.220	/24	%hFFFFFF00	255.255.255.0		Q	Α	1500	
	< по Спорти	/IP Process	*	TCP/IP	SubNet *		No Filter	Displayed		12	of		> 12
L	clear			Macoopua	Reques		lata collected	2006/02/09 2	2:31	0:08			
¢							net.dw	Hints Or	-) ·	? He	lp (Print Sci	reen

The TCP/IP / Subnet screen presents the status of the connection between the protocol stack and the physical LAN interfaces.

A Subnet is associated with an address and 1) an IOP (Input/Output Process) on older platforms, or 2) a LIF (Logical InterFace) on newer platforms.

The Subnet Mask determines when routing of outgoing messages requires the usage of a default gateway.

The TCP/IP address of 127.0.0.1 is a built-in address used for loop-back testing. This is an address that does not go anywhere but is still valid.

TCP/IP / Route

MOMI -	Multi-system	Online Me	asure Interf	ace (C	lient version 4	.07)					
Black k	vood ystems, tra	100 50 0		46		-	BWS1-20	04 🗸 🌅 Pau	ise	2 2	006/02/09 22:30:54
<- Back	(<u>-</u>]-	Systems (Dverview	CPUs	Processes	Files	SubSystems	History Alarms	Co	nfig	ure
Logs Sp	pool TCP/I	P OSS	Expand								
Process	Info Proce	ss Status	Subnet Ro	oute							
Durana	In suite	let-t-	Deat Adda			Loron	March (1997)	Mart/Daw	[]		Tout
Process	Route	State	Dest Addr		ateway Addr	CIDR	Mask(Hex)	Mask(Dec)	н	G	
\$ZICHI	#RII	STARTED	192.168.5.		92.168.5.100	/24	%hFFFFF00	255.255.255.0			#5N
\$ZTCH1	#RIZ	STARTED	127.0.0.1	1	27.0.0.1	/8	%hFF000000	255.0.0.0	н	0	#20
\$ZTCP1	#GW	STARTED	0.0.0.0	1	92.168.10.1	70	%h0000000	0.0.0.0		G	#SN
\$ZICP1	#R11	STARTED	192.168.10	.0 1	92.168.10.221	/24	%hFFFFFF00	255.255.255.0			#SN
\$21CP1	#R12	STARTED	127.0.0.1	1	27.0.0.1	/8	%hFF000000	255.0.0.0	н		#L0
\$ZSAM1	#RT2	STARTED	127.0.0.1	1	27.0.0.1	/32	%hFFFFFFF	255.255.255.255	н		#LO
\$ZSAM1	#RT3	STARTED	192.168.20	1.0 1	92.168.20.11	/24	%hFFFFFF00	255.255.255.0			#SN
\$ZSAM1	#RT4	STARTED	192.168.20	.11 1	92.168.20.11	/32	%hFFFFFFF	255.255.255.255	н	_	#SN
\$ZSAM1	#ROUTE1	STARTED	0.0.0.0	1	92.168.20.1	/0	%h00000000	0.0.0.0		G	#SN
\$ZSAM1	#DA1_2	STARTED	192.168.20	.12 1	92.168.20.12	/32	%hFFFFFFFF	255.255.255.255	н		#SN
\$ZSAM1	#DA1_3	STARTED	192.168.20	.41 1	92.168.20.41	/32	%hFFFFFFFF	255.255.255.255	н		#SN
\$ZSAM1	#DA1_4	STARTED	192.168.20	.1 1	92.168.20.1	/32	%hFFFFFFFF	255.255.255.255	н		#SN
\$ZSAM1	#DA1_33	STARTED	192.168.20	.21 1	92.168.20.21	/32	%hFFFFFFF	255.255.255.255	н		#SN
\$ZTC0	#ROU0001	STARTED	0.0.0.0	1	92.168.20.1	/0	%h00000000	0.0.0.0		G	#SN
\$ZTC0	#RT1	STARTED	192.168.20	.0 1	92.168.20.10	/24	%hFFFFFF00	255.255.255.0			#SN 🗸
<	LADTO	LOTADTED.	107.0.0.1	-	07.0.0.4	10	0/ LEF000000				>
🔝 тср	/IP Process	* 🗸	ТСР/П	P Route	*	•	No Filter Di	splayed 2	1 0	f	21
Clear			AutoUpdat	te [Request	data	collected 200	6/02/09 22:30:52	:		
•							net.dw	Hints On ? H	lelp) P	rint Screen

The TCP/IP / Route screen presents the paths used in determining where data is sent if the destination is not on the local Subnet.

TCP/IP routing generally comes into play if the destination is not local. Data is sent to a default gateway (usually a router) so that it may be forwarded either to the destination or to another router in order to reach the final destination.

OSS

OSS / CPU Info

HDI	MON	11 - Mu	lti-systen	n Online	Measure	Interfa	ice (Clien	it versio	n 4.07)						
1	B/ac	k Wo	od vins, mc.	100 50;						BWS	51-20	04 🗸		e 2006 22:	/02/09 31:44
	<- в	ack		Systems	Overv	iew (PUs Pi	ocesses	s Files	SubS	ystems	History	Alarms	Configure	
	Logs	Spoo	TCP/I	P OSS	Ехра	nd									
ſ	CPU I	nfo (PU Chart	s Nam	e Serve	rs Nar	ne Serve	er Charts	s VT10	0					
	CPU	Cache Block Size	Cache Blocks Allowed	FileSys Direct Reads	FileSys Direct RBytes	FileSys Direct Writes	FileSys Direct WBytes	FileSys Cache Reads	FileSys Cache RBytes	FileSys Cache Writes	FileSys Cache WBytes	FileSys Cache VOTime	FileSys Cache VMax	FileSys Cache AOTime	FileSys Cache AMax
	0	4,096	2,048	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0.00	0
	1	4,096	2,048	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0.00	0
	<														>
L	TOOL				JRated V	alues									
•										ne	t.dw	Hints O	n ? He	elp Print	Screen

The OSS / CPU Info screen presents the MEASURE OSS CPU entity.

The MEASURE OSS CPU entity provides insight into the various counters concerning OSS at the CPU level. This primarily deals with file cache blocks, local CPU-to-CPU I/O activity and remote CPU-to-CPU I/O activity.

OSS / CPU Charts



The OSS / CPU Charts screen presents selected data from the OSS / CPU Info screen in graphical form. The information displayed is obtained from the MEASURE OSS CPU entity.

Press the desired button to display the graph.

The MEASURE OSS CPU entity provides insight into the various counters concerning OSS at the CPU level. This primarily deals with file cache blocks, local CPU-to-CPU I/O activity and remote CPU-to-CPU I/O activity.

OSS / Name Servers

HD	мом	l - Multi-syste	m Online	Measure Int	erface (Cl	ient version	4.07)					
1	Black	Wood	100		38%		· · · · ·	BWS1-	2004		ause	2006/02/09
	<- ва	ack	Systems	Overview	CPUs	Processes	Files	SubSyste	ms Histo	ry Alarn	ns Cont	figure
ſ	Logs	Spool TCP/	IP OSS	Expand				_				
	CPU Ir	nfo CPU Cha	rts Nam	Servers	Name Se	rver Charts	¥T100	ו				
	Proces Name	s CPU,Pin	CPU Busy Pct	Name ResReqs Processed	Name ResReqs ReDirect	Name RR ReDirect Processed	INode Cache Avail	INode Cache QTime/Q	INode Cache Lookups	INode Cache Hits	INode Cache Misses	Link Cache Avail
	\$ZPNS	00,00385	1.90	418.00	0.00	0.00	4,096	4.89	1,578.00	1,578.00	0.00	4,096.00
	<											2
	TOOL			Rated Value	es		(No Filter	Displayed	I	1 of	
4								Not Logged	d On Hin	its On ?	Help	Print Screen

The OSS / Name Server Charts screen presents the MEASURE OSS Name Server entity.

The OSS Name Server is responsible for translating OSS path names into Guardian \$volume.subvol.file type names and vice versa. The Name Server also provides the isolation of physical disk drives from the unified path names. Path names do not generally represent physical volumes except when representing Guardian format file names.

A system running OSS has at least one Name Server running, but usually one Name Server per CPU.

OSS / Name Server Charts



The OSS / Name Server Charts screen presents selected data from the Name Server screen in graphical form. The information displayed is obtained from the MEASURE OSS Name Server entity.

Press the desired button to display the graph.

The OSS Name Server is responsible for translating OSS path names into Guardian \$volume.subvol.file type names and vice versa. The Name Server also provides the isolation of physical disk drives from the

unified path names. Path names do not generally represent physical volumes except when representing Guardian format file names.

A system running OSS has at least one Name Server running, but usually one Name Server per CPU.

MOMI - Multi-system Online Measure Interface (Client version 4.07)	
Black Wood BWS1-2004 V Pau	2006/02/09
Systems, Inc.	22:38:39
Back Systems Overview CPUs Processes Files SubSystems History Alarms	Configure
Logs Spool TCP/IP OSS Expand	
CPU Info CPU Charts Name Servers Name Server Charts VT100	
Connecting to '192.168.20.11' Connected	<u>^</u>
WELCOME TO BWS1p [PORT \$ZSAM1 #23 WINDOW \$ZS1.#PTJWQAM] TELSERV - T9553G06 - (12AUG2005) - (IPMAEC)	
Available Services:	
OSS TACL EXIT Enter Choice>	
	~
Host 192.168.20.11 V Port telnet Options Local Echo	est Local Echo On
Connect Disconnect Remote will echo	est Local Echo Off
Not Logged On Hints On ? H	lelp Print Screen

OSS / VT100

The OSS / VT100 screen provides a simple emulator useful in the OSS environment.

Enter the Host TCP/IP address (or Name) and press Connect.

Various options can be set by pressing the Options button. Options selected are saved in the INI file. Buttons in the center of the pop-up provide commonly used defaults. Pressing the OSS button and selecting the VT100 Function Keys are recommended for OSS.

📟 Option	s for BW	/51 🔳 🗖 🔀
Rows	25	Line Zoom 1.000
Cols	80	Char Zoom 1.000
LHeight	12	
AutoCR		OSS Font
AutoLF		A11
Local Ec	ho 🗌	Labo
Monochr	ome 🗌	RDV
OEM cha	irset 🗌	USUS
Upper Ca	ase 🗌	Graphic Draw 🗌
Functio	n Keys	Cancel
⊖ SCO	⊙ ¥T1	00 🔿 A11 🛛 Ok

Expand

Overview

The Expand subsystem provides information on the status of the communication interconnects linking systems within a network.

All screens under this tab are automatically updated either by timer operation or by events as seen by MOMI. Certain fields such as a time stamp in the stats output are only updated when other values within the stats record change. In other words, stats records are not updated just to update the time stamp, but are updated when 'real' stats values change.

Expand / Diagram

see System Quirks

BWS1-2004 MOMI (Client version 5.20)	
Black Wood Systems Inc. BWS1-2004 - Pause.	2011/03/29 11:35:04
	re
Logs Spooler TCP/IP OSS Expand User Defined	
Diagram Connections Overview Paths Lines \$NCP \$ZEXP	
Image: Constraint of the second se	
	► <u></u>
Show only Select Systems States Bytes Frames None Save Config All	Print Diagram
Chat Not Logged On Hints On ? Help	Print Screen

The Expand / Diagram screen provides a pictorial view of the Expand network.

Expand is the name of the subsystem and system software that provides transparent communication between two or more NonStop Systems.

When first started, the nodes or systems on the network are placed right next to each other. Place the mouse within the system box in the 'unused' area and press and hold the mouse to drag the Systems to desired locations. Press the **Save Config All** button to store the screen layout (the locations are not automatically saved).

The systems displayed are selected by pressing the button **Select Systems** and choosing systems from the displayed list. The systems available are defined on the screen <u>Define / Systems</u>. Note that the current systems selected for the overall client always displays.

Monitor System Config 🛛 🗙
Select system to activate monitoring
BWS1-2000
BWS1-2002
VBWS1-2006
BWS1 Fast - 2002
BWS2-2000
BWS1 Fast - 2006
BWS2-2002
BWS1-2004
V \NSKIT06-3000
BWS1-2008
VNSBLDE4-3000
BWS1-2010
Current System always displays Close

Place the mouse over a connection line displays additional detail about the underlying paths and lines.



The boxes representing each System on the network may be configured by right-clicking over the image in the center of the box. Various visual attributes such as the system image and color of the box frame may be changed. The option **Hide this System** is used to prevent display on this screen of undesired Systems in the network. Systems are restored on the <u>Expand / Connections</u> screen.

📟 \BWS1-2004 MOMI (Client versi	on 5.20)		_ 🗆 🗙
Black Wood	\B	SWS1-2004 - Pause	2011/03/29 13:25:07
Systems Ove	erview CPUs Processes Files SubSys	stems History Alarms Configure	
Logs Spooler TCP/IP 09	SS Expand User Defined		
Diagram Connections Ov	erview Paths Lines \$NCP \$ZEXP		
			Ĩ
Hide Select F Red Blue Select C Select C Select C Select C Red Fuch Mal	Change \BWS1	=3/4	2
Show only Connected Select System	15 States Bytes Fran	nes None Save Config All Pri	► K nt Diagram
	Chat	t Logged On Hints On ? Help	Print Screen

Place the mouse over a connection between two Systems and left-click brings up a detailed diagram of the connections, states, frame rate and byte rate (if available) between the two nodes.



If a MOMI client connects to multiple systems, and the multiple systems are interconnected using different Expand networks, it is possible group them separately by using the CONFMOMI keyword <u>EXPAND-NET-WORK-NAME</u>. Below is a diagram showing two networks. The first network comprised of \BWS1 and \BWS2 is unnamed. The second network is called ITUG2005. Notice the network name appears in the box with each system.



To obtain the maximum amount of detail, MOMI must be installed on each node.

Expand / Connections

HOHI	мс	DMI - M	ulti-syster	m Online	Measu	ire Inte	rface (Cli	ent versior	1 3.76)					
B	Va.	ck We Sijal	od inc.	100 50 0					\BW	/S1 Fast -	2002 🗸		Pause	2004/06/16 13:25:10
-		Back	-1-	*Syster	ns Ov	verview	CPUs	*Process	ses Files	*SubSys	tems His	story	Configure	•
*	EM	6 Msgs	Spool	тср/ір	OSS	Ехра	nd							
)iag	gram	Connecti	ons Ov	erview	Paths	Lines	\$NCP \$	ZEXP					
		Vet Name	System Name	System Number	Sy Acce	stem essible	System Type	Hide System						^
			\BWS1	1	Y	'ES	S-Series	NO						
	£ _		\BWS2	2	Y	'ES	K-Series	NO						
	Lines Paths													
	Line Stats	<u>&</u>							No F	ilter Dis	played		2 of	> 3
•	Г									Not L	.ogged Or	?	Help	Print Screen

The Expand / Connections screen displays the details, or internal values, used to construct the Expand / Diagram screen. The values and format of this screen may change from time-to-time.

Tabs along the left hand side of the screen provide access to the different categories of information available.

The Systems tab displays all of the known Expand nodes in the network.

Once a system is hidden from view (see the Expand / Diagram page), it is restored by right clicking the NO value in the Hide Systems column, here high-lighted in yellow.

MOMI - Multi-system Online Measure Interface (Client version 3.76) 2004/06/16 Black Wood \BWS1 Fast - 2002 50 Pause.. 13:26:30 Systems, Inc. - Back _P *SubSystems *Systems Overview CPUs *Processes Files History Configure *EMS Msgs Spool TCP/IP OSS Expand Connections Diagram **Overview** Paths Lines \$NCP \$ZEXP Net Path Oriain Origin Dest Dest Path Lines Lines Lines Not Name Name SysName SysNbr SysName SysNbr Status Count Down Connected Systems \$EP1BWS1 \BWS2 2 \BWS1 1 UP 2 0 0 \$EP1BWS2 \BWS1 1 \BWS2 2 UP 2 0 0 \$EP2BWS1 \BWS2 \BWS1 DEGRADED 1 0 2 1 1 \BWS1 \BWS2 2 DOWN 0 \$EP2BWS2 1 1 1 \BWS2 0 \$EXBWS1 2 \BWS1 1 UP 1 0 Paths \$EXBWS2 \BWS1 2 UP 1 0 0 1 \BWS2 Lines Line Stats TOOL No Filter Displayed 6 of 6 Help Not Logged On ? **Print Screen**

The Paths tab displays information about each known path.

The Lines tab displays information about each know Line.

HOHI N	IOMI - N	Aulti-system	Online Me	asure Int	erface (Clier	nt version 3.7	6)					
Bla	ack W	stoms, Inc.	50				\BW	S1 Fast - 2002		Pause	2004/06/16 13:27:28	
*EN	1S Msg	s Spool T(CP/IP OS	s Exp	and							
Dia	agram	Connection	s Overvi	ew Pat	hs Lines	\$NCP \$ZEXF	•					
L.	Net Name	Line Name	Origin SysName	Origin SysNbr	Line Status	Path Name						
e		\$EL1BWS1	\BWS2	2	UP	\$EP1BWS1						
yst		\$EL1BWS2	\BWS1	1	UP	\$EP1BWS2						
ഗ		\$EL2BWS1	\BWS2	2	UP	\$EP1BWS1						
		\$EL2BWS2	\BWS1	1	UP	\$EP1BWS2						
		\$EP2BWS1	\BWS2	2	DEGRADED	\$EP2BWS1						
ths		\$EP2BWS2	\BWS1	1	DOWN	\$EP2BWS2						
Pa		\$EXBWS1	\BWS2	2	UP	\$EXBWS1						
		\$EXBWS2	\BWS1	1	UP	\$EXBWS2						
5 Lines												
Line Stats	TOOL						No F	ilter Displayed		8 of	8	
•								Not Logged	i On 🤉	Help	Print Screen	

The Line Stats tab displays information about each known line. Frames and/or Bytes per second values are not available on all Expand line types.

HOHI	MOMI - M	ulti-system (Online Meas	ure Interf	face (Client	version	3.76)							
B	ack We	forms, fr.c.	0		\BWS1 Fast - 2002 🗸 📳 Pause.									
- Back Systems			iystems 0	verview	CPUs *	Processe	s Files	SubSyste	ms Hist	ory C	Configure			
*EMS Msgs Spool TCP/IP OSS				Expan	ıd									
Diagram Connections Overview				w Paths	Lines \$1	NCP \$Z	EXP							
	Net Name	Line Name	Origin SysName	Origin SysNbr	Dest SysName	Dest SysNbr	Path Name	Frames perSec	Bytes perSec	Line Qual				
l a		\$EL1BWS1	\BWS2	2	\BWS1	1	\$EP1BWS1	0	0	100				
ts		\$EL1BWS2	\BWS1	1	\BWS2	2	\$EP1BWS2	0	0	100				
ú		\$EL2BWS1	\BWS2	2	\BWS1	1	\$EP1BWS1	0	0	100				
		\$EL2BWS2	\BWS1	1	\BWS2	2	\$EP1BWS2	0	0	100				
		\$EP2BWS1	\BWS2	2	\BWS1	1	¢EP2BW/S1	0	0	0				

This screen may show systems no longer connected to the Expand network. Former systems continue to be reported by Expand until they are explicitly removed from network routing. Below are some useful SCF commands in this area:

info process \$NCP,systemslist all known systemsdelete entry \$NCP,*remove from network routing any system not directly connecteddelete entry \$NCP,\sysremove from network routing a specific system (\sys)info process \$NCP,pathsets displays pathmap and line information

Expand / Overview



The Expand / Overview screen presents a general view of the status of the Expand subsystem.

The top portion of the screen shows the result of a general determination of Expand availability by checking the existence of mandatory processes \$NCP and \$ZEXP. The lower portion of the screen shows any System not accessible via Expand, and any path or line not in a 'good' state. The middle portion of the screen reflects counts for these problem areas.

In the event of a severe error, an additional error message is displayed.



Paths

Paths / Detail

🕮 MOMI - Multi-system Online Measure Interface (Client version 3.76)
Black Wood Systems, frc.
- Back - *Systems Overview CPUs *Processes Files *SubSystems History Configure
*EMS Msgs Spool TCP/IP OSS Expand
Diagram Connections Overview Paths Lines \$NCP \$ZEXP
Detail Info Status Stats
Compress ON Next System OCS Sease O22772 Encode Multi lise have the
Compress ON Next System 2 008 Space 32,767 Expand - Multi-line handler
L4 Timeout 00:00:20.00 L4 Send Window 254 TimeFactor 93
L4 ExtPackets ON L4 Congest Ctrl ON SuperPath OFF Discard ON
Docal Remote Negotiated Minimum Maximum
Path Biolock Bytes 4,095 1,024 1,024 4,095
Path Packet Bytes 4,095 1,024 1,024 1,024 4,095
Status Path \$EP1BWS2
PPID 1,342 BPID 0,359 Number of Lines 2 State STARTED
Trace Status OFF Trace File
LDEVs 137 138
LDEV Names \$EL2BWS2 \$EL1BWS2
Stats Path \$EP1BWS2
Reset Time 2004/05/21 17:35:48 Sample Time 2004/06/16 13:21:19
Current Ext Mem KBytes Used 576 Max Ext Mem KBytes Used 576
Number of Incours a Number of OOS Timeouts
Path Name \$EP1BWS2 V Print
Not Logged On ? Help Print Screen

The Paths / Detail screen presents an SCF-type view of the Info, Status and Stats for an Expand Path.

The purpose of this format is to provide the User a familiar layout showing all possible data for a given path. Use the scroll bar on the right to view all of the available information.

Paths / Info

HOH	MOMI - Mu	lti-systen	n Online	Mea	isur	e Int	terfa	ce (Client ver	sion 3.76)							
1	Black Woo	od ms, hc.	50								\BV	VS1 Fa	st - 200	2 🗸		Pause.	200	4/06/16 47:17
	- Back		*Systen	Ove	rview CPUs *Processes Files *SubSystems Histo							ory (onfigu	re				
٢	*EMS Msgs	Spool	TCP/IP	OS	s	Exp	and											
ſ	Diagram C	onnectio		ervi	ew	Pat	Paths Lines \$NCP \$ZEXP											
ľ	Datail Inf																	
	Detail III	o stat	us sta	cs	_													1
	Path Name	Current	Next	C	D	E	СС	s	00S Space	0 Time		Retries	Time	Ti	meout	Path	Path SType	Path Typ
	\$EP1BWS2	1	2	С	D	E	СС		32,767	00:00:03	00	3	93	00:00	:20.00	63	1 I	Expand
	\$EP2BWS2	1	2	С	D	E	СС		32,767	00:00:03	00	3	32767	00:00	:20.00	63	0	Expand
	\$EXBWS2	1	2		D	Е	СС		32,767	00:00:03	00	3	1	00:00	:20.00	63	0	Expand
	<										N	o Filter	Displa	yed		3 of	:	>
•													lot Logg	ed On] ? [Help	Prin	nt Screen

The Paths / Info screen presents the configuration information for Expand Paths.

Various fields concerning Path Block Bytes and Path Packet Bytes used for Expand over IP are updated by Expand after the line is connected with the remote system. This update reflects final negotiated values.

Paths / Status

HD	MOMI - Mu	ılti-syste	em Or	nline	Measu	re Inte	erface	e (Clie	nt ve	rsion	3.76	5)							
1	Black Wo							\BWS1 Fast - 2002 🗸				Paus	e 2004	4/06/16 :35:31					
	<- Back	-	*Sy	stem	s Ov	erviev	N CI	PUs	Proc	esses	Fi	les	*Sub	System	s Histo	ory	Configu	ire	
ſ	*EMS Msgs	Spool	тср	/IP	oss	Ехр	and												
ĺ	Diagram (Connect	ions	Ove	rview	Path	IS Li	nes	\$NCF	> \$Z	ЕХР]							
ľ	Detail Inf	fo Sta	tus	State		_													
	Path Name	Pati Stat	n e	Last Error	Clip	Total Lines	Pri Cpu	Pri Pin	Bak Cpu	Bak Pin	s T	Tra	ace File	LDEV1	LDEV1 Name		LDEV2	LDEV2 Name	LD
	\$EP1BWS2	START	FED	0		2	1	342	0	359				137	\$EL2BW	S2	138	\$EL1BWS	2
	\$EP2BWS2	STOP	PED	0		1	1	343	0	356				136	\$EP2BW	S2			
	\$EXBWS2	STAR	FED	0		1	1	336	0	355				135	\$EXBWS	52			
												٨	No Filter	r Disp	ılayed 🗍		3	of	▶ 3
														Not Loo	iged On		? Help	Print	t Screen
													_			_			

The Paths / Status screen presents the state and status of Expand Paths.

A path is made up of one or more physical lines. The fields LDEV1 - LDEV8 list these lines.

Right-click on a Path Name allows the jump to display the Paths / Detail screen or perform actions on the path when logged on.

Path Name	Path State	Last Error	Clip	Total Lines	Pri Cpu	Pri Pin	Bak Cpu	Bak Pin	
\$EP1BWS2	STARTED	0		2	1	332	0	353	
\$EP2BWS2	STOPPED	n		1	1	330	0	351	
\$EXBWS2	EXBWS2 A SEP2BWS2 - Display Path Detail								
	\$EP2BW52								
	\$EP2BWS2 - Stop Path								
			_			_			

Paths / Stats

	🕮 MOMI - Multi-system Online Measure Interface (Client version 3.76)												
1	Black Woo	100 50						\BWS1	l Fast - 2	002 🗸	Paus	e 2004 13:	49:26
_	- Back	*Sy	stems	Overview	CPUs	*Pr	ocesses	Files *	SubSyste	ms Histo	ory Confi	gure	
ſ	*EMS Msgs	Spool TCP	/IP OS	is Expan	d								
ſ	Diagram C	onnections	Overv	iew Paths	Lines	\$NC	P \$ZEXP	1					
	Detail Inf	o Status	Stats										
	Path Name	Stats Last Reset		Stats Last Upda	ited		L4 Packets Sent	L4 Packets Received	L4 Forward Sent	L4 Forward Received	L4 Link Request Sent	L4 Link Request Received	L4 CO Requi St
	\$EP1BWS2	2004/05/21	17:35:4	8 2004/06/	16 13:21	:19	16	15	0	0	0	0	
	\$EP2BWS2	2004/05/21	17:35:4	7 2004/06/	16 13:20	:42	2,484	2,485	0	0	0	2	
	\$EXBWS2	2004/05/21	17:35:4	7 2004/06/	16 13:43	:24	104,099	103,635	0	0	103,542	4	
													>
								No Fi	lter Dis	played	3	of	3
•									Not Lo	gged On	? Hel	p Print	Screen
The Paths / Stats screen presents statistical information about an Expand Path.

An Expand Path is made up of one or more physical lines. The statistics present a total of the underlying lines.

Some older versions of Expand do not report all fields displayed, in particular Frames > 32K. QIO memory information is not reported by all Expand Path types.

Lines

Lines / Detail

📟 MOMI - Multi-system Online Measure Interface (Client version 3	3.76)	×
Black Wood Systems, Inc.	\BWS1 Fast - 2002 V Pause 2004/06/1 13:50:3	1 1
	s Files *SubSystems History Configure	
*EMS Msgs Spool TCP/IP OSS Expand		
Diagram Connections Overview Paths Lines \$NCP \$28	EXP	
Detail Info Status Stats		
⊂Info Line \$EL2BWS2		
Linetype CSM Path Name	\$EP1BWS2 LDEV 137	
L2Protocol SWAN_DIRECT TimeFactor(LineTF/FTF)	0 186 SpeedK 100	11
Framesize 132 Rsize	0 Speed 0	
LinePriority 1 Start Up	OFF Delay 00:00:00.10	
DownIfBadQuality OFF QualityThreshold	96 QualityTimer 00:01:00.00	
TxWindow 7 Address	(1,2) AutoLoad ON	
LineBufSize 47288 DsrTimer	00:00:01.00 IdleTimeout 00:00:10.00	
Interface RS-232 ReadBuffers	8 L2Retries 10	
DRtimeout 00:00:03.00 CLBidleTimer	00:00:10.00 Threshold 500	
L2Timeout 00:00:01.00 ProtcolId	1 FlagFill ON	
ClockMode DTE ClockSpeed	115200 CLBdwnloadRetries 3	
CLBdwnloadTimer 00:00:30.00 Program	\$SYSTEM.CSS23.C1097P00	
Status Line \$EL2BWS2		
PPID 1,342 BPID	0,359 Line State STARTED	
Path LDEV 63 Connect-Mgr LDEV	66 Detailed State CONNECTED 🗸 🗸	
Line Name \$EL2BWS2	Print	
	Net Logged On 2 Hala Driet Course	
👻 J	Not Logged Un ? Help Print Scree	n

The Lines / Detail screen presents an SCF-type view of the Info, Status and Stats for an Expand Line.

The purpose of this format is to provide the User a familiar layout showing all possible data for a given line. Use the scroll bar on the right to view all of the available information.

Lines / Info

	МС	MI - Multi-	system Onli	ne Mea	sure Inter	face (Cli	ent vei	sion 3.7	6)						X
E	3/a	ck Wood	frc. 0						\вw	S1 Fast - 2	2002 🗸		Pause	2004/06/ 13:51:3	'16 31
_	<-	Back -	*Syst	ems	Overview	CPUs	*Pro	cesses	Files	*SubSyste	ems Hist	ory	Configure	,	
*	EMS	6 Msgs Sp	ool TCP/I	POS	s Expa	nd									
	Diag	gram Con	nections C)vervi	ew Paths	Lines	\$NCP	\$ZEXF	•]						
	Det	ail Info	Status S	tats											
		Line Name	Path Name	LDEV	Assoc Dev	Assoc SubDev	IP Vers	v4 Dest Address	IP	v4 Dest IP AddrName	v6 Dest II Address	P De	st IP v4 Si Port Addr	rc IP ess	
	<u>e</u>	\$EXBWS2	\$EXBWS2	135	\$ZSAM1		IPV4	192.168	.20.12		::		2000 192.:	L68.20.11	
	CSM CSM														
	NAM	<								-				>	
0		TOOL								Not Lo	ogged On	?	Help	1 Print Scre	en)

The Lines / Info screen presents configuration information for Expand Lines.

Various Expand Line types report different information. Each different line type detected causes tabs along the left side of the screen to appear. There is only a one tab if a single line type is used.

HOHI	м	DMI - Multi-s	ystem Onli	ine Meası	ire Int	terfac	e (Cli	ent version 3.	76)						
Ľ	3/a	ck Wood Systems,	frc. 0						\BW	S1 F	ast - 20	102 🗸		Pause	2004/06/16 13:52:41
Ŀ	<-	Back 🕂	*Syst	tems Ov	vervie	w C	PUs	*Processes	Files	*Sul	bSyster	ns Hist	ory	Configur	е
*	EM	S Msgs Spo	ool TCP/I	IP OSS	Exp	and									
ſ	Diar	ram Conn	ections (Nvervieu	Pat	hs Li	ines	\$NCP \$ZEX	(P						
Detail Info Status Stats															
Detail Into Status Stats															
		Line Name	Path Name	LDEV	Addr Pri	Addr	AL	Delay	Tim	DSR	Frame	Tim	Idle	Elec Iface	Program
		\$EL2BWS2	\$EP1BWS2	2 137	1	2	AL	00:00:00.10	00:00:0	1.00	132	00:00:1	10.00	RS-232	\$SYSTEM.CS
	1	\$EL1BWS2	\$EP1BWS2	2 138	1	2	AL	00:00:00.10	00:00:0	1.00	132	00:00:1	10.00	RS-232	\$SYSTEM.CS
	Ē														
	Σ														
	8														
	Σ														
	z														
									<u></u>						
	_	TOOL							No F	ilter	Displa	ayed		2 of	2
9	Γ										Not Log	ged On	?	Help	Print Screen

Lines / Status

MOMI - Mu	lti-system C)nline Measure	e Interfa	ce (Clie	ent	version 3.	76)					
Black Woo	od 50						\BWS	1 Fast -	2002 🗸	P P	ause	2004/06/16 14:36:24
- Back	*s	ystems Ove	rview	CPUs	Pr	ocesses	Files *	SubSyst	ems Histor	y Co	nfigure	
*EMS Msgs	Spool TC	P/IP OSS	Expand									
Diagram C	onnections	0verview	Paths	Lines	\$N	ICP \$ZEX	P					
Detail Inf	o Status	Stats										
Line Name	Line State	Detail State	Line Not Ready	Last Error	Ρ	Primary SubChan Address	Backup SubChan Address	ConMgr LDEV Nbr	ConMgr LDEV Name	Path LDEV Nbr	Path LDEV Name	Lii F CF
\$EL2BWS2	STARTED	CONNECTED	0	0	А			66	\$ZZW01	63	\$ZZW01	
\$EL1BWS2	STARTED	CONNECTED	0	0	А			66	\$ZZW01	63	\$ZZW01	
\$EP2BWS2	STOPPED	DOWN	66	0	-			136	\$EP2BWS2	136	\$EP2BWS	2
\$EXBWS2	STARTED	CONNECTED	0	0	-			135	\$EXBWS2	135	\$EXBWS2	
						(No Filter	Displa	ayed	4	of	> 4
>								Not I	Logged On]?[Help P	rint Screen

The Lines / Status screen presents status and additional configuration information about Expand Lines.

Not all configuration fields are used by all Expand Line types. The Detail Info fields off the screen (scroll to display) supply additional information under error conditions.

Right-clicking on a Line Name allows the jump to display the Lines / Detail screen or perform actions on the line when logged on.

Detail	Infe	D	Status	Stats					
Line Name		Lin Sta	e ite	Detail State		Line Not Ready	Last Error	Ρ	s
\$EL2BW	(S2	ST	ARTED	CONNE	CTED	0	0	А	
\$EL1BWS2		ST	ARTED	CONNE	CTED	0	0	А	
\$EP2BW	/S2	ST	ODDED	DOWN		66	, 0	-	
\$EXBW:	<u>52</u> *	\$E \$E \$E \$E	P2BW52 - P2BW52 - P2BW52 - P2BW52 -	- Displa Start Line Stop Line Abort Lin	y Line	Detail	0	-	

Lines / Stats

HOHI	мс	DMI - Multi	-system Onli	ne Me	asure Interf	ace (Cl	ient version 3.7	6)							
B	Va	ck Wood	6-c. 0					\B\	∀ S1	Fast	- 200	12 🗸	P	ause	2004/06/16 13:54:34
_	<-	Back	*Syst	ems	Overview	CPUs	*Processes	Files	*5	iubSy	stem	5 His	tory Co	onfigure	
*	EM	S Msgs S	pool TCP/I	POS	s Expan	d									
	Diag	gram Cor	nections)vervi	iew Paths	Lines	\$NCP \$ZEX	P							
	Det	tail Info	Status S	tats											
		Line Name	Path Name	Stats Last R	leset	St La	tats ast Updated		Pri Cpu	Pri Pin	Bak Cpu	Bak Pin	Connect Cmds Sent	Connect Cmds Rcvd	Connect Resp Sent
	2	\$EXBWS2	\$EXBWS2	2004/	/05/21 17:35	:47 20	004/06/16 13:54:	20	1	336	0	355	1	1	1
	F														
	CSM														
	NAM							No	Filte	er (Display	red [1 of	>
•	Γ								(Not	Logg	ed On	?	Help	Print Screen

The Lines / Stats screen presents statistical information about an Expand Line.

Various Expand Line types report different information. Each different line type detected causes tabs along the left side of the screen to appear. There is only one tab if only one line type is used.

ноні	M	OMI - Multi-s	ystem Online	e Measure Interf	iace (Cl	lient version 3.7	(6)							
B	3/a	ck Wood Sijstoms,	fnc. 0				\BV	VS1 F	ast -	2002	~ [- <mark>©1</mark> Pa	use	2004/06/16 13:55:45
-	<-	Back	*Syster	ms Overview	CPUs	*Processes	Files	*Su	bSyst	tems	Histo	ry Co	nfigure	
*	EM	S Msgs Spa	ool TCP/IP	OSS Expan	d									
1	Diagram Connections Overview Paths Lines \$NCP \$ZEXP													
	Det	tail Info	Status Sta	ts										
		Line Name	Path Name	Stats Last Reset		Stats Last Updated		Pri Cpu	Pri Pin	Bak Cpu	Bak Pin	IFrames Sent	IFrame Rec	es SFrame v Sen
	/IP	\$EL2BWS2	\$EP1BWS2	2004/05/21 17:	35:48	2004/06/16 13:5	5:38	1	342	0	359	10		8 16,35
	TCP	\$EL1BWS2	\$EP1BWS2	2004/05/21 17:3	35:48	2004/06/16 13:5	5:40	1	342	0	359	6	i	6 16,35:
	4M CSM													
	Ż	<												>
		TOOL					No	Filter	Di	splaye	4	2	2 of	2
0	Г								Not L	ogged	l On) ? [H	lelp (Print Screen

Expand / \$NCP

MOMI - Multi-system Online Measure	Interface (Client version 3.76)		
Black Wood Systems, Inc.	\BWS1	1 Fast - 2002 🗸 📮 Pause 200	04/06/16 3:56:42
- Back - *Systems Overv	view CPUs *Processes Files *	SubSystems History Configure	
*EMS Msgs Spool TCP/IP OSS	xpand		
Diagram Connections Overview P	aths Lines \$NCP \$ZEXP		
Max System Number Algorithm Ma ConnectTime MaxTimeouts NetworkDiameter Message 43 Enabled * Message 45 Enabled Message 47 Enabled Message 49 Enabled * Next ReBalance Time	254 AbortTimer odified Split Horizon (MSH) AutomaticMapT 00:00:00:00 FrameSize 3 MaxConnects 15 OFF Message 44 End ON Message 46 End ON Message 48 End OFF AutoReBalance 0 00:00:00 AutoReBalance	00:00:00.30 imer 0N 132 30 abled 0N abled * 0FF abled * 0FF Time	
Trace File Name			
•		Not Logged On ? Help Pri	nt Screen

The Expand / \$NCP screen presents information about the Network Control Process.

The NCP process is the main 'traffic cop' for the Expand subsystem. While actual 'user data' does not flow through this process, it does determine which Paths are used for transport. It maintains routes and the list of systems on the network.

Certain messages are logged to \$0 as the result of changes in the Expand network, such as paths/lines up/down and processors in remote nodes up/down. These messages can be turned on or off. Right-click on fields marked with an * to perform the action. Changes may not update the screen right away.

NetworkDiameter	15
Message 43 Enabled *	OFF Message 44 Enabled
Message 45 Enabled	ON Enable Message 43
Message 47 Enabled	
Message 49 Enabled *	OFF AutoReBalance
Next ReBalance Time	0 00:00:00 AutoReBalanceTime
Trace File Name	

Expand / \$ZEXP

📟 момі - м	🗏 MOMI - Multi-system Online Measure Interface (Client version 3.76)											
Black We	ood 50 50				51 Fast - 2002	V Pause.	2004/06/16					
<- Back	*Syst	tems Overview	CPUs *Proc	esses Files	*SubSystems	History Configu	ire					
*EMS Msgs	Spool TCP/I	IP OSS Expa	ind									
Diagram	Connections (Overview Path	s Lines \$NCP	\$ZEXP								
Primary	y PID 0,41			Backup PID [1,46							
Reset T	Fime	2004/05/21 17:35	:29	Sample Time [2004/06/	16 13:57:45						
	Configured	Allocated	Max Alloc	Alloc Tries		Curr Waits	Max Waits					
BUFPOOL	56,180	10,176	10,296	2,778,208	0	0	C					
MSGPOOL	41,344	0	10,048	2,778,162	0	0	С					
EXTPOOL	1,117,316	29,272	54,968	9,376,277	0	0	С					
TCBS	37	4	4	5	0	0	C					
STACKS	3,582	61	937	5,299,564	0	0	12,923					
CPSTACK	0	0	0	0	0	0	С					
FCBS	48	1	1	2	0	0	с					
IOCBS	128	3	5	2,778,167	0	0	С					
RCBS	48	1	1	1	0	0	С					
BUFFERS	2,048	0	0	0	0	0	с					
CPBUF	3,072	1	107	6	0	0	с					
SEMAPH	0	0	0	15	0	0	с					
REQUE: REPLIE	REQUESTS 2,778,162 REPLIES 2,778,161											
•					Not Logged	On ? Help	Print Screen					

The Expand / \$ZEXP screen presents various statistics about the Expand Manager Process. This information is the equivalent of the command "SCF stats process \$ZEXP".

The Expand Manager Process supervises the Expand Path and Line handler processes. This process must be running on a system with Expand active. Information requests through SCF and the SPI interface are routed through \$ZEXP.

Unfortunately, the meaning of the values displayed on this screen are not known. The information presented is undocumented and nothing is available (that we can find) to interpret these values. We have included this screen because it looked interesting. This information is only available on newer platforms.

User Defined

User Defined / Diagram

BWS1-2004 MOMI (Client version 5.00)	
Black Wood Systems, Inc.	\BWS1-2004 ▼ Pause 2008/03/10 14:16:34
-Back	ses Files *SubSystems History Alarms Configure
*Logs Spool TCP/IP OSS Expand *User Defined	
*Diagram List	
MY USER DEFINED SCREEN	
My User defined screen	Top Processes in CPU 0 on <current system=""> CPU,Pin Process Object Priority Busy% 00,00436 \$23787 BWMOMI 156 9.74 00,00352 \$MOMI4 BWMOMI 160 3.72 00,00332 \$2PTM0 TCP6MON 201 1.18 00,00393 \$23785 BWMOMI 160 0.24 00,00287 \$0SS TSYSDP2 220 0.23 00,00291 \$DATA1 TSYSDP2 220 0.22</current>
Design Mode MY USER DEFINED SCREEN	V Display Clear Save Delete Print
Config T	
•	Chat net.dw Hints On ? Help Print Screen

The User Defined / Diagram page allows the user to construct, in a some-what free-form manner, a page of items to display. The items on-screen automatically update. The User Defined page, once created, may be saved for later use and may be displayed within the Diagram page or in a window independent of the main MOMI PC Client screen. The MOMI PC Client must be running as the independent windows are still created by it.

The Diagram page starts 'empty'. The user clicks the box next to Design Mode to allow entry/definition of items on screen. The Design mode must be entered to initial place items on screen or later to move, remove,

change values associated with an item or save the screen for later reuse. User Define screens are saved by the logged on User ID. Uncheck Design Mode to activate the screen. It may take several seconds for all fields to populate.

BWS1-2004 MOMI (Client version 5.00)							
Black Wood Sustems, Inc.	2%			BWS1-2004	F 🔁 📳	Pause 2008/ 14:2	03/10 5:42
Back Systems Overview	CPUs	Processes	Files	*SubSystems	History Ala	arms Configur	e
*Logs Spool TCP/IP OSS Expand	'User Def	fined					
Diagram *List	Screen	Size = (742x333	2)				
Add Box Add Label Add Data Object Add Line Cancel Cancel				isplay Clear	Save	Delete	· · · · · · · · · · · · · · · · · · ·
•		Ch	at	net.dw	Hints On ?	Help Print S	creen

The following picture shows a box, label, data object and line added to the screen.

The box is an object used to group or gather items. A label allows the entry to user defined text to provide fixed text information. The data object provides many items for the user to choose from such as CPU, Process and System entities. The line provides an additional graphic for the user to separate or perhaps indicate data flows.

Once an item is on screen, such as the label, right-click over the item to bring up available properties. For the label, the font size and color may be changed. Many items may also be brought forward and placed on top of other items (i.e. Bring to Front) to moved behind other items (i.e. Send to Back).

Black Word Image: Configure of the system of the syste	BWS1-2004 MOMI (Client version 5.00)														
Back *Systems Overview CPUs Processes Files *SubSystems History Alarms Configure *Logs Spool TCP/IP OSS Expand User Defined Diagram List Screen Size = (742x332) Object Top=31 Left=246 Height=20 Width=2245 Image: A Label Size Image:	Black Wood Systems, Inc. W	3/03/10 52:56													
*Logs Spool TCP/IP DSS Expand User Defined Diagram List Screen Size = (742x332) Object Top=31 Left=246 Height=20 Width=2245 Image: Constant of the state of the sta		ure													
Diagram List Screen Size = (742x332) Object Top=31 Left=246 Height=20 Width=2245 Image: A Label Set Font Size Size Set Font Image: A Label Set Font Size Set Font Size Image: A Label Set Font Size Set Font Size Image: A Label Set Font Size Set font Set Font Image: A Label Set Font Size Vellow Orange Image: A Label Image: A Label Image: A Label Orange Image: A Label Image: A Label Image: A Label Image: A Label Image: A Label Image: A Label Image: A Label Image: A Label Image: A Label Image: A Label Image: A Label Image: A Label Image: A Label Image: A Label Image: A Label Image: A Label Image: A Label Image: A Label Image: A Label Image: A Label Image: A Label Image: A Label Image: A Label Image: A Label Image: A Label Image: A Label Image: A Label Image: A Label Image: A Label Image: A Label Image: A Label	*Logs Spool TCP/IP OSS Expand User Defined														
A Label Set Font Size Bring to Front Send to Back Vellow Orange Green Blue Red Purple Purple V Dessign Mode Config	Diagram List Screen Size = (742x332) Object Top=31 Left=246 Height=20 Width=2245														
	A Label A Label Set Font Size Bing to Front Send to Back Velow Orange Green Blue Red Purple Purple Delete Label Cancel Delete Label Cancel Ca	Print													

Items may also be moved by placing the mouse over the item, the actual position varies, and left-clicking the mouse and holding while moving to the new location. The line is made to go in different directions by grabbing the size of the box and dragging it larger or smaller.

Busck Wood Image: Configure in the image: CPUs processes Files *SubSystems History Alarms Configure *Logs Spool TCP/IP OSS Expand User Defined Diagram List Screen Size = (742x332) Object Top=118 Left=248 Height=100 Width=100 A Label A Label	BWS1-2004 MOMI (Client version 5.00)														
Back *Systems Overview CPUs Processes Files *SubSystems History Alarms Configure *Logs Spool TCP/IP OSS Expand User Defined Diagram List Screen Size = (742x332) Object Top=118 Left=248 Height=100 Width=100 Image: A Label	Black Wood Systems, Inc.	BWS1-2004 ▶ Pause 2008/03/10 15:03:13													
<pre>*Logs Spool TCP/IP OSS Expand User Defined Diagram List Screen Size = (742x332) Object Top=118 Left=248 Height=100 Width=100 A Label Current Syster Current Syster Config Design Mode Print Config </pre>	-Back Systems Overview CPUs Proces	sses Files *SubSystems History Alarms Configure													
Diagram List Screen Size = (742x332) Object Top=118 Left=248 Height=100 Width=100 A Label Current Syster Current Syster Design Mode Design Mode Display Clear Save Delete Print Config	*Logs Spool TCP/IP OSS Expand User Defined														
A Label <urrent syster<br=""><urrent syste<="" th=""><th colspan="15">Diagram List Screen Size = (742x332) Object Top=118 Left=248 Height=100 Width=100</th></urrent></urrent></urrent></urrent></urrent></urrent></urrent></urrent></urrent></urrent></urrent></urrent></urrent></urrent></urrent></urrent></urrent></urrent></urrent></urrent></urrent></urrent></urrent></urrent></urrent></urrent></urrent></urrent></urrent></urrent></urrent></urrent></urrent></urrent></urrent></urrent></urrent></urrent></urrent></urrent></urrent></urrent></urrent></urrent></urrent></urrent></urrent></urrent></urrent></urrent></urrent></urrent></urrent></urrent></urrent></urrent></urrent></urrent></urrent></urrent></urrent></urrent></urrent></urrent></urrent></urrent></urrent></urrent></urrent></urrent></urrent></urrent></urrent></urrent></urrent></urrent></urrent></urrent></urrent></urrent></urrent></urrent></urrent></urrent></urrent></urrent></urrent></urrent></urrent></urrent></urrent></urrent></urrent></urrent></urrent></urrent></urrent></urrent></urrent></urrent></urrent></urrent></urrent></urrent></urrent></urrent></urrent></urrent></urrent></urrent></urrent></urrent></urrent></urrent></urrent></urrent></urrent></urrent></urrent></urrent>	Diagram List Screen Size = (742x332) Object Top=118 Left=248 Height=100 Width=100														
Chat Dat dw Hints On 2 Help Drint Screen	 A Label <current li="" syster<=""> <current li="" syster<=""> </current></current>	Display Clear Save Delete Print Display Clear Save Delete Print													

Enter a name for the User Defined screen in the field next to Design Mode and push Save so the screen may be available later for reuse. Existing screens are displayed by using the drop-down box at the end of the field then push Display.

BWS1-2004 MOMI (Client version 5.00)		•	
Black Wood		BWS1-2004 -	Pause 2008/03/10 15:07:13
- Back - Systems Overview	CPUs Processes Files	*SubSystems Histor	y Alarms Configure
*Logs Spool TCP/IP OSS Expand Us	er Defined		
Diagram List	Screen Size = (742x332)		
A La <cu< p=""> <cu< p=""> Cu Cu Cu Cu Cu Config ■ Record successfully add</cu<></cu<>	bel Irrent Syster	Display Clear Sa	ve Delete Print
• [Chat	net.dw Hints C	DD 2 Help Print Screep
• 1	Chat		i nep Frinc Screen

User Defined / List

BWS1-2004 MOMI (Client version 5.00)														
Black Wood Systems, Inc.	\BWS1-2004 ▼ Pause 2008/03/11 15:51:28													
-Back	ses Files SubSystems History Alarms Configure													
Logs Spool TCP/IP OSS Expand User Defined														
Diagram List														
Check name to Display Screen in independent window User Designed Screen Transparency														
 MY USER DEFINED SCREEN MY USER DEFINED SCREEN - SB TEST SCREEN 														
	Chat net.dw Hints On ? Help Print Screen													

The User Defined / List screen displays screens previously defined and saved and allows them to be displayed as independent windows.

Screen definitions are physically saved on the NonStop System (i.e. not on the PC) and are organized by logged on user.

An independent window appears outside of the MOMI PC Client however the MOMI PC Client must be running for the independent window to display. A window or windows are checked and display separately from the MOMI PC Client on the PC monitor. The following window is a simple display.



The following window displays additional items.

📟 MY USER DEFINED SCREEN



O/S Version MOMI Version	G06.31.00 5.00								
ALARMS									

Top Processes in CPU 0 on <current system=""></current>													
CPU,Pin	Process	Object	Priority	Busy%									
00,00352	\$MOMI4	BWMOMI	160	1.03									
00,00332	\$ZPTM0	тср6мон	201	0.51									
00,00393	\$Z3785	BWMOMI	160	0.24									
00,00287	\$OSS	TSYSDP2	220	0.23									
00,00000	\$MONITOR	OSIMAGE	201	0.14									
00,00015	\$ZNET	SCP	175	0.14									

Processes to closely watch	Started (MAT at 52%)
00,00352 \$MOMI4 BW	MOMI 160 0.95
01,00273 \$OSS TS	/SDP2 220 0.00
00,00041 \$ZEXP OZ	EXP 180 0.51

History





The History / Chart screen graphs various data from the MOMI history files. History capture must be <u>enabled</u> in order for this screen to function.

Activity on this screen is started by pressing the **Config** button and selecting a predefined, previously saved or defining data to graph. The pop-up window allows selection of database, start/stop time and item(s) to display. Up to 16 different history items may be selected. When an **Element Type** is selected, the available items appear in the **Element Sub Type** along with other fields such as a CPU number or process name. For example, selecting a Process **Element Type** requires a process name (or cpu,pin for unnamed proc-

esses). The predefined charts **Chart all CPUs for Busy percent** or previously saved user chart are also available.

	Histo	ry Chart	Configu	Iration			X
Time and Database Chart Definition	Chart	Elements	PreConfig	ured Charts	Trend Cha	art	
Specify Chart START date/time	S	pecify Datab	ase to View	/			
Now 2011/02/22 - 15:45:11		History Wir	dow Size	Newest	Data	Oldest Data	
Ontional Chart STOP date/time		30 Second	interval	2011/02/22	15:55:30	2011/02/08 15:56:30)
New 2011/02/22 × 15:55:11		2 Minute	interval	2011/02/22	15:52:00	2010/12/24 15:58:00)
		1 Hour in	nterval	2011/02/22	14:00:00	2010/12/14 16:00:00)
		1 Day in	terval	2011/02/21	00:00:00	2009/07/03 00:00:00)
		30 Second in	terval			•	
Pre-configured Charts							
Chart all CPUs for Busy perce	nt			User def	ined Pre-c	onfigured Charts	
Clear current char	rt	Requ	iest			C	ose

Once a graph is displayed additional information and drill down options are available by placing the mouse over a chart line or point.



Clicking on a chart line will display the date/time and exact value at the point, minimum and maximum values and other information at that point or point in time.



Additional data may also be displayed in some charts. For example, a right-click over a CPU busy line displays menu that allows display of History CPU Detail.



Selecting Goto History CPU Detail jumps to the <u>History / CPU Detail</u> screen for the chart line CPU and processes captured at that point in time. The **Backward** and **Forward** buttons allow stepping through history intervals.

BWS1	UBWS1-2004 MOMI (Client version 5.20)															x								
Black	k Woo System	d si me											∖в	WS1-	20	04 -		Pause	2011/02 16:19:	:/22 :02				
<-	_~	System	ns Overvi	ew	CPU	Js F	roc	ess	es	Fi	les	S	ubSys	tems	listo	ry Alar	ms	Configur	e					
Chart	CPU D	etail (PU Proc	ess	OS	S CPL	0 0	SS I	Van	ne	Serv	/er	Proc	ess Star	t/St	op Exp	ort D	ata						
	CPU 1 detail per second over 30 Second interval at Tuesday 2011/02/22 15:23:30																							
CPU 1																								
Bu	Busy Time 64.27 % Disk I/O's 19.25 Free Memory 1,404 Processes Created 0.00															00								
Interru	ipt Time		0.54	1 %	C	ache I	lits			2	1.88	3	Locked	d Memory		284	Pr	ocesses De	leted 0.0	00				
Id	lle Time		35.73	8 %	D	ispatc	hes			32	5.27	7	Pa	ge Faults		0.00	N	lemory Pres	sure	0				
Process	s CF	U,PIN	Busy Time	BI	IPri	CPri	P F	R	I	S	SI	PT	Mem	MemByt	es	SwapSpa	ceG	UserID	Login Name	3				
\$PIG1	01	L,00418	59.6167%		1	1		R				G	0.4	475,	136	278	,528	100,109	NET.DW					
\$MOMI4	4 01	L,00287	0.5993%		160	160						G	19.6	20,643,	840	393	,216	100,109	NET.DW	-				
\$ZPTM1	. 01	L,00327	0.4293%		201	201	Ρ	R				G	2.8	3,031,040		294	,912	255,255	SUPER.SUPE	E				
\$MOM0	01	L,00393	0.3453%		170	170		R				G	46.8	49,086,	49,086,464		86,464 39		86,464 393,		,216	200,1	OPER.MAIN	
	01	L,00000	0.2658%		201	201	Ρ	R				G	1.0	1,114,	1,114,112		1,114,112		0	255,255	SUPER.SUPE	E		
\$Z0115	01	1,00417	0.2636%		160	160		R			· ·	G	1.9	2,048,	2,048,000		,216	100,109	NET.DW					
\$OSS	01	1,00273	0.2479%		220	178	P	R				G	12.7	13,369,	344		0	255,255	SUPER.SUPE	E				
\$MOMI6	5 01	1,00344	0.2365%		170	170		R				G	46.6	48,955,	392	393	,216	100,109	NET.DW					
\$Z0023	01	1,00412	0.2300%		170	170						G	2.8	2,965,	504	393	,216	100,109	NET.DW					
\$Z0004	01	1,00394	0.2055%		170	170						G	2.5	2,686,	976	393	,216	200,1	OPER.MAIN					
\$OSS	01	1,00291	0.1734%		220	178	P	R				G	4.1	4,308,	992		0	255,255	SUPER.SUPE	E				
\$DATA1	1 01	1,00269	0.0706%		220	220	P					G	64.3	67,469,	312		0	255,255	SUPER.SUPE	E				
\$ZOJT	01	1,00401	0.0495%		159	159	P					G	0.3	360,	448	180	,224	100,109	NET.DW	- T				
< III			Ν									_							1					
TOOL			13		<	Bac	kwa	rd	Fo	orw	ard	-	-	lo Filter		isplayed		75	of	75				
Clear		Config	Rat	ed V	/alue	s [leq	Jes	t	= [
•											C	hat	No	t Logge	d On	Hints	On	? Help	Print Scr	een				

Charts of user defined entities are defined in **Config / Chart Elements**. In the image below, the CPU **Busy percent** for \$MOMI4 is selected. Additional chart elements are defined by pressing **Add New Element**.

BWS1-2004 MOMI (Client ver	rsion 5.20)													
Black Wood		BWS1-2004 Pause 2011/02/22 16:29:16												
- Systems 0	verview CPUs Processes File	s SubSystems History Alarms Configure												
Chart CPU Detail CPU	Process OSS CPU OSS NameSe	rver Process Start/Stop Export Data												
History Chart Configuration														
Time and Database Chart Definition Chart Elements PreConfigured Charts Trend Chart														
Time and Database Chart Definition Chart Elements PreConfigured Charts Trend Chart - D-0 - <t< th=""></t<>														
Clear All Elements	Add New Eleme	nt Chart All CPUs for Element SubType												
Cle	ear current chart Requ	est												
•		Chat Not Logged On Hints On ? Help Print Screen												

The scrolling feature allows the User to easily scroll forward and backward in time and visually search for unexpected activities. Additionally, when scrolling forward in time, the chart becomes 'live' and displays new data as it arrives.



History drill-down is aided by two bars (highlighted in green) on the left and right hand sides of the chart. They provide a graphical means to select a select a window of time based on the current data displayed. In the image below, history at 1 hour is displayed.

	BWS1-2004 MOMI (Client version 5.20)															_ D X		
B	laci	k	100	d 15, 17a	100							\BV	VS1	- <mark>2004</mark>	•	(<mark>9</mark>	Pause	2011/02/22 16:49:17
-	[-	_	~	Syst	tems	Overv	view	CPUs	Proces	sses Fi	es	SubSyste	ems	History	Alarn	ns	Configure	
Ch	art	C	PU D	etail	CPU	Pro	cess	OSS C	PU OSS	5 NameS	erve	Proces	ss Sta	art/Stop	Ехро	ort Da	ata	
	100	T																
	90	Ŧ																
	80	ł																
	70	1																
ŧ	60	1.																
Derc	50	1.																
Nal S	40	1																
-	30	1																
	20																	{ ĭĭ
	20	Ī																
	10																	
	0	11/0	0/10	201	1/02/19	201	1/02/10	2011	/02/10	2011/02/2	0 2	011/02/20	204	11/02/21	2011/0	12/24	2011/02/	22 2011/02/2
	1	2:00	:00	201	00:00	09:	:00:00	2011	02/19	07:00:00	.0 2	18:00:00	05	5:00:00	16:00	0:00	03:00:00	0 14:00:00
									◄	- CPU 0	v -	CPU 1						
		Cha	art of	all C	PUs fo	r CPU E	Busy	<	- Scrol	Speed	and	Directio	n ->		:	1 Hou	ır interval	
	First	t= 2	2011/	02/18	12:00	0:00	1	1 1			<u>`</u>				L	ast=	2011/02/2	2 15:00:00
C	lear			Conf	ig				Re	esume	S	reen loa	ded					
0											Cha	t Not	Logg	ed On	Hints	On	? Help	Print Screen

Left-click and hold on a line to move it left and right. A pop-up tool tip appears in the bottom center to show the current time values with the history bar selection. In this example, the scroll bars are moved to just either side of a 'bump' in the history chart graph data.

	BWS1	1-2004 N	10MI (C	lient ve	ersion 5.20)								_ 🗆 💌
Bl	aci	k Woo	d ns, <i>tra</i> .	100	<u>n</u> ::::				\BWS	51-200 4	• - [Pause	2011/02/22 16:57:38
<	-	\neg	Syste	ems ()verview	CPUs	Processes	Files	SubSystem	s History	Alarms	Configure	
Cha	art	CPU D	etail	CPU	Process	OSS CP	U OSS Na	meServe	Process	Start/Stop	Export D)ata	
	100	30 Se	cond interv	erval zal									
	90	1											
	80	¦											
	70	 											
ent	60	.											
perc	50												- • + -
ſsŋ	40	1											
	30	1											DXX.
	20	1											
	10	1											
	0	11/02/18	2011/	02/18	2011/02/10	2011/0	2/10 2011	102/20	2011/02/20	2011/02/21	2011/02/21	2011/02/2	2 2011/02/2
	12	2:00:00	22:00	0:00	09:00:00	20:00	0:00 07:0	02/20	18:00:00	05:00:00	16:00:00	03:00:00	14:00:00
							▽ — CF	PU 0 🔽 —	CPU 1				
	(Chart of	all CPU	Js for (CPU Busy	Start	Char Time = 20	t Time : 11/02/2	Selector 2 08:35:23	(-)	1 Ho	ur interval	
	First	= 2011/	/02/18 1	12:00:	00	Stop	Time = 20	11/02/2	2 15:00:00	(-)	Last=	2011/02/22	15:00:00
Cl	ear		Config	9		DB to	use = 2	Minute	6 interval				
•								Ch	at Not Lo	gged On	Hints On	? Help	Print Screen

After the bars are positioned, right click on the chart area and select **Reload Chart with New Times**.



If **Reload Chart with New Times...** is selected, the History Chart Configuration pop-up is displayed. Note that the Chart START and STOP times are pre-loaded with the values displayed when the history bars were positioned. Additionally, the History database was pre-selected to the next higher resolution. Press Request to reload the chart based on the new time values and selected database.

🕮 MOMI - Multi-system Online Measure Interface (Client version 4.15)	
Black Wood	3WS1-2004 V Pause 2006/08/25 19:25:39
	SubSystems History Alarms Configure
Chart 1 Chart 2 CPU Detail CPU Process OSS CPU OSS Name S	erver Process Start/Stop Export Data
History Chart Configu	ration 🛛
Time and Database PreConfigured Charts Chart Definition Char	t Elements
Specify Chart START date/time Now 2006/08/22 17:29:00 Optional Chart STOP date/time Now 2006/08/23 02:29:36 Pre-configured Charts Chart All CPUs for CPU Busy Chart all CPUs for Busy per Close Close Clear current chart Request	cent User defined Pre-configured Charts
	ot Logged On Hints Off ? Help Print Screen

The screen is reloaded with the times selected (perhaps adjusted to the capture interval).



Further history drill-down can occur until the highest resolution data is reached (assuming the history is still available). Available history may be see on <u>Server / Server Info 5</u>.

History / CPU Detail

🕮 MOMI - Multi-system Online Measure Interface (Client version 3.80)													
Black Wood Buse									2004/10/28				
L F F RELEF	Systems, Inc	ضط ا								•	13:36:51		
- Bac	k	Systems	Over	view	iew CPUs			Processes Fi		s SubS	ystems *His	story Configure	
Chart *	CPU Deta	I CPU F	roces	5 OSS	6 CPI	J		ame S	erver	Proces	s Start/Stop	Export Data	
Γ		CPU 0 d	letail pe	r seco	nd oʻ	/er	30 Se	cond int	terval	at Thursd	ay 2004/10/28	12:23:30	
CPU 0 Busv	Time	E 0	2 / 1 0/	Dis	sk I/C	's		10.9		Free Mer	nory 12	Processes Cre	ated 0.00
Interrunt			7 00 0/	Car	Casha Hita			44 5		ocked Mer	nory 12	2 Processes De	
Tdle		/	/.99 %				46.55		<u>의</u> .	Dane Fr		Memory Dres	
		41	1.59 %	0.0	Dispatches 842.43						0,4	+/ memory / res	
Process	CPU,PIN	Busy Time	B IPri	CPri	PF	R	IS	SI PT	Mem	UserID	Login Name	Object	<u>^</u>
\$DDL	00,00392	24.9446%	31	31		R		G	1.0	100,109	NET.DW	\$SYSTEM.SYSTEM	I.DDL
\$Z00S	00,00338	3.0839%	30	30				G	3.7	255,255	SUPER.SUPER	\$SYSTEM.SYS30.	EVNTPRVD
\$TMP	00,00012	2.6507%	204	204	P			G	2.1	255,255	SUPER.SUPER	\$SYSTEM.SYS30.	IMFTMP
\$DATA1	00,00292	2.4251%	B 220	220	Р			G	17.3	255,255	SUPER.SUPER	\$SYSTEM.SYS30.	TSYSDP2
\$ZOEV	00,00327	1.9957%	100	100				G	3.8	255,255	SUPER.SUPER	\$SYSTEM.SYS30.	EVTMGR
\$MOMI2	00,00414	1.6124%	160	160				G	3.0	100,109	NET.DW	\$DATA1.DALEMO	MI.BWMOMI
\$MOMI01	00,00290	1.2212%	220	213	Р			G	1.9	255,255	SUPER.SUPER	\$SYSTEM.SYS30.	TSYSDP2
\$SWAP1	00,00288	1.0878%	220	220	Р			G	8.7	255,255	SUPER.SUPER	\$SYSTEM.SYS30.	TSYSDP2
	00,00000	1.0687%	201	201	Р	R		G	0.7	255,255	SUPER.SUPER	\$SYSTEM.SYS30.0	DSIMAGE
\$ZCMOM	00,00330	0.8894%	30	30				G	16.3	255,255	SUPER.SUPER	\$SYSTEM.SYS30.0	CIMOM
\$Z2P8	00,00395	0.8765%	160	160		R		G	0.8	100,109	NET.DW	\$DATA1.MOMI4.B	WMOMI
\$MOMI4	00,00341	0.7807%	160	160				G	3.7	100,109	NET.DW	\$DATA1.MOMI4.B	WMOMI
<													> ~
Backward Forward - No Filter Displayed 87 of									of 87				
Clear	Con	fig 🗹	Rated V	alues			Ste	op 🗖					
•	Not Logged On 2 Help Print Screen												

The History / CPU Detail screen presents details of a CPU and the processes in that CPU at a given point in time. Once data is displayed, scrolling forward and backward based on interval in time may be performed.

The Config button displays a pop-up window allowing the specific Date/Time, CPU and Database to retrieve the data.

	History CPU Detail Config Options										
Specify Date/Time	CPU	Specify Database to View	Request								
Now 2003/10/22 💌 15:35:00) 🗘 1 🕶 🔺	30 Second interval	V (less								
		30 Second interval	Close								
		2 Minute interval									
		1 Day interval									

History / CPU

HDI	и мом	l - Multi-syst	em Onli	ne Measure In	terface (Cl	ient ve	rsion	3.82)						
1	Black	Wood Systems, Inc.	100 50					\	BWS1 Fa	st - 200	2 🗸 🕻	Pau	se 2	004/12/03 15:30:56
Ŀ	<- ва	ack	Syste	ms Overview	v CPUs	*Proc	esses	Files	5 SubSy	stems	History	Config	Jre	
ſ	Chart	CPU Detail	CPU	Process OS	S CPU OS	65 Nam	e Ser	ver P	rocess Si	tart/Stop	Expor	t Data		
			All	CPU detail per	second ove	r 30 Se	cond i	nterval	at Friday 3	2004/12/0	3 15:21:0	00		
	CÂN	Busy Time	Irupt Time	Idle Time	Queue Time	Free Pages	Mem Lock	Page Fault	Mem Pressure	Process Created	Process Deleted	Disk I/Os	Cache Hits	Dispatches
	0	18.17%	1.51%	81.83%	0.46	108	165	0.00	0	0.00	0.00	15.16	25.23	268.42
	1	22.21%	1.14%	77.54%	0.64	98	164	1.71	1	0.20	0.10	12.93	15.62	221.55
ľ	<u>◆</u>			-	– Backwar	d For	ward	-	No Filt	Dian	lawad		2 .6	
(Clear	Confi	ig	Rated Value	es R	equest			- no r nu	Disp	ayeu		2 OF	2
•										lot Logg	ed On	? He	lp P	rint Screen

The History / CPU screen presents all CPUs at a given point in time. Once data is displayed, scrolling forward and backward based on interval in time may be performed.

The Config button displays a pop-up window allowing the specific Date/Time and Database to retrieve the data.
His	tory CPU Config Options	X
Specify Date/Time Now 2003/10/24 💌 10:27:41 📚	Specify Database to View 30 Second interval	Request
		Close

History / Process

момі	- Multi-syst	em Online I	Measur	e Inte	rface	e (Cli	ent	versio	n 3.80)			
Black	Wood Systems, Inc.	100 50								\BWS1	Fast - 2002	V Pause	2004/10/28 13:38:03
- Bac	:k	Systems	Over	view	CP	Us	Pro	cesse	s File	s SubS	ystems *His	tory Configure	
Chart *	*CPU Detai	I CPU P	rocess	059	6 CP	U O	SS N	lame	Server	Proces	s Start/Stop	Export Data	
All Process detail per second over 30 Second interval at Thursday 2004/10/28 12:24:00													
Process	CPU,PIN	Busy Time	B IPri	CPri	PF	R	IS	SI P	T Mem	UserID	Login Name	Object	~
\$DDL	00,00392	32.2908%	31	31				G	1.1	100,109	NET.DW	\$SYSTEM.SYSTEM	1.DDL
\$DATA1	01,00267	29.7099%	220	94	Р	R		G	11.8	255,255	SUPER.SUPER	\$SYSTEM.SYS30.	TSYSDP2
\$DATA1	00,00292	3.1829%	B 220	220	Р			0	17.3	255,255	SUPER.SUPER	\$SYSTEM.SYS30.	TSYSDP2
\$DATA1	01,00293	3.0433%	220	188	Р			9	2.5	255,255	SUPER.SUPER	\$SYSTEM.SYS30.	TSYSDP2
\$Z00Y	01,00332	3.0281%	30	30				6	3.6	255,255	SUPER.SUPER	\$SYSTEM.SYS30.	EVNTPRVD
\$Z00S	00,00338	2.2832%	30	30				G	3.7	255,255	SUPER.SUPER	\$SYSTEM.SYS30.	EVNTPRVD
\$DATA1	01,00265	1.6769%	220	188	Р			6	0.8	255,255	SUPER.SUPER	\$SYSTEM.SYS30.	TSYSDP2
\$ZCMOM	00,00330	1.6607%	30	30				G	16.3	255,255	SUPER.SUPER	\$SYSTEM.SYS30.	CIMOM
\$MOMI2	00,00414	1.4007%	160	160				G	3.0	100,109	NET.DW	\$DATA1.DALEMO	MI.BWMOMI
\$ZOSM	00,00329	1.3709%	100	100				G	3.8	255,255	SUPER.SUPER	\$SYSTEM.SYS30.	APPSRVR
\$AUDIT	01,00266	1.3348%	220	220	Р			G	6.2	255,255	SUPER.SUPER	\$SYSTEM.SYS30.	TSYSDP2
\$ZNET	00,00015	1.2957%	175	175	P			G	0.8	255,255	SUPER.SUPER	\$SYSTEM.SYS30.	SCP
	00,00000	1.1111%	201	201	Р	R		G	0.7	255,255	SUPER.SUPER	\$SYSTEM.SYS30.	OSIMAGE
\$SWAP1	00,00288	1.0939%	220	220	P			9	8.7	255,255	SUPER.SUPER	\$SYSTEM.SYS30.	TSYSDP2
	01,00000	1.0362%	201	201	Ρ	R		G	1.0	255,255	SUPER.SUPER	\$SYSTEM.SYS30.	OSIMAGE
\$ZEXP	00,00040	0.8956%	180	180	Ρ			G	0.8	255,1	SUPER.OPER	\$SYSTEM.SYS30.	OZEXP
<													> ~
TOOL				<-	Bac	kwar	4	Forwa	d -	No F	ilter Display	ed 173	of 173
Clear	Conf	ig 🔽	Rated V	alues		R	eque	est 🗖					
•											Not Logged	On ? Help	Print Screen

The History / Process screen presents all processes at a given point in time. Once data is displayed, scrolling forward and backward based on interval in time may be performed.

Histor	y Process Config Options	X
Specify Date/Time	Specify Database to View	
Now 2003/10/24 💌 15:13:48 📚	30 Second interval 💌	Request
If Process Exists		Close

A search feature is available when a process name is desired and the exact time is not known. Click on the Checkbox "If Process Exists". A field to enter a process name is displayed. Type in the name of the process desired and a search will take place from the Date/Time specified forward until the process is found. Once the process is found, all processes for that 'found' Date/Time are displayed.

Hist	ory	y Process Config Options		X
Specify Date/Time		Specify Database to View		
Now 2003/10/24 💌 15:13:48	*	30 Second interval	~	Request
✓ If Process Exists \$fred	~			Close

History / OSS CPU

📟 мом	l - Mult	i-system	Online /	Measure	Interfac	e (Clien	t version	1 3.82)						
Black	Wood	d	50					····· \	BWS1 F	ast - 20	002 🗸 🎇	Pause	2004/12	2/03
<- ва	ack	s	vstems	Overv	iew CF	PUs *P	rocesse	es File	s Subs	Systems	History Co	onfigure	15.29	.40
Chart	CPU D	etail CF	PU Pr	ocess	OSS CPL	JOSSN	lame Se	erver P	rocess	Start/St	op Export D	ata		
		, F	all oss c	PU detai	l per sec	ond over	30 Seco	nd interv	al at Frid	day 2004/	/12/03 15:19:0	10		
CPU	Cache Block Size	Cache Blocks Allowed	FileSys Direct Reads	FileSys Direct RBytes	FileSys Direct Writes	FileSys Direct WBytes	FileSys Cache Reads	FileSys Cache RBytes	FileSys Cache Writes	FileSys Cache WBytes	FileSys Cache VQTime	FileSys Cache VMax	FileSys Cache AOTime	File Ca Af
0	4,096	2,048	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	121	. 121	0.00	
1	4,096	2,048	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	107	107	0.00	
					- P		F		(
Clear		Config		Rated Va	lues	Requ	Jest T		No Fil	iter Di	splayed	2	otj	2
•										Not Log	jged On 🤶 ?	Help	Print Scr	een

The History / OSS CPU screen presents the MEASURE OSS CPU entity for all processors at a given point in time. Once data is displayed, scrolling forward and backward based on interval in time may be performed.

Histor	y OSS CPU Config Options	X
Specify Date/Time	Specify Database to View	Poquest
Now 2003/10/24 💌 15:13:48 😂	30 Second interval 🔹 👻	Request
		Close

History / OSS Name Server

ны мом	l - Multi-sys	tem Online i	Measure Int	erface (C	lient versio	n 3.80)					(
Black	Wood	50				N	BWS1 Fas	t - 2002		Pause	2004	/10/28
<- в	ack	Systems	Overviev	CPUs	Processe	s Files	SubSyst	ems *Hi	istory (° Configur	e 12.12	
*Chart	*CPU Det	ail CPU	Process (DSS CPU	OSS Name	Server	Process	Start/Sto	р Ехро	rt Data		
	All	OSS Name S	Server detai	l per seco	nd over 30 S	econd int	erval at Thu	ursday 200	04/10/28	12:26:30		
Process Name	CPU,Pin	CPU Busy Pct	Name ResReqs Processed	Name ResReqs ReDirect	Name RR ReDirect Processed	INode Cache Avail	INode Cache QTime/Q	INode Cache Lookups	INode Cache Hits	INode Cache Misses	Link Cache Avail	
\$ZPNS	00,00386	4.52	94.50	0.00	0.00	4,096	0.00	538.16	538.16	0.00	4,096.00	
			-	— Backwa	rd Forwar	d -1 - 1	No Filter	Displa	ved	1	of	1
Clear	Cont	fig 🔽	Rated Value	s 🔳	Request			Cippid	,,			
•							N	ot Logged	d On	? Help	Print	Screen

The History / OSS Name Server screen presents the MEASURE OSS Name Server entity for all name servers running on the System. Once data is displayed, scrolling forward and backward based on interval in time may be performed.

Not all Name Servers will have information reported. Name Servers running, but unused, seem to not have MEASURE records reported.

History OSS	3 Name Servers Config Options	X
Specify Date/Time	Specify Database to View	Request
Now 2003/10/24 💙 15:13:48 🗘	30 Second interval	Close

History / Process Start/Stop

10111	мом	- Mu	lti-systen	n Online M	easure Inte	eri	face ((lie	nt	version 3.80)						
E	3/ack	Wo	od	50						\BWS1 Fas	t - 2	002	- (B)	Pause	2004/	10/28
	-	Syste	ms, fnc.												13:4	3:15
-	< - Ba	ick		Systems	Overview		CPUs	F	'ro	cesses Files SubSyste	ems	*Hist	tory Con	figure		
C	hart	*CPL	J Detail	CPU Pr	ocess 09	5 5	CPU	os	S N	ame Server Process St	tart/	Stop	Export D	ata		
	Proces	ses	STARTED				_									
	Date/T	ime		Cpu,Pin	Process	E	Pri	PT	SI	Object		UserID	LoginNa	ime	Ancestor	Hor
	2004/:	10/28	13:11:59	00,00034	\$STUCK		149	G		\$DATA1.DALE.FUP		100,10	9 NET.	DW	\$Z2TG	\$Z
	2004/:	10/28	13:06:50	01,00406	\$Z2V8		90	G		\$DATA1.MOMI4.BWMOMI		100,10	9 NET.	DW	\$MOMI4	\$Z
	2004/:	10/28	13:06:44	00,00035	\$STUCK		149	G	SI	\$DATA1.DALE.FUP		100,10	9 NET.	DW	\$Z2TG	\$Z
	2004/:	10/28	13:05:37	01,00425	\$Z2V7		90	G		\$DATA1.MOMI4.BWMOMI		100,10	9 NET.	DW	\$MOMI4	\$Z
	2004/:	10/28	13:05:34	01,00409	\$Z2V6		90	G		\$DATA1.MOMI4.BWMOMI		100,10	9 NET.	DW	\$MOMI4	\$Z
	2004/:	10/28	13:19:52	00,00405	\$Z2VQ		90	G		\$DATA1.MOMI2010.BWMO	IM	255,1	SUPER	OPER	\$MOM0	\$Z
	<															>
	Proces	ses	STOPPED			_										
	Date/T	ime		Cpu,Pin	Process	B	Pri	PT	SI	Object	Use	rID l	.oginName	Ancesto	or Home	Ter
	2004/:	10/28	13:11:15	00,00035	\$STUCK		149	G	SI	\$DATA1.DALE.FUP	100	,109	NET.DW	\$Z2TG	\$ZS1	.#P
	2004/:	10/28	13:08:05	01,00406	\$Z2V8		90	G		\$DATA1.MOMI4.BWMOMI	100	,109	NET.DW	\$MOM	(4 \$ZHC	ME
	2004/:	10/28	13:06:00	01,00425	\$Z2V7		90	G		\$DATA1.MOMI4.BWMOMI	100	,109	NET.DW	\$MOM	(4 \$ZHC	ME
	2004/:	10/28	13:06:00	01,00409	\$Z2V6		90	G		\$DATA1.MOMI4.BWMOMI	100	,109	NET.DW	\$MOM	(4 \$ZHC	ME
	2004/:	10/28	13:05:20	01,00389	\$Z2V4		90	G		\$DATA1.MOMI4.BWMOMI	100	,109	NET.DW	\$MOM	(4 \$ZHC	ME
	2004/:	10/28	13:05:20	01,00399	\$Z2V5		90	G		\$DATA1.MOMI4.BWMOMI	100	,109	NET.DW	\$MOM	4 \$ZHC	ME
						_										
Γ	First=	= 2004	4/10/28 1	3:13:26		- E	Backwa	ard		Forward →) 		Last= 2	004/10/	28 13:11	:59
C	Clear		Config					Re	que	st 🗆						
0						-				No	ot Lo	gged (Dn ? (Help	Print 9	ocreen

The History / Process Start/Stop screen presents processes started and stopped from a given point in time. Once data is displayed, scrolling forward and backward based on interval in time may be performed.

The screen is similar to the <u>Processes / Last Start/Stop</u> screen except that the underlying information is derived from the MOMI history file. Searching for start/stop records through MOMI history may take some time.

History Process Start/Stop Config Options	X
Specify Date/Time Specify Database to View	Request
Now 2003/10/24 15:28:51 30 Second Interval	Close

History / Export Data

MOMI - Multi-system Online Measure Interface (Client version 4.19)	
Black Wood	\BWS1-2004 V Pause 2006/11/09 15:22:14
-Back - Systems Overview CPUs Processes Files	SubSystems History Alarms Configure
Chart 1 Chart 2 CPU Detail CPU Process OSS CPU OSS Name	e Server Process Start/Stop Export Data
1st select date and times and output format Specify Start Date/Time Now 2006/11/09 ▼ 15:03:04 ♀ Specify Stop Date/Time Specify Stop Date/Time	Select Limited Days and Times (optional) Only these days ✓ All Days ✓ Sun ♥ Mon ♥ Tue ♥ Wed ♥ Thu ♥ Fri ♥ Sat
Now 2006/11/09 15:03:04 Image: Contract of the second	Only these Times
2nd select database Specify Database to View 30 Second interval	Only from 00:00:00 🗢 Until 00:00:00 📚
3rd select type of data to export	Select PROCESS Items to Export
○ CPU ○ TMF Limit Record ⊙ Process ○ OSS CPU ✓ Items to be Exported ○ System ○ OSS Name Server Exported	 ✓ System(non-rated) ✓ Date ✓ Time ✓ LCT/GMT
4th select filtering criteria ✓ Rated Values ✓ All CPUs Process Name All Processes	CPU Pin Process ✓
Clear Export Data	Create Export Script
•	Not Logged On Hints On ? Help Print Screen

The History / Export Data screen allows the creation of raw history of either delimited separated fields or HTML. The delimiter character, TAB by default, may be changed on <u>Settings / System Wide</u>.

The export function provides a means to obtain raw MOMI data so that the User may generate desired reports or otherwise format data to meet their requirements.

The column order of data exported is fixed, however the columns exported are selectable. New information provided with an entity is placed on the end of the export line.

History export may move a great deal of data. It is suggested that a 100 megabit or faster Ethernet network connection be used. The older 10 megabit half duplex Ethernet controller becomes a limiting factor to data transfer.

Start and Stop Date and Time are selected. The checkbox to "Limit Days and Times..." provides a means to report only certain days of the weeks and certain times of the day. By default, time stamps in the output records are in LCT (Local Civil Time). The checkbox "Report records in GMT Time" causes the time stamps to output in GMT (Greenwich Mean Time). This is particularly helpful when dealing with multiple systems in different time zones.

Database and type of data can be selected. Based on the type of data, different limiting criteria will display (CPU selection and/or process name).

An Export Script may be created providing a means to generate export based on predefined settings. Using an external means to start the PC MOMI Client (such as a scheduler), MOMI history export may be automatically generated to a predetermined location. A spreadsheet or database may then utilize the exported data.

🕮 MOMI - Multi-system Online Me	asure Interface (Client version 4.19)
Black Wood	► ► ► ► ► ► ► ► ► ► ► ► ► ► ► ► ► ► ►
- Back - Systems (Overview CPUs Processes Files SubSystems History Alarms Configure
Chart 1 Chart 2 CPU Detail C	CPU Process OSS CPU OSS Name Server Process Start/Stop Export Data
Current Script names	Export Script Creation Clear X Delete Selected Script
Script Definition System to Export \BW\$1-2004	Set by Current Monitored System
Export Date O Today O This V O Yesterday O Last V	Week O This Month Week O Last Month Stop Time 23:59:59 System(non-rated)
Settings Rated Values GM [®] Tab-Delimited OHTM	T Times 30 Second interval
Export Data Type CPU OTMF Process OSS CPL System OSS Nam	J Limit Record All CPUs Stroker
Export File Name (including	Directory)
C:\Documents and Settings	s\dwood\Desktop\ExportFileName.txt
Name of Script to save	TempScript Save Script Close
0	Not Logged On Hints On ? Help Print Scree

The Export Script Creation dialog generally follows the same fields except providing relative export dates such as Today, Yesterday and Last Week.

The Export Script is given a name and is saved in the MOMI.INI file. See below the Related Topics for more information on how to launch the MOMI PC Client specifying a script.

Alarms

Alarms / Active

BWS1-2004 MOMI (Client version 5.05)	
	BWS1-2004 ✓ Pause 2008/07/08 12:50:15
Back Systems Overview CF	PUs Processes Files SubSystems History Alarms Configure
Active Define List	
😴 Started Alarm Name	Alarm Info
11:04:31 DISKFILE - TIMESTAMP OVER/UNDER	[+] DiskFile \$DATA1.ANDY2.FRED Timestamp age at 5 22:12:51 (over threshold
11:04:31 DISKFILE - OSS	DiskFile /home/dale/zzsa1234 is present
11:04:31 DISKFILE - OPEN / CLOSED	DiskFile \$SYSTEM.FRED.* was not found
11:03:36 PROCESS - NOT RUNNNG - \$B1->\$F1	Process \$F1 is not running
11:03:36 PROCESS - NOT RUNNNG - \$B1->\$F1	Process \$E1 is not running
11:03:36 PROCESS - NOT RUNNNG - \$B1->\$F1	Process \$D1 is not running
11:03:36 PROCESS - NOT RUNNNG - \$B1->\$F1	Process \$C1 is not running
11:03:36 PROCESS - NOT RUNNNG - \$B1 \$C1	Process \$C1 is not running
11:03:36 PROCESS - NOT RUNNNG - \$B1->\$F1	Process \$B1 is not running
11:03:36 PROCESS - NOT RUNNNG - \$B1 \$C1	Process \$B1 is not running
12:50:06 SPOOLER - COLLECTOR FULL	Spooler \$S Collector - Percent full at 9% (over threshold of 1%)
11:04:32 TMF - TAPE MOUNT	[+] TMF Tape mount: DAT019
11:03:43 EXPAND - LINE DOWN	Expand \$EP2BWS2 is DOWN
12:40:00 CPU - TOO MANY CPU CYCLES	CPU 1 Busy percent at 4% (under threshold of 80%)
12:40:00 CPU - TOO MANY CPU CYCLES	CPU 0 Busy percent at 5% (under threshold of 80%)
	<u>></u>
Active (15) All (15) Only (0)	TempOff/Hidden (0) 🛞 🍂 🗱 Legend Actions Displayed 15
•	Chat Not Logged On Hints On ? Help Print Screen

The Alarms / Active screen presents a list of alarms currently triggered or have met the required threshold criteria.

Alarms are initially defined on the <u>Define / Alarm</u> screen. If the defined threshold is reached, and an onscreen action is requested, the alarm appears on this screen.

The buttons **Active**, **All**, **Only** and **TempOff/Hidden** control the information displayed in the main portion of the screen. The **Active** button displays only alarms that are triggered or have met their criteria. The **All** button displays every active alarm. The **Only** button displays a particular selected type of alarm after right-clicking over the button and choosing an alarm type.

These image buttons control sounds associated with alarms. In order from left to right, they stop current sounds, replay last sound and replay all sounds.

The **Legend** button displays a description of the colors used on screen. The primary alarm colors used are normal, yellow, red and purple (or really red) in order of least to greatest concern. Purple alarms are reserved for internal MOMI use to alert the user that an alarm configuration error was detected.

Alarm Color Legend 🛛 🗙
Configuration Problem-Active
Configuration Problem-InActive (Turned Off)
Alarm-Active
Alarm-InActive (Turned Off)
Warning-Active
Warning-InActive (Turned Off)
Informational-Active
Informational-InActive (Turned Off)
Hidden Alarm - Not sent to Active Screen
Close

Right-clicking over the Alarm Info provides a jump, if one is available, to a MOMI screen that applies to the Alarm. In the image below, jump for a Spooler Collector percent full is to the screen Subsystems / Spool / Collector.

\$C1		Process \$B1 is not running							
		Spooler \$S Collector - Percent full at 9% (over threshold	of 1'						
	[4 SPOOLER - COLLECTOR FULL Alarm Info - Copy to Clipboard								
	\$5 - Display Spooler Collector								
		Cancel							
		ci o o basy percent at 7 /o (anaci an esnola or oo /o)							

Right-clicking over the Alarm Name to display a list of options.

I HOL KOMMING TOT 1	~~ 1	ribeess por is not rolling						
- COLLECTOR FULL		Spooler \$S Collector - Percent full at 9% (over threshold of 1%)						
E MOUNT	SP	DOLER - COLLECTOR FULL						
LINE DOWN	Di	splay Alarm Detail	N					
O MANY CPU CYCLES	Dis	play Alarm Definition	(under threshold of 80%) (under threshold of 80%)					
O MANY CPU CYCLES	Re	play this Alarm Sound						
	Temporary Turn OFF/ON Alarm Show this Alarms History							
	Ca	ncel						

Jumping to the <u>Alarm Definition</u> screen allows the user to quickly access the threshold for an alarm.

Jumping to **Show this Alarms History** (i.e. LogFile) screen displays creates a temporary filter on this screen to show only the items associated with the selected alarm. LogFile records are only generated if the action is configured to do so.

Temporary Turn OFF/ON Alarm allows a secured user the ability remove an active alarm from the screen. This feature provides an ability to remove an alarm when it cannot be resolved for a period of time.

Tempor	arily Turn OFF/ON Alarm							
Alarm	SPOOLER - COLLECTOR FULL							
Set how	• long Alarm will be turned OFF • Turn Alarm OFF for 1 + hours • Specify Alarm RESUME date/time							
	○ Now 2008/07/08 ▼ 13:51:57							
Turning	Turning off this Alarm affects: This Alarm instance only All instances based on this Alarm 							
Notes								
Temporarily turn OFF Alarm Close								

By default the screen display only active alarms. Temporarily turned off alarms or otherwise hidden alarms may also be displayed along with all alarms. The screen below displays Temporarily turned off alarms.



Pressing the **Actions** button allows a secured user the ability suspend or resume all alarm processing. Any active alarm is removed if processing is suspended. This feature is used, for example, to prevent alarm processing during a maintenance window. This function may be used in conjunction with the CONFMOMI keyword <u>ALARM-SUSPEND-DELAY</u> that suspends alarm processing at the startup of MOMI.



Define

Define / Alarm

🛄 \BWS1-2004 MO	MI (Client version 5.24)
Black Wood	me. ↓BWS1-2004 ▼ Pause 2012/01/23 16:01:53
< s	ystems Overview CPUs Processes Files SubSystems History Alarms Configure
Active Define	List
Alarm Action	Times Email Email Group Export Import
Disable this	Narm Define Alarm Entity Last Update
Alarm Name	PROCESS - NOT RUNNING - \$FRED -
Description	critical process not running
Entity Type CPU Device DiskFile EMS Expand NetBatch Process Spooler System Tape TCP/IP	Entity Sub Type CPU Bound Debug/Inspect I/O Stuck in %004 (seconds) Looping Memory used (megabytes) Messages received (per second) Messages sent (per second) Running too long (CPU cycles) Running too long (CPU cycles) State running/stopped Suspended
Times <always></always>	▼ View Action <screen-red> ▼ View</screen-red>
Entity Name	<u>\$</u> `
Use as Temp	ate Display Save New Change Delete
Clear Screen	
•	Chat Not Logged On Hints On ? Help Print Screen

The Define / Alarm screen allows the creation and maintenance of alarms and the trigger threshold(s).

The field **Disable this Alarm** provides the ability to turn-off or prevent the processing of the record without deleting it.

The field **Alarm Name** is used to give the alarm a unique identification. This name appears on the <u>Active</u> Alarm screen and should provide a general idea of what the alarm represents. Existing alarms are selected in the drop-down box.

The **Alarm Name** field may contain the characters [] to enclose text that will not display on the <u>Active</u> Alarm screen. This may be used to cause the Alarm Name to appear more generic if needed. Examples:

Alarm Name	What displays	on Active Alarm
PROCESS - NOT RUNNING \$FRED	PROCESS - NOT	RUNNING \$FRED
PROCESS - NOT RUNNING [\$FRED]	PROCESS - NOT	RUNNING

The **Description** field provides free form text to explain the nature of the definition.

The **Entity Type** column provides a list of general categories available. A selection is this column determines the contents of the **Entity Sub Type** column.

The **Entity Sub Type** column is a list of the alarm-able items under an Entity. A selection in this column determines the contents of events just to the right. Events are specific to each Sub Type. Place the mouse over events for additional information.

Sound										
 No Sound Speak Alarm Default Sound for this Alarm User Specified Alarm Sound 										
 O User Specified Alarm Sound O Speak User Specified Text 	Sound Disabled									

Sounds may be associated with an active Alarm. The available options are 1) speak the alarm, 2) a default or pre-selected message, 3) a user specified sound or 4) speak a user specified text string.

The <u>Times</u> drop-down box selects the monitor times for the alarm. By default, if no selection is made, monitoring is continuous.

The **Action** drop-down box selects what should occur in the event an alarm occurs. By default, if no selection is made, the Alarm appears on the Active screen in red.

The Entity Name field is used to enter CPU numbers, file and process names.

Creating an Alarm or a Change (i.e. update) of an existing alarm causes all current Alarms (if any) to clear.

Detailed Information

Alarm attributes

Delay Alarm

The **Delay Alarm** attribute determines if an alarm is displayed immediately or delayed by a period of time with a certain condition.

Delay Alarm	
Do NOT Delay Alarm	•

Do NOT Delay Alarm

Alarm is triggered immediately.

Delay Alarm	
Delay for Consecutive Alarms over Time period	-
Delay Interval (seconds)	60 🌲

Delay for Consecutive Alarms over Time period

When the alarm criteria is reached, it must continue in that state for the Delay Interval before MOMI will trigger the alarm. Any drop outside the criteria resets the alarm computation or clears an existing alarm (if the thresholds were previously met).

Delay Alarm	
Delay for Alarm Averaged over Time period	•
Delay Interval (seconds)	60 🌲

Delay for Alarm Averaged over Time period

When the alarm criteria is reached, it must average in that state for the Delay Interval before MOMI will trigger the alarm. Any drop outside the "averaged" criteria resets the alarm computation or clears an existing alarm.

EMS - User Defined

(updated for server version 5.24 or later)

HOHI \E	3WS1-2	2004 MON	/II (Client	version 5	.24)											- • ×
Bl	ack	Wood	inc. 100			5%				\BV	VS1-2	2004	•	[<mark>9</mark>	Pause	2012/01/2 15:21:14
\leq		- S)	/stems	Overvi	ew CP	Us P	rocesses	File	s Su	bSyste	ems Hi	story	Aları	ns	Configur	e
Ac	tive	Define	List													
A	arm	Action	Times	Email	Email G	roup	Export	Impo	rt							
	Disab	le this A	larm				Define	e Ala	rm E	Entity	1	La	ast Upo	late [
,	Alarm	Name	EMS -	TEST					•							
1	Descrip	ption	found	a specif	fic mess	age										
	Entity CPU	Туре	Entity S User de	ub Type efined		_		?	Sett	ings 1	EMS S	et EM	S Clea	ar S	Sound	
	Device DiskFi	e le							*Ir	clude	if ANY	<*5	SSID>	tande	em.pathwa	ву 🔺
	EMS Expan	d =								nclude	if ALL					
	NetBa Proces	tch							E	xclude	if ANY					-
	Spoole	er							E	xclude	if ALL	•				Þ
	Tape TCP/I	P Ŧ							Limi	t by be	619	Actio	n/Emp	hasis		-
	Times								Actio	n						
	<alw< td=""><td>VAYS></td><td></td><th></th><th></th><th></th><td>• V</td><td>iew</td><td><\$C</td><td>REEN-F</td><td>RED></td><td></td><td></td><td></td><td></td><td>▼ View</td></alw<>	VAYS>					• V	iew	<\$C	REEN-F	RED>					▼ View
	Entity	Name	\$0												\$ ~	
							Display	Sa	ave No	w	Change	2	(Dele	ete	
	Clear	Screen														
•									Chat	Not	Logged	On [Hints	On	? Help	Print Screen

The alarm EMS / User defined provides a method to generate an alarm based on the content of an EMS message. The EMS message may be located in \$0 or in another EMS collector that MOMI can access.

The alarm is triggered, and potentially cleared, by defining a series of logical conditions. The criteria for the logical conditions are entered into the text area next to the selections of "Include if ANY", "Include if ALL", "Exclude if ANY" and "Exclude if ALL". Each selection has its own text area where zero or more lines of text are entered. A line of text is evaluated in its entirety. For example, "Fred Smith" is considered as one single entry whereas one line of "Fred" and a second line of "Smith" means that these words may appear anywhere within the EMS message (i.e. don't have to be together). The text comparison is not case sensitive.

If criteria for "include" is successful, while considering "excludes", then the alarm is triggered, or potentially cleared. Here is the general order of how entered text (i.e. criteria) is evaluated:

- Exclude if ANY means that if any single line of text matches, no alarm is generated.
- Exclude if ALL means that if ALL lines of text matches, no alarm is generated.
- Include if ANY means that if any single line of text matches, the alarm is generated.
- Include if ALL means that if all lines of text matches, the alarm is generated.

Note that Excludes are evaluated first. Any 'match' of excludes means that no alarm is generated. Once Excludes are evaluated, then Includes are examined. It is necessary to successfully match an Include in order to generate an alarm.

The **EMS Set** tab fields are used to determine if an alarm is generated. The **EMS Clear** fields, which are optional, are used to determine if an alarm triggered by EMS Set should be automatically cleared.

EMS Set/Clear data type limit X			
Any type			
SSID only			
Event Nbr only			
Process Name only			
Event Text only			
Limit will be added to item currently selected in the EMS Set/Clear			

Data entered within **EMS Set** and **EMS Clear** by default is matched with virtually the entire ASCII text of the EMS message. To limit the search, push the Limit By type button and select the portion of the message to search. A 'tag' is displayed in the text line indicating the portion of the message to search.

EMS messages with an SSID of BWS, which is the SSID used by MOMI, are ignored. This prevents a potential "looping" situation where an Alarm triggered by an EMS message, causes an EMS message that triggers an alarm, that causes an EMS message that triggers an alarm, and so on...

Define / Action

📟 MOMI - Multi-system C	Inline Measure Interface (Client version 4.01)				
Black Wood 50	\BWS1-2004 v Pause 2005/09/30 15:10:23				
- Back Sy	stems Overview CPUs Processes Files SubSystems History Alarms Configure				
Active Define List					
Alarm Action Times	Email Email Group Export Import				
Disable this Action	Define Alarm Action Last Update 2005/08/29 14:40:50				
Action Name SCRE	EN RED - LOG				
Description send t	co screen in red and to MOMI log, EMS and EMAIL				
Description send to screen in red and to MOMI log, EMS and EMAIL Alarm Action to perform Send to Screen Send to LOG Red Alarm Send to LOG Send to EMS Normal Message Send to EMAIL DALE WOOD View Send EMAIL when Alarm is Cleared					
Clear Screen 🗖	Display Save New Change Delete				
•	net.dw ? Help Print Screen				

The Define / Action screen allows the creation and maintenance of what happens when an alarm is triggered.

An Action is a set of notifications that occur when the alarm is triggered. The notification consists of any or all of the following:

- display on the Active Alarm screen
- generate an event to the MOMI LogFile
- generate an EMS message
- generate an Email

The field **Disable this Action** provides the ability to prevent the processing of the record without deleting it. However, a disabled Action still results in the default of Send to Screen as red.

A color is associated with Send to Screen and Send to LOG. Red is considered the most severe and Screen the least. An incrementing alarm starts with on screen, changes to yellow and finally to red based on the Escalation Interval.

Alarm Action to perfor		
Send to Screen	· · · · · · · · · · · · · · · · · · ·	Severity Escalation
Send to LOG	Incrementing Alarm	Interval in minutes
_	Screen Alarm	
Send to EMS	Yellow Alarm	
	Red Alarm	
Send to EMAIL	Incrementing Alarm	
Send to EMAIL		

The MOMI LOG is an event file maintained by MOMI. It is accessed on the screen LogFile. Send Changes indicates that any change in the Alarm messages is logged. By default, only the first and last (or clear) are logged.

-Alarm Action to perfor	m			
Send to Screen			Severity Escalation	
Send to LOG	Incrementing Alarm	Send Changes	Interval in minutes	60 🤤
	Screen Alarm			
Send to EMS	Yellow Alarm			
Condite EMATI	Incrementing Alarm			
Send to EMAIL	The offering Highlin			

An EMS message has the attributes of Action, Emphasis and Normal. EMS messages are access on the screen <u>EMS Msgs</u>. Send Changes indicates that any change in the Alarm messages is logged. By default, only the first and last (or clear) are logged.

Alarm Action to perfor Send to Screen Send to LOG	m	
Send to EMS	Action Message 🔽	Send Changes
Send to EMAIL	Normal Message Emphasis Message Action Message	

Email may be sent to either an individual address or a group. By default, only the first Alarm message is sent. The option "Send EMAIL when Alarm is Cleared" cause the Alarm clear to also be sent.

Alarm Action to perfor Send to Screen Send to LOG Send to EMS	m	
Send to EMAIL	<none> *GRP-EVERYBODY <none> DALE WOOD STEVE BLACK</none></none>	View Send EMAIL when Alarm is Cleared

Define / Times

📟 MOMI - Multi-s	system Online Measure Interface (Client version 4.01)					
Black Wood	Image: Signature Image: Signature Image: Bws1-2004 Image: Signature Image: Signature<					
- Back	Systems Overview CPUs Processes Files SubSystems History Alarms Configure					
Active Define	List					
Alarm Action	Times Email Email Group Export Import					
Disable this N	Monitor Time Define Alarm Monitor Times Last Update 2005/09/01 11:51:05					
Times Name	PRODUCTION HOURS					
Description	8 to 5 monday through friday Left-click - select time Right-click - clear time					
Sel/Clear All	0 ½ 1 ½ 2 ½ 3 ½ 4 ½ 5 ½ 6 ½ 7 ½ 8 ½ 9 ½ 0 ½ 1 ½ 1<					
Monday						
Tuesday						
Wednesday						
Thursday						
Friday						
Saturday						
Sunday						
Clear All Times Select All Times Display Save New Change Delete						
Clear Screen						
•	Det du 2 Halp Dript Screen					
•	iec.uw : neip (Print screen					

The Define / Times screen allows the creation and maintenance records used to determine periods of time.

Records defined here do not in-and-of themselves perform any action. But rather are referenced in other definitions, such as in Alarm and Email.

The field **Disable this Monitor Time** provides the ability to prevent the processing of the record without deleting it. However, a disabled Monitor Time still results in the default of monitored all the time.

A Monitor Times record provides 1/2 hour increments Monday through Sunday.

Place the mouse over a desired time period an press the left mouse button. Holding the button down and moving the mouse allows setting of multiple cells. Using the right mouse button clears cells. All cells may be set or cleared by clicking on the Clear All Times or Select All Times buttons.

🗣 \BWS1-2004 MOMI (Client version 5.05)
Alarms
Active Define List
Alarm Action Times Email Email Group Export Import
Disable this Email Location Define Alarm Email Location Last Update 2008/06/25 14:45:11
Email Name ALARM-DALE1
Description dale's test alarm
Email Address alarm-dale1@blackwood-systems.com
Monitor Times Name <always> View View</always>
Test Display Save New Change Delete
Chat Not Logged On Hints On ? Help Print Screen

Define / Email

The Define / Email screen allows the creation and maintenance of Email records.

Records defined here do not in-and-of themselves perform any action. But rather are referenced in other definitions.

The field **Disable this Email Location** when checked prevents sending of an email to the precipitant.

The field **Send Extra Detail** causes the inclusion of additional information, if available, within the email for this particular entry.

The field Monitor Times Name may be specified to place a time limitation on emails.

The Test button generates a test email. This helps insure that the information entered is correct and that MOMI is configured properly.

In order to generate email, it is necessary to define several keywords in the CONFMOMI file. See <u>Alarm</u> <u>Overview</u> for more information.

Define / Email Group

M	OMI - Mu	lti-system Onli	ne Measure Interf	ace (Client version	4.18)			
B/a	ck Wo	od 50 50 0	<u>.</u>		\BWS1-	2004 🗸	Pause	2006/10/03 17:28:42
<	Back	Syste	ms Overview	CPUs Processes	Files SubSyste	ms History	Alarms Cont	figure
Acti	ive Defi	ine List						
Ala	rm Act	ion Times E	mail Email Grou	P Export Impor	E)			
D	isable ti	his Email Grou	p [Define Alarm E	Email Group	Last Upo	late 2006/10/	03 14:50:06
G	iroup Nam	ne *GRP-E	VERYBODY		·			
D	escription	the whole	e gang					
U	Jser Emai	Is included in thi	is Group					
				✓	View Add User	to Group		
6	Disabled	Email Name	Description	Email Address		Monitor Times		
Ĩ	Disabled	ALARM-DALE3	dale's test alarm	alarm-dale3@black	wood-systems.com	-		
		ALARM-DALE1	dale's test alarm	alarm-dale1@black	wood-systems.com	-	_	
U								
			Test	Display Sav	ve New Chan	ge	Delete	
	lear Scr	een _						
	Jiedi Sci							
0					net.dw	Hints	On ? Help	Print Screen

The Define / Email Group screen allows the creation and maintenance of Email group records. A group record is a reference to one name that represents one or more previously created <u>Email</u> definitions.

Records defined here do not in-and-of themselves perform any action. But rather are referenced in other definitions.

The field **Disable this Email Group** provides the ability to prevent the processing of the record without deleting it.

In order to use email, it is necessary to set several keywords in the CONFMOMI file. See the <u>Alarm Over-view</u> page for more information.

The Test button generates a test email using the settings defined for Alarm Email.

Define / Export

🎟 MOMI - Multi-system Online Measure Ir	nterface (Client version 4.18)
Black Wood	► ► ► ► ► ► ► ► ► ► ► ► ► ► ► ► ► ► ►
	w CPUs Processes Files SubSystems History Alarms Configure
Active Define List	
Alarm Action Times Email Email	Group Export Import
ALARMS	
CDU PROCESS LOOPING	- process looping and o/s is reducing cpu priority
CPU-DHYSTCAL-MEMORY-LOCKED	
DEVICE - ENVOY	_
DEVICE - TEST X.25	
DISKFILE - EXTENTS	- testing with extents and audited file
DISKFILE - FILE FULL TEST	- testing fill full with exceptions
DISKFILE - NOT VERY FULL	- file with not much data
DISKFILE - OPEN / CLOSED	- check open/closed state
DISKFILE - PERCENT FULL	- testing with extents and audited file
DUST	- some description
EMS - USER DEFINED - STORAGE	- DP2 message logged
EMS EXPAND	
EMS WAKE MESSAGE INDICATOR	- alarm based on an ems message?
EVENUE LINE DOWN	- found specific message
EXPAND - LINE DOWN	
	Select ALL Select NONE Export Selected
	Det du Hints Op 2 Help Print Screen
•	nec.uw (nints on) : (help) (Print screen)

The Define / Export screen provides a means to transfer to a text file Alarm and supporting definitions. The screen <u>Import</u> is used to bring the information back into the system, usually in a different MOMI environment.

Check the desired items to export and press Export Selected button. Items selected for Export will automatically contain any dependencies.

A pop-up window displays the result of the export operation.

Define / Import

📟 MOMI - Multi-system Online Measure Ir	nterface (Client version 4.18)	
Black Wood 50	\BWS1-2004 ∨ □ Pause 2000	5/10/03 36:42
- Back Systems Overvie	ew CPUs Processes Files SubSystems History Alarms Configure	•
Active Define List		
Alarm Action Times Email Email	Group Export Import	
Harm Headin Thires Email Emails		
ALARMS		
CPU - CPU BOUND	- CPU - CPU BOUND	
CPU - PROCESS LOOPING	- CPU - PROCESS LOOPING	
CPU-PHYSICAL-MEMORY-LOCKED	- CPU-PHYSICAL-MEMORY-LOCKED	
DEVICE - ENVOY	- DEVICE - ENVUY	
EMATL EVEDYONE	- TWATL FUTDYONF	
TNEO-TEST	- INFO-TEST	
MONITOR TIMES	1410 1401	
24-HOURS	- 24-HOURS	
PRODUCTION HOURS	- PRODUCTION HOURS	
EMAILS		
ALARM-DALE1	- ALARM-DALE1	
DALE PHONE	- DALE PHONE	
EMAIL GROUPS		
CRP-EVERYBODY	- *GRP-EVERYBODY	
Open Import File	Select ALL Select NONE Import Sele	cted
		cica
Clear Screen		
•	net.dw [Hints On] ? [Help] [Print	t Screen

The Define / Import screen provides a means to transfer from a text file Alarm and supporting definitions.

The import operation involves two phases. The first phase is to read and import file and the second is to perform the actual import operation.

Press the button Open Import File and selected the desired text file. The entries are read and displayed. Check the desired items to Import and press Import Selected button to complete the import operation. Lines that are not enabled (i.e. grayed out) already exist and cannot be imported.

A pop-up window displays the result of the import operation.

📟 MOMI - Multi-system Online Measure Interfa	ce (Client version 4.18)
Black Wood Systems, Inc.	\BWS1-2004 ∨ Pause 2006/10/03 17:38:18
	PUs Processes Files SubSystems History Alarms Configure
Active Define List	
Alarm Action Times Email Email Group	Export Import
	, Tubold I
ALARMS	Import Itoms Status
CPU - CPU BOOND - C	ALADM "CDU - CDU ROUND" Imported OK
CPU-PHYSICAL-MEMORY-LOCKED - C	***** Import Finished *****
DEVICE - ENVOY - D	
ACTIONS	
EMAIL_EVERYONE - E	
INFO-TEST - I	
MONITOR TIMES	
24-HOURS - 2	
PRODUCTION HOURS - P	
ALARM-DALRI - A	
DALE PHONE - D	
EMAIL GROUPS	
C * GRP-EVERYBODY - *	
	Close Import Count 1
Open Import File	Select ALL Select NONE Import Selected
Clear Screen	
• J	net.dw Hints On ? Help Print Screen

List

List / Alarm

🗣 MOMI - Multi-system Online Measure Interface (Client version 4.00)										
Ala	Fims	·····	BWS1-2004 🗸	Pause 2005/08/29 16:19:57						
- Bac	k 🕂 Systems Overvio	ew CPUs Processes Files	SubSystems History	y Alarms Configure						
Active Define List										
Alarm Action Times Email Email Course										
			1							
Disabled	Alarm	Alarm Description	Entity Name	Entity Entity Type SubType						
	CPU - NOT VERY BUSY	cpu not working hard enough	*	CPU Busy percent						
	DISKFILE - NOT VERY FULL	file with not much data	\$DATA1.JUNK.MCPAY	DiskFile Percent full						
	EXPAND - LINE DOWN		\$*	Expand Line state up/down						
	EXPAND - PATH DOWN		\$*	Expand Path state up/down						
	PROCESS - DEBUG/INSPECT	process in debug or inspect	\$*	Process Debug/Inspect						
	PROCESS - LOOPING	process completely cpu bound	\$*	Process Looping						
	PROCESS - NOT RUNNING - \$FR	ED process not running	\$fred	Process State running/stopped						
	SPOOLER - COLLECTOR FULL	collector with too much data	\$*	Spooler Collector - Percent ful						
	SPOOLER - COLLECTOR NOT FU	LL collector with too little data	\$s	Spooler Collector - Percent ful						
	TMF - TAPE MOUNT	tape needed	-	TMF Tape mount						
	VOLUME - FULL	volume with too much data	\$*	Volume Percent full						
		VOLUME - FULL - Display Alarm Def	inition							
		VOLUME - FULL - Display Alarm Monitor Tin	nes Definition							
	VOLUME - FULL - Display Alarm Action Definition									
TOOL			No Filter Displayed	11 of 11						
-										
•			net.dw	? Help Print Screen						

The List / Alarm screen displays a tabular summary of currently defined records.

A left-click jumps to the Define screen for an Alarm. Several right-click options are available to jump to the Define / Alarm screen, Monitor Times and Action screens. Also, a record may be disabled (which effectively turns it off but does not delete it).

List / Action

q	🗣 MOMI - Multi-system Online Measure Interface (Client version 4.00)													
Alarms		50			\B	\BWS1-2004 🗸		Pause		2005/09/01 13:18:39				
Ŀ	<- Back	۱ - ۲	- s	ystem	s Overview	CPUs	Processes	Files S	ubSystems	5 History	Alarms	Conf	igure	
٢	Active Define List													
ſ	Alarm	Action	Time	e Em	ail Email Gro	un								
	Marini			S LIII		ab		1	1		[
	Disabled	Action	\sim	-	Action Description			Send To	OnScreen	Increment Interval	Send To	Log	Log Detail	Send FM:
		SCREE	N		send to screen	normal		Screen	Screen	-	-	-	-	-
		SCREE	N RED	- LOG	send to screen	in red a	nd to MOMI lo	Screen	Red	-	Log	Red	F	-
		SCREEN YELLOW send to screep in yellow				Screen	Yellow	-	-	-	-	-		
				SCF	REEN YELLOW - DI	SABLE Act	tion							
								N	o Filter	Displayed		3 of		3
•									Not L	ogged On] ? [He	lp (Print S	creen

The List / Action screen displays a tabular summary of currently defined records.

A left-click jumps to the Define screen for an Action. A right-click is available to disable a record (which effectively turns it off but does not delete it).
List / Times

🕈 мо	- IM	Multi-syste	m Online	Measure Inter	face (Clie	nt version	4.00)				(
A	a	rms	100 50					\BWS1-20	04 🗸		e 2005 13:2	/09/01 20:22
\leftarrow	Back		System	s Overview	CPUs I	Processes	Files	SubSystems	History	Alarms	Configure	
Activ	e D	efine List	t									
Alar	m	ction Tin	nes Em	ail Email Gro	up							
Disa	bled	MonTime Name		MonTime Description		M(Ti	onitor mes	Last Update				
		24-HOURS		round the clo	ick	<t< th=""><th>imes></th><th>2005/08/29 16:18</th><th>3:31</th><th></th><th></th><th></th></t<>	imes>	2005/08/29 16:18	3:31			
		PRODUCTI	ON HOURS	S 8 to 5 monda	y through	friday <t< th=""><th>imes></th><th>2005/09/01 11:51</th><th>L:05</th><th></th><th></th><th></th></t<>	imes>	2005/09/01 11:51	L:05			
				PRODUCTION	HOURS -	Display Tin	ies Defi	nition				
			_	PRODUCTION F	IOURS - DIS	ABLE Time						
TOOL								No Filter D	isplayed [2	2 of	2
0								Not Lo	gged On	? He	p Print	Screen

The List / Times screen displays a tabular summary of currently defined records.

A left-click jumps to the Define screen for an Times. A right-click is available to disable a record (which effectively turns it off but does not delete it).

List / Email

HOH	BWS1-2004 MOMI (Client version 5.16)													
1	Black	vood	Inc. 10	"Li		21%			BWS1-20	04 -	Pau:	se 2009/1	12/31 3:00	
Ŀ	< Bac	k^`	~ S	ystems	Overview	CPUs P	roces	ses Files	SubSystems	History	Alarms	Configure		
Γ	Active [)efine	List											
ſ				F										
	Alarm	Action	Times	s Email	Email Gro	up								
	Disabled	Email		Email	tion		XD	Email			Membe	r of		
		Name		Descrip	tion		_	address			Groups		= =	
			DALE	dale's te	est alarm		XD	alarm-dale(ablackwood-syst	ems com	[+] <g< td=""><th></th><td>-</td></g<>		-	
		ALARM	-DALE1	dale's te	est alarm			alarm-dale:	L@blackwood-sv	stems.com	[-] <gr< td=""><th>oups></th><td>- </td></gr<>	oups>	-	
									- /	*GR	P-EVERYBODY	r		
	Disabled	ALARM	-DALE3	dale's te	est alarm			alarm-dale3	3@blackwood-sys	stems.com	[+] <g< td=""><td colspan="3">[+] <groups></groups></td></g<>	[+] <groups></groups>		
		В						b@b.c			[+] <g< td=""><th>roups></th><td></td></g<>	roups>		
		C						c@b.c			[+] <g< td=""><th>roups></th><td></td></g<>	roups>		
		D						d@b.c		[+] <g< td=""><th>roups></th><td></td></g<>	roups>			
		DALE P	HONE	dale's c	ell phone		XD	602740876	6@messaging.sp	rintpcs.com	n [+] <g< td=""><th>roups></th><td>_</td></g<>	roups>	_	
		E						e@b.c			[+] <g< td=""><th>roups></th><td>_</td></g<>	roups>	_	
		F						f@b.c			[+] <g< td=""><th>roups></th><td>_</td></g<>	roups>	_	
		G						g@b.c			[+] <g< td=""><th>roups></th><td>_</td></g<>	roups>	_	
		н						h@b.c			[+] <g< td=""><th>roups></th><td>_</td></g<>	roups>	_	
		I						i@b.c			[+] <g< td=""><th>roups></th><td>_</td></g<>	roups>	_	
		J						j@b.c			[+] <g< td=""><th>roups></th><td>_</td></g<>	roups>	_	
		к						k@b.c			[+] <g< td=""><th>roups></th><td>_</td></g<>	roups>	_	
		L					l@b.c			[+] <g< td=""><th>roups></th><td>_</td></g<>	roups>	_		
M m@							m@b.c			[+] <g< td=""><th>roups></th><td></td></g<>	roups>			
	< III											•		
	TOOL								No Filter Dis	played	28	of	28	
•	Chat net.dw Hints On ? Help Print Screen													

The List / Email screen displays a tabular summary of addresses defined.

A left-click on the Email Name jumps to the Define screen. Click on the [+] to display groups this email is a member.

A right-click is available to disable a record (which effectively turns it off but does not delete it).

List / Email Group

	\BWS1-2	004 MOMI (Client ver	sion 5.16)					
	Black	Nood		20%)	BWS1-2	2004 -		2009/12/31 15:17:23
	<- Bac	k – Syster	ms Overview	CPUs Processe	s Files SubSystem	ns History	Alarms	Configure
1	Active [Define List						
ſ	Alarm	Action Times Er	nail Email Gro	up				
	Disabled	Group Name *GRP-A	Group Description	Members of Group [+] <users></users>	Last Update 2008/04/01 21:58:59			
		*GRP-EVERYBODY	the whole gang	[-] <users> ALARM-DALE3 ALARM-DALE1</users>	2006/11/29 14:26:15			
			-					
	TOOL				No Filter	Displayed	2	of 2
					Chat Not Logged	On Hints	On ? He	lp Print Screen

The List / Email Group screen displays a tabular summary of currently defined records.

A left-click on the Group Name jumps to the Define screen for an Email Group. Click on the [+] to display members of the group.

A right-click is available to disable a record (which effectively turns it off but does not delete it).

Configure

Diagnostics

MOMI - Multi-system Online Measure Interface (Client version 4.12)							
Black Wood	2006/04/21 14:56:06						
	ifigure						
Diagnostics Server Settings Define Systems Client Access UserHints Tools Reference							
Server							
Password valid serial # W40344 - Upgrades until 2006/06/30 (yyyy/mm/dd)							
None Found							
	~						
	>						
Client							
Client Location: D:\Data\dwood\Momi\							
None Found	~						
	>						
Save Diagnostic and Config Info to File EMail Diagnostic and Config Info to Bla	ickWood						
Not Logged On Hints On ? Help	Print Screen						

The Configure / Diagnostics screen presents the status of the client and server from a diagnostic point of view to help determine the cause of operational issues with the MOMI PC Client and MOMI server.

The top portion of the screen displays the Server status and the lower portion displays the client status. Server status includes the state of the MOMI Server password and general high level server information. Client status includes items such as Speech status or emulator not available. The button labeled "Save Diagnostic and Config Info to File" allows the creation of a text file that contains Server, Client and Client PC configuration and status information. This information is helpful to BlackWood Systems in problem resolution and configuration assistance.

The button labeled "Email Diagnostic and Config Info to BlackWood" to bring launch a <u>utility</u> to directly transmit a message with attachments to BlackWood Systems.

The image below show an example of where the BWMOMI server was started with <u>DISABLE-MEAS-</u> <u>SQLSTMT</u> set to true and the MOMI PC Client was started with the runtime parameters of <u>NOSPEECH</u> and <u>NOCAIL</u>.

📟 MOMI - Mul	ti-systen	n Online M	easure Inter	face (C	lient version 4	.12)						
Black Woo	d ma, mc.	100 50 0		0%			BWS	1-20	04 🗸	Pau:	se 2006 14:	59:52
- Back		Systems	Overview	CPUs	Processes	Files	SubSy	stems	History	Alarms	Configure	
Diagnostics	Server	Settings	Define Sy	stems	Client Access	s Use	rHints	Tools	Referen	ce		
Server												
Password v	alid seria	al # W4034	4 - Upgrades	until 20	06/06/30 (ууу	y/mm/o	ld)					
2006/04/21 14:59:33 - Server started with runtime param of "DISABLE-MEAS-SQLSTMT = TRUE" - Measuring SQL Statement												
Client												
Client Locat	ion: D:\E)ata\dwood	\Momi\									
2006/04/21 14:57:26 - Client started with runtime param of "NoSpeech" - Text-to-speech is disabled 2006/04/21 14:57:26 - Client started with runtime param of "NoCail" - Emulators are disabled												
<												
Save Di	Save Diagnostic and Config Info to File EMail Diagnostic and Config Info to BlackWood											
•						1	lot Log	ged On	Hints	On ? H	elp Print	Screen

Server

Server / Server Info 1

BWS1-2004 MOMI (0	Client version 5.	19)							- C X	
Black Wood		10%			\BWS	1-2004		Pause	2010/12/06 15:34:39	
	tems Overv	iew CPUs	Processes	Files	SubSystem	s History	Alarms	s Configur	e	
Diagnostics Serve	r Settings	Define Syste	ms Client	Access	UserHints	Tools R	eference	Chat		
Server Info 1 Ser	ver Info 2	Server Info 3	Server I	nfo 4 Se	rver Info 5	Trace Lo	g			
Versions / Info Client 5.19	Versions / InfoClientClientServer </td									
Password valid ser	ial # W40344	- Upgrades unt	il 2011/01/1	5 (yyyy/i	mm/dd)					
System System Name	System Name \BWS1 Serial # W40344 OS Version G06.32.00 Measure G12									
Description	Bla	ackWood S720	00	Exp	oand Netwo					
MOMI Process	\$MOMI4	UserID	100,109	Sta	tart Time 2010/12/06			8: <mark>41:36</mark>		
Login Name		NET.DW		Se	curity User		j	NET.DW		
Encryption set	0 None						E	incryption in	n use 🛛 0	
Server Password										
Priorities MOMI Start	160 MOMI	Current	160 C	ollector M	laster	159 E>	pand	157		
	Proce	ss Action	158 E	MS		91 Ba	atch	90		
Alarm EMS	92 Alarm	File	93 Al	arm Data	base	156 Lo	ogging	94		
HST01DB	95 HSTxx	OB read	85 H	STxxDB d	elete	80 HS	STxxDB co	nsolidate	80	
	Update data collected 2010/12/06 14:38:36									
9				Chat	Not Log	ged On	Hints On	? Help	Print Screen	

The Server / Server Info 1 screen presents a variety of version, password status and configuration information from the server perspective.

Place the mouse over the fields to obtain additional information. If the value is configurable, the tool-tip displays the CONFMOMI keyword.

The **Versions / Info** section displays various version information about the client, server and the message structures. The Server Threads fields shows how many TCP/IP connections (i.e. threads) are current, high-water and available between clients and the server. One client generally requires two threads.

The **System** section displays general information about the NonStop System environment and the MOMI password. See the Security sections <u>General considerations</u> and <u>Client Access</u> for additional information on MOMI security.

The **Priorities** section displays the configured for the main MOMI process and the various servers used by MOMI. See <u>Process Priority considerations</u> for additional information on how MOMI uses priorities to manage the workload.

Server / Server Info 2

BWS1-2004 MOMI (Client version	5.17)						x
Black Wood	X 8		\BWS	1-2004 -	Paus	e 2010/ 14:0	04/14 6:48
- Back Systems	Overview CPUs	Processes F	iles SubSy	stems History	Alarms	Configure	
Diagnostics Server Settings	Define Systems	Client Access	UserHints	Tools Referen	ce Chat		
Server Info 1 Server Info 2	Server Info 3 Se	rver Info 4 S	erver Info 5	Trace Log			
Values Set							
Interval 5.00	CPU Limit		non	e SPI I/O Ti	meout	5.0	00
TCP/IP Limit none	CPU Limit Histor	y Consolidation	n	4 CPU Colle NoReport	ctor rt Timeout	15.0	00
TCP/IP Timeout 60.00	CPU Limit Alarm	Detection		5 SQLSTMT	wildcard	space	
OSS API version 2	CPU Limit EMS		e Max Cour Context	Max Count Context Allowed			
Values Returned				YMEM Do	ol Sizes		
Last SubType 30 Error	0 for count of	0	16,486	5,176 50,0	00,072	2,39	91
		1	In Use	e Maxin	num	Blocks	
Flags						-	
History Active T Disable L	ogons F	Client Acce	Т	D47 or later	T G06.1	2 or later	Т
Alarms Active T Disable S	QL Statement F	Collect All F	Process F	D48 or later	T G06.2	6 or later	F
Disable S	QL Process F	Disable TM	F Report F	-	H06.0	4 or later	F
Disable O	SS CPU	Disable Lis	tLocks F	-	H06.0	9 or later	F
Super.Super F Disable O	SS NameServer				H06.1	4 or later	F
Super.Group F Disable M	leasCounter Wrt			Debug	1/4 F	FT	т
		pdate 🗆 🗆 data	a collected 20	010/04/14 14:0	6:21		
•		Cha	at Not Log	ged On Hints	On ? He	Print S	Screen

The Server / Server Info 2 screen presents and continues a variety of configuration information from the server perspective.

Place the mouse over the fields to obtain additional information. If the value is configurable, the tool-tip displays the CONFMOMI keyword.

The **Values Set** section displays the Interval in which MOMI gathers basic System information, various timeout parameters and limits for CPU consumption.

The Values Returned section displays internal errors and values reported by MOMI and/or MOMI servers.

The **Flags** section displays settings of flags used to alter the operation of MOMI. Some flags are for internal development and diagnostic purposes.

Server / Server Info 3

BWS1-2004 MOMI (Client ve	ersion 5.	19)						_ 0 X
Black Wood		24		\BWS:	1-2004	• [ª	Pause	2010/12/06 14:47:39
- *Systems	0verv	iew CPUs F	Processes Files	SubSystem	s History	Alarms	Configur	e
Diagnostics Server Set	tings	Define System	ns Client Access	UserHints	Tools Re	ference	Chat	
Server Info 1 Server In	fo 2	Server Info 3	Server Info 4 Se	erver Info 5	Trace Log	9		
Expand			Measure		_			
Expand I/O Delay		0.50	Starting Interval		15			
Expand Update Interva	I	60.00	Increment Interv	val	10			
Expand Update Interva	Error	30.00	Maximum Interva	al	30			
Alarm								
SMTP TCP/IP Name	\$zsan	n1						
SMTP Server Address	192.1	68.20.82						
SMTP Bind Address	192.1	68.20.11						
Domain Name	black	wood-systems.c	om					
EMail Address From	alarm	@blackwood-sy	stems.com					
EMail Subject	MOMI	Alarm						
Alarms Maximum per De	efinitio	n <u>500</u>	SMTP Server Tim	eout	30.00			
Alarm EMS Event Numb	er	200	Alarm Breakpoin	ts Maximum	2			
			Update 🖂 data	collected 20	010/12/06	14:38:3	6	
•			Chat	Not Logo	ged On	Hints On	? Help	Print Screen

The Server / Server Info 3 screen presents and continues a variety of configuration information from the server perspective.

Place the mouse over the fields to obtain additional information. If the value is configurable, the tool-tip displays the CONFMOMI keyword.

The **Expand** section display timer values associated with MOMI collecting Expand information.

The **Measure** section displays timer values associated with the collection of MEASURE information for screens such as <u>Files / Disk Entity</u>.

The **Alarm** section displays information associated with resources available an configuration associate with Alarms for MOMI. See <u>Alarm Overview</u> for additional information.

<u>SMTP TCP/IP Name</u> is the process used by MOMI for conversing with the SMTP server. This TCP/IP process definition is separate from the normal TCP/IP processes used by the MOMI server for listening for inbound connections from the MOMI PC Client. Defines the TCP/IP process name that the MOMI uses to access the SMTP server which MOMI uses to send EMAIL. SMTP is outbound email.

<u>SMTP Server Address</u> defines the name or IP address of the SMTP server which MOMI uses to send EMAIL. This is the server MOMI uses to send outbound email. Note that the NonStop System must have the resolver active if a DNS-Name is used.

<u>Domain Name</u> defines the users domain name which MOMI uses in alarm email. Specifying this keyword activates in the SMTP (i.e. outbound email) protocol the HELO protocol. Some outbound email servers may require the usage of this parameter in conjunction with SPAM detection.

<u>EMail Address From</u> defines the return email address which MOMI used in alarm email. This email address should be valid monitored address so that problems in sending email or replies from users receiving email are seen.

Email Subject has three possibilities:

1. If the CONFMOMI keyword is not present, the subject reads: MOMI Alarm

2. Use the CONFMOMI keyword and specify the desired subject line

3. Use the CONFMOMI keyword but and specify an empty double quote (i.e. ""). This causes the first line of the alarm message to appear as the subject (in other words the "fixed subject" is eliminated).

<u>ALARMS-MAXIMUM-PER-DEFINITION</u> defines the maximum number of alarms that may be generated from a single alarm definition.

<u>ALARM-EMS-EVENT-NBR</u> defines the message number used for the EMS events generated for alarm purposes.

<u>ALARM-SMTP-SERVER-TIMEOUT</u> determines the maximum amount of time to wait for I/O operations to the external SMTP server.

<u>ALARM-BREAKPOINTS-MAXIMUM</u> determines how many CPU breakpoints, a resource for debugging / Inspect purposes, are available with the NonStop processors. Older systems had a fixed limit. This value is used in conjunction with the MOMI alarm CPU / Breakpoints.

Server / Server Info 4

BWS1-2004 MOMI (Client vers	ion 5.19)							
Black Wood			× \B\	NS1-	-2004 -	use 201	10/12/06	
*Systems 0	vervie	N CP	Us Processes Files SubSys	tems	History Alarms Co	nfigure		
Diagnostics Server Setti	ngs De	efine S	Systems Client Access UserHi	nts To	ools Reference Cha	t		
Server Info 1 Server Info	2 Se	rver Ir	nfo 3 Server Info 4 Server Inf	fo 5 T	race Log			
TCP/IP			Spooler / SpoolerPlus		-			
TCP/IP Process Name	Port		Spooler	?	SpoolerPlus		?	
\$ZSAM1	2004	Ξ	\$SYSTEM.SYSTEM.SPOOL	TE	\$DATA1.SPLPLUS.	SPOOL	TE	
\$ZTC0	2004	_	\$DATA2.SYSTEM.SPOOL	F	\$DATA2.SPLPLUS.	SPOOL	F	
\$ZTCP0	2004	-	\$DATA3.SYSTEM.SPOOL	F	\$DATA3.SPLPLUS.	SPOOL	F	
				F Ŧ	* \$DATA4.SPLPLUS.SPOOL F *			
		_	I/O Delay	0.50				
			Update Interval 6	0.00	Update Interval Err	ors 30	0.00	
< III	Þ		SNTP (Simple Network Time P	rotoco	I)			
I/O Stuck Checking			Allow Adjustments T S	Startup	Check T SNT	P Verbose	Т	
Exclude Object File Name	s ?	<u> </u>	SNTP TCP/IP Name \$2T	C0	Update Interval	1 00:00:	00	
			SNTP Server Address 192.168	.20.81				
			SNTP Bind Address	20.10				
					-			
		-	SNIP Offset	J				
I/O Stuck Interval	30.00							
Update data collected 2010/12/06 14:38:36								
Chat Not Logged On Hints On ? Help Print Screen								

The Server / Server Info 4 screen presents and continues a variety of configuration information from the server perspective.

Place the mouse over the fields to obtain additional information. If the value is configurable, the tool-tip displays the CONFMOMI keyword.

The **TCP/IP** section shows the TCP/IP process name, port and IP address that the MOMI server is 'listening' on. See the CONFMOMI keyword <u>TCPIP-LISTEN</u> for additional information.

The **Spooler / SpoolerPlus** section shows the object file names which are considered Spooler supervisors. Spooler subsystems cannot programmatically identify themselves. MOMI uses these entries to identify

supervisors by object file name. See the CONFMOMI keywords <u>FNAME-SPOOLER-n</u> and <u>FNAME-SPOOLER-n</u> and <u>FNAME-SPOOLER-n</u> for additional information.

The**I/O Stuck Checking** section shows the object file names which are excluded from the I/O stuck logic. See the CONFMOMI keyword <u>IO-STUCK-EXCLUDE-n</u> for additional information.

The **SNTP** section displays configuration for Simple Network Time Protocol or the ability for MOMI to maintain the time on the System. See <u>Adjust System time via SNTP</u> for additional information.

_ D X NBWS1-2004 MOMI (Client version 5.19) 2010/12/06 Black Wood \BWS1-2004 100 Pause... 15:28:25 Systems, Inc. *Systems Overview CPUs Processes Files SubSystems History Alarms Configure Diagnostics Server Settings Define Systems Client Access UserHints Tools Reference Chat Server Info 1 Server Info 2 Server Info 3 Server Info 4 Server Info 5 Trace Log MOMI Default Work Location **BWMOMI Info** Security CCNC \$DATA1.MOMI4 File Name \$DATA1.MOMI4.BWMOMI Vol.SubVol VHS Default Location BWSSG Info \$DATA1.MOMI4.BWSSG Security NCNN Vol.SubVol \$DATA1.VHSLOG File Name ProgID'ed Present Т Owner ID 255,1 Т Alternate PATHTCP2 Location \$DATA1.DALE.PATHTCP2 File Name History Compression type 3 Current Size Full % Percent Full History Database FileName History Window Size Max Size Ex \$DATA1.MOMI4.HST01DB 30 Second interval 93% 1,992 2,138 \$OSS.MOMI4.HST02DB 2 Minute interval 35% 6,035 2,148 \$DATA1.MOMI4.HST03DB 1 Hour interval 1,774 5% 104 \$OSS.MOMI4.HST04DB 1 Day interval 21% 80 373 < III. Þ Update | data collected 2010/12/06 14:38:36 Chat Not Logged On Hints On ? Help Print Screen

Server / Server Info 5

The Server / Server Info 5 screen presents and continues a variety of configuration information from the server perspective.

Place the mouse over the fields to obtain additional information. If the value is configurable, the tool-tip displays the CONFMOMI keyword.

The **MOMI Default Work Location** section shows the \$vol.subvol where MOMI work files are created. See the CONFMOMI keyword <u>DEFAULT-WORK-LOCATION</u> for additional information.

The **VHS Default Location** section shows the \$vol.subvol where MOMI will initially takes a user when selecting a location for displaying VHS Log files. See the CONFMOMI keyword <u>SELECTION-DEFAULT-VHS</u> for additional information.

The **Alternate PATHTCP2 Location** shows the file name used as an additional object for identifying a Pathway TCP process. See the CONFMOMI keyword <u>PATHWAY-TCP</u> for additional information.

The **BWSSG Info** section display the File Name and various attributes for the Super Group helper. This file is a copy of the BWMOMI program created by the administrator of the MOMI software during <u>installation</u>. This object is used unless MOMI is started under the Super.Super User ID. See the <u>General considerations</u> of Security for additional information.

The **History** section shows history files defined and their percentage full. MOMI automatically deletes the oldest data from the file to allow inserting new history data. Running a history file at 100% full does not cause errors. See <u>Enabling History</u> for additional information.

The extents for a history file may be altered by right-clicking on a value in the Max Ext. (Maximum Extents) column.

History					
History Database FileName	History Window Size	Ext. Alloc	Max Ext.	Newest Data	Oldest Data
\$swap1.momi2002.hst01db	30 Second interval	1	\$swap1.	momi2002.hst01db - Set File I	Max Extents
\$pcs1.momi2002.hst02db	2 Minute interval	121	- 201	2005/06/28 10:32:00	2005/04/29 10:0
\$swap1.momi2002.hst03db	1 Hour interval	15	25	2005/06/28 09:00:00	2005/04/19 11:0
\$pcs1.momi2002.hst04db	1 Day interval	30	60	2005/06/27 00:00:00	2003/11/07 00:0
<					>

Server / Trace Log

HO	USWS1-2004 MOMI	(Client v	ersion 4.23)							
1	Black Wood Systems, Inc.	100 50 0					∖BWS	51-2004		Pause	2007/10/02 11:08:52
-	- Back	System	s Overvie	W CPUs	Process	es Files	5 SubS	ystems Hist	ory Alarr	ns Cont	figure
	Diagnostics Server	Settin	gs Define	Systems	Client Ac	cess U	serHints	Tools Refe	erence Cl	hat	
ſ	Server Info 1 Serv	ver Info	2 Server	Info 3 Ser	ver Info	4 Serv	er Info !	5 Trace Log			
	11:08:51.363000	Send>	000440000	044000207	000400	F	02 T	F 07			
	11:08:51.379000	Recv>	006614000	044000207	000400	F	02 T	F 07			
	11:08:51.488000	Send>	000447000	044000381	.000400	F	02 T	F 08			
	11:08:51.504000	Send>	000447000	044000381	.000400	F	02 T	'F 09			
	11:08:51.519000	Recv>	022414000	044000381	.000400	F	02 T	F 08			
	11:08:51.582000	Send>	000440000	044000208	000400	F	02 T	F 010			
	11:08:51.613000	Recv>	022414000	044000381	.000400	F	02 T	'F 09			
	11:08:51.644000	Send>	000442000	044000202	000400	F	02 T	F 011			
	11:08:51.660000	Recv>	000640000	044000208	000400	F	02 T	F 010			
	11:08:51.691000	Send>	000442000	044000209	000400	F	02 T	F 012			
	11:08:51.707000	Recv>	002254000	044000202	000400	F	02 T	'F 011			
	11:08:51.769000	Recv>	000520000	044000209	000400	F	02 T	F 012			
	11:08:52.691000	Probe	192.168.2	0.11:2004	Send>	000441	0000440	00201000400) F		8
	11:08:52.722000	Probe	192.168.2	0.11:2004	Recv>	001086	0000440	00201000400) F	02 T	F 08
	11:08:52.754000	Probe	192.168.2	0.11:2004	Send>	000441	0000440	00215000400) F		8
	11:08:52.769000	Probe	192.168.2	0.11:2004	Recv>	000596	0000440	00215000400) F	02 T	F 08
	<										>
	Config	Dauce	Dicolau								
L		Fause	Uishiak								
•						Not L	ogged O	n Chat H	ints On ?	Help	Print Screen

The Trace Log screen shows the I/O activity between the Client and server.

The screen is provided primarily for internal development purposes, but may be referenced in problem resolution.

Client

Client / General



The Client / General screen shows the current state of attributes in the Client. Settings on this page generally affect screens throughout the entire Client.

Click the check box or make the selection to alter the current state of an item. Place the mouse over an item to see a tool-tip for additional information about that setting.

After making any change, press the Save Configuration button to cause the settings to be stored in the MOMI.INI file.

System Settings alters global aspects of the program such as if the Windows screen saver should be deactivated while MOMI is running, disabling of various action confirmation messages or if AutoUpdate found on various screens should be re-enabled if the client connection to the server is severed and reconnected.

Export Characters determines the character used to delimit fields when MOMI data is exported. The defaults of TAB and HardSpace work with Excel and Access.

Tab Style alters the client 'menu' display to either buttons or tabs.

Date Selection determines how dates are entered within Windows. The default of Calendar provides a popup selector calendar by month to directly click on a date within a month. The alternate selector of Roll up/down provides up/down arrows to increment or decrement the currently selected Year/month/day.

Chart Background determines the color of the furthest away (i.e. the area behind everything else) for all charts except Overview.

Timers determines general update and timeout rates. Screen Refresh Rate determines how frequently screens request data where they are automatically loaded with data. Note that some screens and completely manual in operation and others display data as made available from the MOMI server. AutoUpdate Refresh rate determines the frequency when an AutoUpdate option is present on the screen. Connection Timeout determines the maximum amount of time the client waits for data from the server. If this amount is exceeded the connection is dropped and reestablished.

Limits determines the number of previous entries to display when a Windows drop-down box is available.

Hints determines how often and for how long pop-up tool tips are displayed when the mouse hovers over a field that provides additional information.

Color Triggers determines Red and Yellow thresholds for graphs such as CPU busy, CPU Queue and File Full. These triggers just affect graphs at the client level that specifically display this particular information.

Client / Single Screen

BWS1-2004 MOMI (Client	version 5.24)
Black Wood Systems, Inc.	► ► ► ► ► ► ► ► ► ► ► ► ► ► ► ► ► ► ►
Systems	Overview CPUs Processes Files SubSystems History Alarms Configure
Diagnostics Server Cl	ient Define Systems Client Access UserHints Tools Reference Chat
General Single Screen	Misc. Settings Actions Transfers File Locations
Systems	Overview
Overview	Overview Display Format
Processes	Chart/Processes Chart/Processes/EMS Messages
Files	© 2D © 2D-Stacked © 3D (IPUs if available)
SubSystems	Smoothing Activated
History	EMS - specify collector process
Alarms	\$0 - EMS LOG - \$
Optional Screens	EMS - specify distributor filter
	<none></none>
	Message Count 100 🚔 Display Time Log LCT time 🔹
	Display CPU Busy Chart in title
	Display Process/EMS Detail Hint
	Show EMS Horizontal Scrollbar if needed
	Save Configuration
	Chat Not Logged On Hints On ? Help Print Screen

The Client / Single Screen shows the current state of attributes that are generally specific to a particular screen within MOMI or enable a screen displayed.

Click thought the sub-categories on the left hand side of the window to display available options. Place the mouse over an item to see a tool-tip for additional information about a particular setting.

After making any change(s), press the Save Configuration button to cause the settings to be stored in the MOMI.INI file.

Client / Misc. Settings



The Client / Misc. Settings screen shows 'other' types of attributes that affect the appearance or operation of the Client.

Click the check box or make the selection to alter the current state of an item. Place the mouse over an item to see a tool-tip for additional information about that setting.

After making any change, press the Save Configuration button to cause the settings to be stored in the MOMI.INI file.

The **Font Selection** area has a slider used to slightly adjust the font size. This adjustment is provided in the event the selected font does not quite 'fit' labels or fields in the Client. <u>Some fonts will not fit in all areas of</u>

the MOMI PC Client (i.e. not all fonts will 'work'). The Default Font and Default Size buttons allow a return to the original settings.

The **Printer Font Selection** determines the font used for printing operations where a local choice is not available. Grids where a Tool button is available, has a local font selection.

The **Default CPU Chart Colors** area allows the selection of colors for charts referencing CPUs. Click on the CPU number to bring up a drop-down box of predefined color selections. Select Custom to display a window that allows the creation of a color.

The **PC Registry Settings for SharedSection** displays a portion a registry key within Windows that determines the maximum amount of Windows resources available. See <u>System resources - Out of Memory</u> for detailed information.

GDI Handles and USER Handles report the percentage used of these windows resources. Place the mouse over the percentage used field and the tool-tip will provide the actual values. Current usage information can also be displayed within the Windows Task manager under the Processes tab (must be enabled under View / Select Columns...).

Client / Actions see <u>PC Quirks</u>			
BWS1-2004 MOMI (Client version 5.28)			
Black Wood Systems, Inc.	\BWS1-2004 ▼ 2012/06/01 14:29:59		
Image: Systems Overview CPUs Processes Files SubSystems History Alarms Configure			
Diagnostics Server Client Define Systems Clien	t Access UserHints Tools Reference Chat		
General Single Screen Misc. Settings Actions T	ransfers File Locations		
Version Checking Actions	HTTP Proxy Server		
Auto Check for new Version	Dise Proxy Server for HTTP		
CALL Actions	Proxy Server 1.2.3.4		
Register CAIL Emulator	Proxy Port 0		
PC Backup Files Actions	Alarm Actions		
Display/Edit PC File backups	Suspend ALL Alarm Processing		
Delete All PC file backups	Database Actions		
Delete All Backup Files when Client is stopped	Perform Emergency Database Actions		
Client startup messages	Only the "Default Security User" (User that started MOMI)		
Reset one time messages	can perform these actions		
Auto-Start MOMI			
🔲 when I log on			
when anyone logs on			
Sa	ave Configuration		
•	Chat Hints On ? Help Print Screen		

The Client / Actions screen allows for special functions, Export / Import of the MOMI.INI file and automatic starting of the MOMI PC Client at Windows logon.

The **Version Checking Actions** section cause the client to periodically query the BlackWood Systems web site to determine if new software is available. If so, a small pop-up window will display. The window will continue to display at set intervals for that client session until the OK button is pressed.

Message from MOMI	
New PRODUCTION version has been released	
OK	
Message from MOMI	
New BETA version has been released	
ΟΚ	

The **CAIL Actions** section provides the ability to Register or Un-Register MOMI's limited version of the CAIL emulator (the limited version is courtesy of CAIL). This capability is provided in the event MOMI's CAIL emulator conflicts with any other software product that also provides a CAIL emulator.

For example, if MOMI is installed on a PC and a failure occurs installing (or running) the CAIL emulator of another software product, the user may go into the MOMI PC Client and Un-Register its version of the CAIL emulator and retry the installation (or operation) of the other software product.

Each time the MOMI PC Client is started it automatically checks for or registers the CAIL emulator. If a full featured version of the CAIL emulator is present on the PC, it is used instead of the limited version.

The **PC Backup Files Actions** section displays backup files created by the MOMI PC Client and allows them to be either manually deleted or automatically deleted when the client exits. MOMI creates backups of files that are edited on the PC that originated from the NonStop System.

The **Client startup messages** section provides a button that when pushed resets pop-up message windows that are usually displayed only once. These type of messages are informational in nature but this capability allows the user to see them again.

The **HTTP Proxy Server** section enables proxy server logic to redirect all of MOMI's HTTP (i.e. web) traffic to the indicated proxy server.

The **Alarm Actions** section provides a button that when pressed displays a pop-up window to allow the suspension, modification or resumption of Alarm processing. Text entered in the notes section is added to MOMI log messages. Alarms may be suspended at MOMI startup via the CONFMOMI keyword <u>ALARM-SUSPEND-DELAY</u>.

Suspend/Resume ALL Alarm processing				
Alarms are NOT suspended				
Set how long Alarm processing will be SUSPENDED				
Suspend Alarms 1 + hours				
or Specify Alarm RESUME date/time				
○ Now 2012/06/01 ▼ 18:08:51 ➡				
or Suspend Alarms PERMANENTLY				
or RESUME All Alarm processing NOW				
Notes				
Temporarily Suspend ALL Alarms Close				

The **Database Emergency Actions** section provides for special situations where only a portion of MOMI's configuration located on the NonStop System needs to be removed. Once performed, this action cannot be 'undone'. The user that started MOMI is the only user permitted to execute these functions.

Delete ALL Client Access and User Access Records... removes all client access definitions entered under **Configure / Client Access**. Default information is restored after existing information is removed.

Delete ALL UserHint records... removes all user defined hints entered in Configure / User-Hints.

Delete ALL User Defined Screen records... removes all screens defined in SubSystems / User Defined.

Delete ALL EventBX records... removes all entries located under Subsystems / Logs / EMS EventBX.



The **Auto-Start MOMI** section function allows the automatic startup of the PC MOMI Client when a User logs on to Windows. Enabling "when I log on" allows the User to automatically start MOMI when logging in to Windows. Enabling "when anyone logs on" allows a PC system Administrator to cause MOMI to start when any user logs into the PC. Only one option in this section may be checked (otherwise two instances of the Client would automatically start).

Client / Transfers

📕 \BWS1-2004	MOMI (Client version 5.24)	
Black Woo	od	Pause 2012/01/11 16:10:25
<>	Systems Overview CPUs Processes Files SubSystems History Alar	ms Configure
Diagnostics	Server Client Define Systems Client Access UserHints Tools Reference	e Chat
General Si	ngle Screen Misc. Settings Actions Transfers File Locations	
Editor	DOS Format	ASCII File extensions
NOTEPAD.	EXE DOS Format	Add
Transfer S Sounds	Sounds	101 ASP E Remove
Upload	BEEP	BAT C No File CFM
Error	BEEP	CGI
Connection Connection	Port 21 PASV One-time Password	
DownLoad V Overwri	/ Local PC Confirmations Upload / Host Confirmations te ♥ Rename Delete	
	Save Configuration	
•	Chat Chat Hints	On ? [Help] Print Screen

The Client / Transfers screen displays various options used when files edited and moved.

Place the mouse over an item to see a tool-tip for additional information about that setting.

After making any change, press the Save Configuration button to cause the settings to be stored in the MOMI.INI file.

The **Editor** determines when a text file is brought to the PC for editing what program is launched and how the file is treated. How line termination is handled within the file is selected by the DOS Format and UNIX Format selector. DOS uses a CR/LF at the end of each line where UNIX uses a LF. The selection deter-

mines how MOMI will prepare the file for the editor, or in other words this selection determines how the file indicates a 'new line'.

Transfer Sounds chooses the sound played at various events.

Connection Settings chooses the FTP port and other transfer options. Usually, FTP transfers take place over port 21, but the Port field allows an alternate port to be chosen. Checking PASV alters the socket setup sequence and provides an alternate method that is desired when the FTP server is behind a firewall. The One-time Password option instructs MOMI to prompt for a new password at FTP connect. This is intended for environments that use devices that provide a new password key/pin at regular intervals. The "Confirmations" areas when checked prompt the user to confirm the actions of Overwriting and existing file, renaming a file and deleting a file.

The **ASCII File extensions** box determines what file extensions are considered as ASCII to enable the 'edit' function. The No File .Ext checkbox provides for files without and extension to be treated as ASCII. A file extension is the characters after the last period in the file name (i.e. last being the far right of the file name).

Client / File Locations

BWS1-2004 MOMI (Client version 5.24)	
Black Wood Systems, Inc. De Pause 201	2/01/11 :11:20
Diagnostics Server Client Define Systems Client Access UserHints Tools Reference Chat	
General Single Screen Misc. Settings Actions Transfers File Locations	
Type of Help O Windows Help Image: Web Help O User-Defined Help locat	ion
http://www.blackwood-systems.com/momi/documentation/5.24/WebHelp/MOMI_Help.htm	
MOMI.INI, CALENDAR.MOM, and CUSTERRORS.MOM File path	
C:\Users\dwood\AppData\Roaming\BlackWood Systems\MOMI\	
Default File Export path	
C:\Documents and Settings\dwood\Desktop Set File Pa	th
MOMI.LOG Client Crash Log File	
C:\Documents and Settings\dwood\Desktop\MOMI.LOG Delete Log I	File
CAIL File Path]
D:\Data\dwood\Momi\Cail\	
Export/Import MOMI.INI	
Export Import	
Save Configuration	
Chat Chat Hints On ? Help Prir	nt Screen

The Client / File Locations screen shows the path or URL for various resources used by MOMI.

Place the mouse over an item to see a tool-tip for additional information about that setting.

After making any change, press the Save Configuration button to cause the settings to be stored in the MOMI.INI file.

Type of Help selects the format of the MOMI Help used when the Help button is pressed (options grayed out were not installed). All formats contain the same content, but different visual appearances. When MOMI

is installed locally, the default is the local HTML Help. Web Help accesses help at the BlackWood Web site based on the version of the MOMI PC client. User-Define Help specifies a fixed location for help.

MOMI.INI, CALENDAR.MOM, and CUSTERRORS.MOM File path in use displays the location for these configuration files. The MOMI.INI file stores the primary configuration information for the MOMI PC Client.

Default File Export path is the default location where any export from the MOMI PC Client is located.

MOMI.LOG Client Crash Log File is the default location and name for the file automatically created should the client encounter a fatal error. This file should be included in any problem report.

Export / Import MOMI.INI section provides a method to transfer MOMI PC Client settings from/to other environments. The MOMI.INI file contains the configuration settings for the PC MOMI Client.

The **Export** MOMI.INI button creates a copy of the clients current configuration. Pressing this button will display a pop-up window to select the location of the copy. If the output already exists, it is renamed to *.bak (the existing name will have .bak added) and the output is created. A second Export will cause the *.bak file to be deleted prior to the export sequence.

The **Import...** MOMI.INI button loads a new configuration file in preparation to replace the existing. Pressing this button will display a pop-up window to select the location where to read. Once read, status information appears indicating the status of the import. It is necessary to stop and restart the PC MOMI Client in order to activate the new configuration file.

Define Systems

BWS1-2004 MOMI (Client version 5.16)		
Black Wood	\BWS1-2004 ▼ Pause 2009/12/31 14:27:27	
Back Systems Overview CPUs	Processes Files SubSystems History Alarms Configure	
Diagnostics Server Settings Define Systems	Client Access UserHints Tools Reference Chat	
Set default system Default System	\BWS1-2004 - 192.168.20.11:2004 Delete selected system	
TCP/IP Address:Port	MOMI Logical Name	
192.168.20.10:2000	\BWS1-2000	
192.168.20.10:2002	\BWS1-2002	
192.168.20.10:2006	\BWS1-2006	
192.168.20.11:2002	\BWS1 Fast - 2002	
192.168.20.12:2000	\BWS2-2000	
192.168.20.11:2006	\BWS1 Fast - 2006	
192.168.20.12:2002	\BWS2-2002	
192.168.20.11:2004	\BWS1-2004	
192.168.20.11:2010	\BWS1-2010	
192.168.20.10:2004	\BWS1-2004-Old IP	
15.178.197.33:3000	\NSKIT06-3000	
192.168.20.11:2008	\BWS1-2008	
15.178.197.139:3000	\NSBLDE4-3000	
Clear addr/port TCP/IP Address Port Add new system		
•	Chat Not Logged On Hints On ? Help Print Screen	

The Define Systems screen provides for the configuration and display of the MOMI servers available to the client. An entry, or connection, is composed of the TCP/IP address (or DNS name) and port of a 'listening' MOMI server. The MOMI server is configure to 'listen' for client connections using the CONFMOMI keyword <u>TCPIP-LISTEN</u>.

Existing entries may be deleted by clicking on it (highlights the line) and pressing **Delete selected system**. The System currently in use by the client may not be deleted. The default entry, or entry automatically connected at client startup, is configured by clicking on an entry and pressing **Set default system**. The first time a client is started automatically displays this screen. The User enters the TCP/IP address (or DNS name) and port, then presses the '**Add new system...**' button. The Client will then attempt communication with MOMI on that System.

Clear addr/port	TCP/IP Address 192.168.20.11	Port 2010 Add new system
•	Chat Not I	Logged On Hints On ? Help Print Screen

A "connecting" is displaying during the communications setup.

If communication is successful, a pop-up window displays to allow entry of descriptive text for this connection (*Test System* was added to the NonStop System name automatically filled in). Press Save to confirm and keep the entry.

Connecting

Confirm System Name		
System Description BlackWood S72000		
Addr:Port 192.168.20.11:2004		
Logical Name \BWS1-Test System		
Save Cancel		

If communications was unsuccessful, an error is displayed a pop-up window displays what address was used (if a DNS name was specified). See <u>Network Information / Troubleshooting</u> for additional information.

	192.100.	20.12.2002	0002-2002		
	400.400		Inword and a		
		D	NS Lookup results		X
	HostName/Addr		skw.did.	.com	
	Resolved Name/Addr		208.94.147.65 (2 addresses)	
	List of DNS results	208.94.147.65 208.94.147.64			A
	Clear addr/port	TCP/IP Address	skw.did.com	Port 2000	Add new system
0	Error: Cannot connect	to MOMI Server	Chat Not L	ogged On Hints On	? Help Print Screen

The first system defined causes the Client to connect to that entry and display data. Subsequent entries are made available on the drop down list at the top right of the screen.

\ PWS1-2002		2003/10/25
BW31-2002	La Fause	15:52:30
BWS1-200	0	
BWS1-200	2	
(DWS1 200)	_	h
- \BWS1-200	6	
M \BWS1 Fast	- 2002	
BWS2-200	n	
10002 2000	2	
\BWS2-2002	2	
••• \BWS1 Fast	- 2006	
BWS1-Test	Syster	n

Client Access

Client Access / Global Settings

BWS1-2004 MOMI (Client version 5.16)			
Black Wood	\BWS1-2004 ▼ Pause 2009/12/21 15:38:12		
Back Systems Overview CPU	Us Processes Files SubSystems History Alarms Configure		
Diagnostics Server Settings Define System	ns Client Access UserHints Tools Reference Chat		
Global Settings User Define User List			
	Last Update 2009/12/01 11:23:13		
Default Security User ONLY	on this System		
Enable User Access Checking on thi	is System		
Only the "Default Se	curity User" (NET.DW) can change this setting		
Any Security User			
Disable AutoLogon	Auto Logoff if inactivity for minutes 60		
Disable CAIL Emulator for ALL Users	Limit AutoUpdate minutes to		
Disable FTP for ALL Users	Set Recommended Minimum Client version to 4.20		
Disable PING for ALL Users	Contact your System Administrator about updating the MOMI Client to the		
Disable TraceBoute for ALL Users	Set Required Minimum Client version to 5.06		
	Contact your System Administrator about updating the MOMI Client to the		
Disable VI 100 for ALL Osers			
New screens enabled by default			
Chang	Change Global Client Access Settings		
	Chat net.dw Hints On ? Help Print Screen		

The Client Access / Global Settings screen is used to enable/disable Client Access, enable/disable certain features and set certain global limits. After making any change, press the **Change global Client Access Settings** button to save and activate the changes.

The <u>Default Security User</u> is required to enable/disable Client Access along with the deletion of all Client Access configuration records. Any Security User may change the remaining settings.

Enable Client Access Checking on this System is the overall activation/deactivation of Client Access. On the Default Security User may change this setting.

Enable User Access Checking on this System controls checking of specific users. If this item is checked, all other settings (i.e. the other screens) are now in effect. If this item is not checked, only the settings on this screen are effective. This option may be thought of as providing a means to activate general configuration items without regard to individual users.

Disable AutoLogon provides the ability to control if the Client issues a logon after changing systems if the user had already logged on in that session of MOMI. In shops where passwords may only be used one time, Disable AutoLogon should be checked.

Disable CAIL Emulator for ALL Users, Disable FTP for ALL Users, Disable PING for ALL Users, Disable TraceRoute for ALL Users and Disable VT100 for ALL Users provides the ability to control access to these tools.

New screens enabled by default, when checked, allows users to access MOMI PC Client screens added to a new software version without explicate authorization. If not checked, new MOMI screens must be authorized under the <u>User Define</u> tab.

Auto Logoff if inactivity for minutes enables the capability to cause the MOMI PC Client to automatically logoff from the NonStop System after the specified number of minutes occur and no activity occurs. Activity is defined as keys pressed in the client.

Limit AutoUpdate minutes to limits the amount of time screens directed by the user continue to update. Many MOMI screens provide data gathered for the benefit of all users and to perform other internal activity. However, screens that are specifically activated or gathering data as a result of user selection, such as the <u>Process Detail</u>, are limited by this setting. Screens that have the AutoUpdate option are also affected by this setting.

Set Recommended Minimum version to and **Set Required Minimum Client version to** allows control of the software versions of the MOMI PC Client that may in use. Set Recommended Minimum version to displays a by-passable warning when the MOMI PC Client is below the specified value. Set Required Minimum Client version to displays an error messages and prevents further access if the MOMI PC Client version is below the specified value. These options provide the MOMI administrator the ability to initially warn users they should upgrade their software and then force users to upgrade their software.

The **Delete All the Client Access and User Access Records...** button is provided in the event the MOMI administrator wants a 'clean slate' in client access configuration. This button would normally be used only as a last resort or in the event the client access portion of the configuration database was corrupt.

Client Access / User Define

see Client Access

BWS1-2004 MOMI (Client version 5.16)				
Black Wood	2% 2009/12/2 1 2009/12/2 1 2009/12/2 1 15:31:09			
Back -	Systems Overview CPUs Processes Files SubSystems History Alarms Configure			
Diagnostics Serv	er Settings Define Systems Client Access UserHints Tools Reference Chat			
Global Settings	Jser Define User List			
User ID Crown ID	NET.SB Member of Group *GRP- <none></none>			
Description	Steve Last Update 2009/12/01 11:12:38			
Croup ID Description Steve Last Update 2009/12/01 11: All Screens System Wide Auto Logoff if inactivity for minutes GO ID Disable Auto Logoff Check Allow AutoUpdate Forever Image: Allow Logon to NonStop Processes Allow Process Action Allow File Alter Process Actions SubSystems File Image: Allow Process Abend History Allow Process Activate Allow Process Alter Priority				
Current User	Display User Save New User Change User Delete User			
Clear Screen				
•	Chat Chat Hints On ? Help Print Screen			

The Client Access / Define screen is used to determine which screens and features within MOMI are available to individual users or groups of users.

In the lower left portion of the screen, click thought the sub-categories on the left hand side of the screen to see what options are available for the currently selected User ID or Group ID Change as needed. Place the mouse over an item to see a tool-tip for additional information about a particular setting.

Two types of ID's are used; a User ID and a Group ID. A User ID corresponds to a Guardian User or Safeguard Alias defined on the NonStop System. A Group ID is a MOMI specific entity used to assign specific settings to one or more User ID's.

No passwords are defined. All security validation is performed on the Nonstop System.

Two special User ID's are provided (and automatically created) by MOMI :

- "NOT LOGGED ON" represents a MOMI PC Client that has not logged on via MOMI. This defines the capabilities of the client when it initially connects to the server and until (or if) the user logs on.
- "USER NOT DEFINED" represents a logon to MOMI where the User ID has not been defined to MOMI. This "catch all" provides for a default level of configuration where the specific user ID is not known. This feature may be disabled by not checking "Allow Logon to Nonstop".

To change an existing entry, first select if a User ID or Group ID is to be displayed in the upper left hand corner then select the existing entity in the drop-down box.

To add a new **User ID**, select **User ID**, enter the HP Guardian User ID or SafeGuard Alias, description and configure the various options.

To add a new **User ID** into a group, select **User ID**, enter the HP Guardian User ID or SafeGuard Alias, description and select the desired group in the drop-down box.

To add a new **Group ID**, enter the Group ID (an arbitrary name), description and configure the various options applicable to that group.

Individual users or Groups are given various permissions. The section System Wide area provides for general abilities such as allowing process actions or automatic Logoff. The tabbed area below selects what screens are available and other screen features.

A User ID or Group ID may be assigned as a Security User (in RED above). These additional Security Users, have the same authority as the Default Security User with the exception they may NOT change certain settings on the <u>Global Settings</u> screen such as disabling Client Access checking.

Client Access / User List

see Client Access


The Client Access / List screen displays the User and Group ID's established with MOMI. A report can be generated with the Create Users Report button.

Left-click on a User or Group ID to jump to <u>Define</u> screen. Click on the [+] to expand members of a group.

UserHints

(updated client version 5.16 or later)

MOMI - Multi-system Online M	easure Interface (Client version 4.09)
Black Wood	► Color Col
- Back Systems	Overview CPUs Processes Files SubSystems History Alarms Configure
Diagnostics Server Settings	Define Systems Client Access UserHints Tools Reference
Value (click to display)	UserHint (multiple lines separated by)
\$dta0.proddb.tbl00db	Alternate main transaction database
100,109	net.dw
255,255	The Super user (fred smith)
Value	UserHint
\$dta0.proddb.tbl00db	Alternate main transaction database Delete
Clear	Export to File Import from File
Record successfully change	Jed
•	net.dw Hints On ? Help Print Screen

The UserHints screen presents hints defined by the customer and provides for maintenance activities (add/change/delete).

Throughout the MOMI PC Client Tool tips, or Hints, are provided 'all over the place'. This information is usually static based on that particular field. This screen allows the user to define a Value (i.e. text) that if it EXACTLY matches the current value displayed on the screen (in that particular cell or location) the supplied UserHint is added to the existing MOMI Tool Tip.

UserHints are displayed with a key value matches text within a field displayed on a MOMI screen. For example, the process name \$ZPNS is an OSS Name Server. Enter \$ZPNS in the Value field, the text "OSS Name Server" in the UserHint area then press **Add/Change**. When a field with a MOMI hint is displayed and matches \$ZPNS, the displayed hint will add "OSS Name Server" to the displayed hint.

Existing hints may be removed by clicking on the hint and then pressing Delete.

UserHints may be exported from one system and imported into another. Press **Export to File** to create a UserHints file. Connect the MOMI PC Client to the desired system and then press **Import from File** to load the saved hints.

When Import is selected, the following window displays to determine if the imported hints replace existing. By default, existing UserHints are not replaced (i.e. not overwritten). Select OVERWRITE to cause existing hints to be replaced with a matching one in the Import file.



During the import process, the following resulting status screen is displayed:

Import U	serHints Status
Successful Imports	Import Failures
"\$data1.momi4.bwmomi" - Imported "bwmomi" - Imported "hhh" - Imported "\$NULL" - Imported	***** Import Finished *****
***** Import Finished *****	
4 Cl	ose

The user many also create their own ASCII text file of Hints to import into MOMI. The file has the following format:

```
== comment line - ignored and not processed
```

<key>=<hint>

Where:

== - comment line, not processed
 <key> - unique text to match, but not case sensitive
 = - required separator
 <hint> - text to display, optionally using
 to create a multi-line displayed tool tip

Examples:

```
== file of user hints - created by Pete Williams
== updated by John Doe
==
```

10,33=Audit.Mike \$FRED=Fred Smith (IT - Software Developer) \$SALLY=Sally Field
 QA Group
 Building 2
 Fourth floor - Cube 1234 \$NCP=Network Control Process

Special functions

<key>=

delete key

DELETE-ALL-RECORDS

deletes all UserHints

The import file is processed sequentially.

The Special functions to delete a key and DELETE-ALL-RECORDS are provided where automated maintenance activities may required removal of a few existing user hints or the complete replacement of the entire UserHints database.

The MOMI Export to File function uses a multi-line separator that appears as the | character. This is internally encoded as a <#160><|><#160> where #160 is the ASCII value of a hard-space character.

Tools

BWS1-2004 MOMI (Client version 5.16)			
Black Wood		\BWS1-2004	▼ Pause 2009/12/30 13:43:15
-Back Systems Overview C	PUs Processes Files	SubSystems His	story Alarms Configure
Diagnostics Server Settings Define Syst	ems Client Access Us	erHints Tools Re	ference Chat
Numbers Time Network			
Calculator	Bandwidth Convers	ion	
0	Enter Value	0 8	ytes - is equal to
Back CE C	0	Bytes Kilobytes (KB)	0 Bits 0 Kilobits
MC 7 8 9 / sqrt	0	Megabytes (MB)	0 Megabits
MR 4 5 6 * %	0	Terabytes (GB)	0 Gigabits
	0	Petabytes (PB)	o Petabits
MS 1 2 3 - 1/x	byte=8 bits KB = 1024 t	ytes MB = 1024 KB GB = 1	1024 MB TB = 1024 GB PB = 1024 TB
M+ 0 +/ + =			
Convert Number base			
Clear Decimal (10) Octal (8)	Hex (16)	Binary (2)	
•	Chat	Not Logged On	Hints On ? Help Print Screen

The Tools screens provides a variety of helpful utility functions such as a Calculator, Stopwatch, Count down timer, approximate Bandwidth conversion, numeric base converter, DNS and Whols lookup.

BWS1-2004 MOMI (Client version 5.1	6)	- 0 X
Black Wood	► • • • • • • • • • • • • • • • • • • •	2009/12/30 13:43:51
Back Systems Ov	verview CPUs Processes Files SubSystems History Alarms Conf	figure
Diagnostics Server Settings [Define Systems Client Access UserHints Tools Reference Chat	
Numbers Time Network		
Calendar	CountDown Timer	
December 2009		
Su Mo Tu W Th Fr Sa	CountDown Event	Start
6 7 8 9 10 11 12	Clear Now 2009/12/30 • 13:01:51 - Save Delete	
13 14 15 16 17 18 19		
20 21 22 23 24 25 26		
27 28 29 30 31 1 2 3 4 5 6 7 8 9	Years	
	Hours	
loday	Minutes	
Stopwatch	Seconds	
00.00.00		
00.00.00		
Start Stop Reset		
	Chat Not Loggod On Histo On 2 Hala	Print Serger
V]		Print Screen

The **CountDown Timer** drop-down box allows storing of multiple events for later reference.

BWS1-2004 MON	/I (Client version 5.16)	
Black Wood		>1-2004 > Pause 2009/12/30 13:45:40
-Back	Systems Overview CPUs Processes Files SubSy	ystems History Alarms Configure
Diagnostics Se	rver Settings Define Systems Client Access UserHints	Tools Reference Chat
Numbers Time	Network	
DNS Lookup		
HostName	BWS-DW-3	DNS Lookup Clear Cancel
	192.168.20.22 (3 addresses)	Reverse Lookup Local IP
List of DNS resolved addresses	192.168.20.22 192.168.18.1 192.168.199.1	TCD/ID
Domain Name	www.google.com	WhoIs Lookup Clear
WhoIs Host	<default> • whoi</default>	s.verisign-grs.com
Returned WhoIs Info	Whois Server Version 2.0 Domain names in the .com and .net domains can now be	e registered
	for detailed information.	www.internic.net
•	Chat Not Log	ged On Hints On ? Help Print Screen

The **DNS Lookup** function provides DNS name to IP address(es) and an IP address to name capabilities. The **Whols Lookup**

🛗 IP Workshop Pro	fessional	X	
📓 Calc →¤ 9	Stick 🕜 Help 💡 About 🛛 🗴 Exit		
Summarize Multicast	Integer Converter Logic Calc Bit Builder Preferences	Subnet Mask	Nets Hosts
IP Calculator Mask	k Chart Reserved IP Blocks Split Complex Split	255.255.255	2 2
Subnet Mask View 255.255.255.248 Convert Network Calculator IP Address	er Subnet Mask: 255.255.255.248 Prefix: /29 Number of Hosts: 6 Wildcard Bitmask: 0.0.0.7 Binary View: 11111111111111111111111111111111000 Hex View: FF.FF.F8 Network: 69.88.100.32 255.255.255.248		Image: Sector
69.88.100.33 💌	Max. Network Mask: <u>255,255,255,224</u> Host Addr. Papers: <u>69,99,100,22, 69,99,100,29</u>		
Network Mask 255.255.255.0	Broadcast Address: 69.88.100.39 Available Addr.: 6		
🔽 Use MaskViewer	Next Network Addr.: 69.88.100.40 Remarks: Class A base, 21bit subnetting		
Calculate			
		69.88.100.32 25	55.255.255.248

The **IP Workshop Professional** TCP/IP Subnet calculator is provided courtesy of Peter Kostov and Peko Software. This tool supports a wide range of IPv4 address operations such as converting the classical subnet format into a CIDR, split up a Class B network into different sized subnets and obtain a quick summarization of subnets.

Reference

Reference

📟 MOMI - Multi-system Online Measure Interfac	e (Client version 4.09)			
Black Wood	\BWS1-2004 ∨ Pause 2006/03/17 15:10:39			
- Back - Systems Overview CP	Us Processes Files SubSystems History Alarms Configure			
Diagnostics Server Settings Define Syste	ms Client Access UserHints Tools Reference			
Unit Conversion ASCII Chart Errors/Code:	6530 Codes BlackWood Systems			
Area Distance Mass Temperature Tim	e Volume			
med Distance mass Temperature Th				
Value to Convert 1	C Decimal 2 C			
From	То			
Acres	1.00 Acres			
Ares	40.47 Ares			
Centares	4,046.86 Centares			
Hectares	0.40 Hectares			
SquareCentimeters	40,468,564.22 SquareCentimeters			
SquareDecameters	40.47 SquareDecameters			
SquareDecimeters	404,665.64 SquareDecimeters			
SquareHectometers	0.40 SquareHectometers			
SquareInches	6,272,640.00 SquareInches			
SquareKilometers	0.00 SquareKilometers			
SquareMeters	4,046.86 SquareMeters			
SquareMiles	0.00 SquareMiles			
SquareMillimeters	4,046,856,422.40 SquareMillimeters			
SquareRods	160.00 SquareRods			
SquareYards	4,840.00 SquareYards			
♥ J	net.aw [Hints On] ? [Help] [Print Screen]			

Remember the last time you needed to know how many Hectares there were in an Acre (0.40)? The Reference section provides the answer to this question and many others. Unit Conversion, File System Error codes and the long lost 6530 Control Codes and Escape Sequence references are provided.

Unit Conversion works by selecting the types of units to be converted, entering the value and clicking on the 'From' units. In the example below under Time, 20 Fortnights is equivalent to 280 Days.

📟 MOMI - Multi-system Online Measure Interface	(Client version 4.09)
Black Wood	\BWS1-2004 v Pause 2006/03/17 15:13:58
	s Processes Files SubSystems History Alarms Configure
Diagnostics Server Settings Define System	s Client Access UserHints Tools Reference
Unit Conversion ASCII Chart Errors/Codes	6530 Codes BlackWood Systems
Area Distance Mass Temperature Time	Volume
nied bistance nass remperature entre	Totalite
Value to Convert 20	C Decimal 2 C
From	То
Centuries	0.01 Centuries
DateTime	280.00 DateTime
Days	280.00 Days
Decades	0.08 Decades
Fortnights	20.00 Fortnights
Hours	0,720.00 Hours
Millennia	0.00 Millennia
MilliSeconds	24,192,000,000.00 MilliSeconds
Minutes	403,200.00 Minutes
ModifiedJulianDate	15,298.00 ModifiedJulianDate
Months	9.20 Months
Seconds	24,192,000.00 Seconds
Weeks	40.00 Weeks
Years	0.77 Years
	·
•	net.dw Hints On ? Help Print Screen

The ASCII to EBCDIC chart may be sorted in different ways by placing the mouse over the column heading and right-clicking. Place the mouse over the center two columns, ASCII Char and EBCDIC Char, for a tool-tip description.

HOHI	MOMI - Mu	lti-system	n Online M	easure Inter	face (Clien	t version 4	4.09)						×
B	lack Wo	od .	100 50		<i>6</i> %			WS1-2	004 🗸	Pause		2006/03/17	7
	Sgan	NTIS, DAC.	o bar		<u> </u>	· · · · ·						15:09:12	-
_	Back		Systems	Overview	CPUs Pr	ocesses	Files S	ubSystem	s Histor	y Alarms (Confi	gure	
Di	iagnostics	Server	Settings	Define Sys	stems Cli	ent Acces	s UserH	ints Too	s Refere	ence			_
U	Init Conve	rsion AS	CII Chart	Errors/Co	des 6530	Codes E	BlackWoo	d Systems	5				
r	ASCII / E	BCDIC C	Chart										1
	ASCII	ASCII	ASCII	ASCII	ASCII	EBCDIC	EBCDIC	EBCDIC	EBCDIC	EBCDIC	^	Control	
	Dec	Oct	Hex	Bin	Char	Char	Dec	Oct	Hex	Bin		Chars	
	0	000	00	0000 0000	NUL	NUL	0	000	00	0000 0000		Rupcu-	
	1	001	01	0000 0001	SOH	SOH	1	001	01	0000 0001		ation	
	2	002	02	0000 0010	STX	STX	2	002	02	0000 0010		Chars	
	3	003	03	0000 0011	ETX	ETX	3	003	03	0000 0011		Numbers	
	4	004	04	0000 0100	EOT	EOT	55	067	37	0011 0111			
	5	005	05	0000 0101	ENQ	ENQ	45	055	2D	0010 1101		Upper	
	6	006	06	0000 0110	ACK	ACK	46	056	2E	0010 1110		Letters	
	7	007	07	0000 0111	BEL	BEL	47	057	2F	0010 1111		Lower	
	8	010	08	0000 1000	BS	BS	22	026	16	0001 0110		Case Letters	
	9	011	09	0000 1001	HT	HT	5	005	05	0000 0101			
	10	012	0A	0000 1010	LF	LF	37	045	25	0010 0101		Extend Chars	
	11	013	OB	0000 1011	VT	VT	11	013	OB	0000 1011			
	12	014	0C	0000 1100	FF	FF	12	014	0C	0000 1100		NOT	
	13	015	ΠD	0000 1101	CR	GR	13	015	ΠD	0000 1101	*	USED	
0								net.dw	Hint	s On ? He	p F	Print Screer	n

The Errors/Codes screen provides brief description / translation of commonly used numbers including Defines, file system error codes, MEASURE, process creation, Pathcom, Pathmon, Pathsend, SPI and TCP/IP are available. User defined error codes are added by typing in the fields Error / Keyword, System and Error Text and then pressing Update/Add.

MO	MI - Multi	-system Online N	easure Interface (Client version 4.09)	
B/ad	ck Wood	50	► ► ► ► ► ► ► ► ► ► ► ► ► ► ► ► ► ► ►	03/17 9:35
<-	Back	Systems	Overview CPUs Processes Files SubSystems History Alarms Configure	
Diag	nostics	erver Settings	Define Systems Client Access UserHints Tools Reference	
Unit	Conversi	on ASCII Chart	Errors/Codes 6530 Codes BlackWood Systems	
S/11	Errivay	System	Error Tavt	
5/0		- System	[ENOER] The operation completed successfully	
Sys	1	File System	A read procedure reached and of file or a write procedure reached and of tape	
Sys	1	NewProcess	Indefined external(s)	
Svs	- 1	Process Create	A File system error was encountered on the program file	
Svs	- 1	TCP/IPv6	Invalid File Name	
Sys	2	File System	The operation specified is not allowed on this type of file.	
Sys	2	NewProcess	No PCB available	
Sys	2	Process Create	Parameter error	
Sys	2	TCP/IPv6	INTERNAL ERROR: Case value out of range	
Sys	3	File System	An open or purge of a partition failed.	
Sys	3	NewProcess	File-System error on <program file=""></program>	
Sys	3	Process Create	Bounds violation	
Sys	3	TCP/IPv6	Missing Attribute	
Sys	4	File System	An open operation for an alternate key file failed.	
Sys	4	NewProcess	Unable to allocate map	<u> </u>
<	ш		>	
Erro	r/Code/Ke	yword Sys	stem Error/Code Text	
S	how Erro	/Code Sha	w All Errors/Codes Clear Update/Add Delete	
•			net.dw Hints On ? Help Print Se	creen

BlackWood Systems

📟 MOMI - Multi-system Online Measure Interface (Client version	on 4.15)	X
Black Wood	\BWS1-2004 ▼ Pause 2006/08/ 18:46:	25 22
- Back - Systems Overview CPUs Processes	es Files SubSystems *History Alarms Configure	
Diagnostics Server Settings Define Systems Client Acc	cess UserHints Tools Reference	
Unit Conversion ASCII Chart Errors/Codes 6530 Codes	s BlackWood Systems	
BlackWood Systems, Inc.	EMail <u>Support@BlackWood-Systems.com</u>	
15982 N 78th Street - Suite B Scottsdale, A7 85260	Web www.BlackWood-Systems.com	
	Forum Forum.BlackWood-Systems.com	1
Fax 480-905-8778	Versions Check for MOML undates	ill
•	Not Logged On Hints Off ? Help Print Scre	en

The Reference / BlackWood Systems screen provides short cuts to bring up the BlackWood System web site or Forum, generate an email to MOMI support, and check for MOMI software updates.

The Web and Forum functions will launch the Window PC browser to these web sites.

The Email function will cause the email client configured on the PC to launch a 'send email' window. To, Subject, System Serial Number and Client / Server version information are automatically loaded into the email.

The Versions function accesses the BlackWood Systems web site to obtain version information. An area on the screen is populated with the currently installed version information, latest version available and Beta version (if available).



Pressing the buttons under Current, Latest and Beta accesses the BlackWood Systems web site and retrieves the corresponding ReadMe.txt file (right click to access the history file).

🕮 MOMI - Multi-system Online Measure Interface (Client version 4.15)
Black Wood Systems, Inc. BWS1-2004 V Pause 2006/08/25 18:48:30
- Back - Systems Overview CPUs Processes Files SubSystems *History Alarms Configure
Diagnostics Server Settings Define Systems Client Access UserHints Tools Reference
Unit Conversion ASCII Chart Errors/Codes 6530 Codes BlackWood Systems
ReadMe.Txt for Latest Version 4.14 MOMI Readme.txt Date 2006/05/26 BlackWood Systems, Inc. 15982 N 78th Street Suite B Scottsdale, AZ 85260 phone: 602-569-8766 fax: 480-905-8778 email: support@blackwood-systems.com web: www.blackwood-systems.com
This file contains the latest version and upgrade information. This file is the first place to look for initial installation and upgrade information.
Please thoroughly read and agree to the License.txt file before using this software.
For an initial install, further in this document the section entitled
Not Logged On Hints Off ? Help Print Screen

Chat

BWS1-2004 MOMI (Client version 4.23)	
Black Wood Systems, Inc. BWS1-2004 V Pause 14	7/10/01 :45:26
- Back - Systems Overview CPUs Processes Files SubSystems History Alarms Configur	e
Diagnostics Server Settings Define Systems Client Access UserHints Tools Reference Chat	
Channel ALL © ALL Public 0 Public 1 0 Public 3 0 Private 5 My Color description of the closed statement of the closed statemen	~
Thank you!	
Clear Send	
ALL - net.dw - 2007/10/01 14:42:23	
This is a test of the chat subsystem	
ALL - net.dw - 2007/10/01 14:42:57	
The quick brown fox needs to know if the network is now up!	
ALL - super.oper - 2007/10/01 14:44:56	
Yes, the network has been restored!	
net.dw Chat Hints On ? Help Prin	nt Screen

The Chat screen provides a simple means to communicate with other MOMI users.

Anyone may view Chat, unless restricted by <u>Client Access</u>, but you must be logged on in order to participate. Chat is NOT a secured means of communication.

To use chat, logon, select a Channel, type in text and press Send.

Chat is grouped into channels. The default selection ALL, displays all chat over the public channels. The selection of any of the other channels, Public 1 - 4 or Private 5 & 6 displays only its traffic. The Chat

selection at the bottom on the MOMI PC Client window displays green if any Chat has been entered in the last 5 minutes.

Additional Screens

Lunch Finder



This little gem is located by right-clicking the BlackWood Systems Emblem. It solves a major problem we have discovered for Tech Support people, "Where to have lunch today?" It's amazing how people who are able to make major decisions involving the 'care-and-feeding' of a multi-million dollar computer system are unable to decide where to eat! This was the major reason for the development of MOMI but it is hidden behind all the Tech Support stuff to make management happy.

👧 Lunch Finder 🍚	List of lunch locations X
Where do I go for lunch today?	Charleston's Cheesecake Factory Claim Jumper Coco's Cracker Barrel Dennys
Lunch today is at:	Friday's IHOP Lone Star
Config Close 🎽	📆 Save Load

To use the lunch finder:

- 1. Press the **Config** button and enter available lunch locations (press **Load** for a pre-configured list)
- 2. Press "Save" to store the list (step 1 & 2 are only required for initial, new or updated locations)
- 3. Press "Where do I go for lunch today?"
- 4. Consider the location displayed if unsure of the location, repeat step 3
- 5. Press Close

- 6. Goto and eat lunch at indicated location
- 7. Return back to work

MOMI's lunch finder uses the latest in Human Biometrics to determine the optimum lunch for the User for that day. Some of the many factors it takes into account are:

- a) Key press impact strength (your need for nourishment)
- b) User Biorhythm cycle (your Emotional, Intellectual, and Physical needs)
- c) What lunch you've had the last week (reduce duplication and increase oral stimulation)

d) Recent computer use (if you've been making a lot of mistakes lately indicating a lack of certain minerals)

After MOMI has taken all these factors into account it uses an advanced 'Needs Requirement' formula and determines the correct lunch destination by picking one from your list at random.

The ROI (Return on Investment) of this tool alone will pay for MOMI within a few months when you figure Systems Management people spend a half hour trying to decide where to eat. The resulting increase in productivity could be phenomenal!!!

Calendar

HOH	MOMI (Client v	er	si	on	4.	19)																													ŀ			×
I	Black Wood MOMI [®]													D			\BWS1-2004												ľ	Pa	use		2006/12/28 15:41:53						
.[(left-click to view) CALENDA											NDAR (right-click to modify)															x												
	2006	Ν	1	т	w	т	F	s	s	м	т	w	т	F	s	s	м	т	w	т	F	s	s	м	т	w	т	F	s	s	м	т	w	т	F	s	s	м	т
	January								1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	<mark>16</mark>	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
	February				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	\square						
	March				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31				
	April							1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30		
	May		L	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31						
	June	Ī	Ī			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30			Ī	
	July	Ī						1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
	August			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31					
	September						1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30			
	October								1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	<mark>16</mark>	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
	November				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30					
	December	Ī					1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	<mark>16</mark>	17	18	19	20	21	22	23	24	25	26	27	0	29	30	31		
	US Holid	US Holidays lime														aqua On t										n th	his day in history												
ļ	orang	e										gre	en										blu	8			1.0			Thi	s C	olor	me	ans	mu	ltipl	e ite	:ms	
Q													net.dw Hints On ? Help Print Screen												P	P	rint	: Sc	re	en									

The Calendar is located by clicking the current date panel at the top of the screen. It allows Users to set up dates on a calendar with a color coded display to indicate some information. For example: a User might define the color ORANGE as an indicator for a scheduled Maintenance window, or BLUE and AQUA as vacation days for the Tech Support personnel. The User can define 7 colors (YELLOW, ORANGE, LIME, GREEN, AQUA, BLUE and PINK) as anything they want. The RED color is reserved for any date with more than 1 color assigned to it.

Clicking on a day will display a pop-up with information saved about that day in history.

Calendar items for 2006/01/01	Sunday
Select item to alter/add/delete	
New Year's Day	
2000 Largest collective hangover in human history	

Calendar color labels are saved in the MOMI.INI file and Calendar date items are saved in the CAL-ENDAR.MOM database. MOMI is shipped with a basic CALENDAR.MOM database containing a couple years of US Holidays and some interesting 'On this day in history' facts.

To exit this screen, click on the X below the date/time.

World TimeZone Map



The TimeZone Map is located by clicking the time at the top right of the screen. It allows Users to get basic time zone info around the world. It does NOT account for daylight savings time. The information is just a guide and please don't consider it accurate. The file that loads the supplied default TimeZone list is TIME-ZONE.MOM. You may make changes and add new time zones by editing this file using Notepad. Instructions on the format are located in the file.

MOMI is shipped with a basic TIMEZONE.MOM database containing several hundred entries.

A User may select a time zone either by selecting an entry from the drop-down list or by clicking an offset from the GMT value near the bottom of the window.

The **Time in selected TimeZone** and **GMT Time** fields originates from either the NonStop currently selected, which is the time displayed in the upper right corner of the screen, or time from the PC. This selection is made in the **Time Base** field.

To exit this screen, click on the X below the date/time.

PC Quirks

This section describes various situations or "quirks" present on the PC:

Client will not minimize

Client window resize

System resources - Out of Memory

Unable to Register the CAIL Emulator

Viewing Help across Network Share

Windows Vista / Windows 7

Client will not minimize

Certain Windows programs issue a non-standard "minimize window" command to other programs running on the User's PC. This non-standard command can affect the ability of the PC MOMI Client to minimize when directed.

This situation does not directly affect the operation of the PC MOMI Client and does not involve "main-line" MOMI code. The situation appears to only affect the program's run-time library, which deals with Windows interactions.

Previous versions of the client provided an option to activate alternate processing to work around this situation.

Update \rightarrow As of MOMI PC Client version 4.19 and later special logic was added that should prevent this problem. The logic is always enabled.

Client window resize

The MOMI PC Client adjusts the size of most screen elements when its window size is changed to allow most aspects to remain in proportion.

This entire adjustment process may take, depending on how many screens are active and the microprocessor speed, 15-30 seconds.

System resources - "Out of Memory"

If a PC encounters an error indicating, to the effect, that insufficient memory is available, there are three general possibilities:

- 1. The Windows paging file, also referred to as virtual memory, is nearing capacity.
- 2. Physical memory is at capacity.
- 3. Windows internal control blocks are at capacity.

The Windows paging file is physical disk space used for swapping to and from main memory or the computers RAM. This disk space provides an extension of the physical memory, unfortunately at a much slower rate of access. Certain operations within MOMI, such as viewing a Spooler job or a disk file may require a great deal of virtual memory.

With the MOMI PC Client running, open the Windows Task Manager and select the **Performance** tab. The area labeled **PF Usage** shows the amount of paging file space in use and **Page File Usage History** shows a usage over the last few minutes of so. If the paging file is nearing capacity, have the PC administrator increase the amount of virtual memory available (i.e. the Windows paging file).

Virtual memory is great for temporary surges in memory requirements or to hold seldom used programs. However, in a true multi-tasking environment where many Windows programs are active or being activity used, virtual memory is no substitute real physical memory in a PC. In the Windows Task Manager, with MOMI and all other "normally started" programs active look on the tab **Performance** in the section **Physical Memory (K).** If the Available memory is zero or otherwise really low (perhaps below 100,000 or 100 Megabytes), the PC Administrator should consider adding more physical memory.

If items 1 and 2 are not the issue, another possibility is that Windows has exhausted space for internal control blocks. The default amount of space for Windows versions prior to XP are somewhat limited and unfortunately the counts available and in use are not easily obtained. If a PC encounters the message "Out of Memory" when running more than one copy of the MOMI PC Client simultaneously OR a single MOMI PC client is run with other PC programs such as Lotus Notes, running out of these control blocks is a strong possibility.

If a MOMI PC Client encounters a fatal error and crashes, a file named MOMI.LOG should appear on the desktop. Open this text file and check for the following text just a few lines down (text may vary but this is the general idea):

Not enough storage is available to complete this operation *or* Not enough storage is available to process this command

If items 1 and 2 described above are not the issue, and these messages (or something close to it) are encountered, a change to the Windows registry should be considered to increase the Windows Desktop Heap. Please see <u>Configuration recommendations</u> for details.

Unable to Register the CAIL Emulator

Shortly after starting the MOMI PC Client, a error message may display:

Unable to Register the CAIL Emulator...

Windows Vista, Windows 7 and certain corporate PC security configuration may prevent a Windows program from registering to the operating system the CAIL emulator.

To *correct* the problem, logon to the PC as an Administrator and then start the MOMI PC Client. It is not necessary to connect the client to a NonStop Server. During the startup of the MOMI PC Client it will register to Windows the CAIL emulator. This procedure need only be done once per MOMI PC Client version (i.e. in other words when a new client release is installed).

To *work-around* the problem, add to the short-cut used to start MOMI PC Client the runtime parameter of <u>NOCAIL</u>. Note that the CAIL emulator will not be available when this parameter is specified.

Viewing Help across Network Share

Changes in Microsoft security have made viewing MOMI help, when connected via a network drive or share, much more difficult.

HTML Help can generate lots of scripting warnings. Widows Help may only display the Table of Contents, but not individual pages.

If help is not available on the local PC trying selecting Web Help (this comes from the BlackWood Web site).

Sometimes, Unblocking a file within Windows (right-click on the file and select Properties) will remove access limitations.

Update \rightarrow As of MOMI software release 5.00 and later a new help documentation generator is used and adds a special 'mark of the web' so that MOMI HTML Help should display without error.

Windows Vista / Windows 7

Print dialog box

The printer dialog box, that displays when Print Screen is pressed, may disappear. What has happened is the dialog box is now behind the MOMI window.

Pressing ALT + TAB and select the dialog box will cause it to return to the foreground.

Information

Acknowledgements

CAIL emulator

The CAIL Emulator is provided courtesy of CAIL (<u>www.cail.com/index.html</u>) and is not a component of any purchased MOMI product. The Emulator is a limited-function version of the CAIL CTT/Suite product. Black-Wood Systems and CAIL reserves the right to discontinue, limit or alter the availability in future releases. Please see the CAIL Emulator help within the Emulator for additional information. To obtain a full featured emulator, please contact CAIL .

IP Workshop Professional

IP Workshop is provided courtesy of Peter Kostov (www.pkostov.com).

Export Information

MOMI is assigned the following classification for export purposes:

ECCN: 5D992

MOMI does not contain an open encryption capability. The embedded encryption capability is for the protection of passwords and internal data flow and considered Ancillary Cryptography.
General Limitations

Non-privileged operation

MOMI operates in a non-privileged mode and generally relies on information available via documented interfaces. This restriction means that certain information is not available. For example, viewing the screen <u>Proc</u>-<u>esses / Process Detail</u> cannot show the last error that occurred on a file. The last error is not available via either a documented Guardian procedure call nor via MEASURE.

Processes in the future

In its default mode of operation, MOMI does not generally display processes that are created after the current system time. This unusual situation could arise if either 1) the system is being used to experiment with changes in the system time, or 2) by accident the system time was set ahead, some processes were started, and the system time was returned to normal.

A normal change in the system time, such as where the system time is gradually adjusting, is not what this issue is describing. If the system operator was to force the system time backward say a couple of hours, MOMI would not generally pick up processes created within that couple of hour period of time. Once the couple of hours has passed, then MOMI would begin reporting on the missing processes.

The CONFMOMI keyword <u>COLLECT-ALL-PROCESSES</u> is provided to change the default mode of operation.

Snapshot operation

CPU and Process overview is generally displayed as the difference between two points in time. A way to think about this is that MOMI is constantly taking a limited picture of the system and compares the difference between the previous picture and the current picture.

For example, viewing the screen <u>Main Overview</u> the top processes on the system are the result of taking a snapshot of the system and comparing the differences from another snapshot 10 seconds later (by default). If a process was running during the entire window of time, it will be picked up by the snapshot. If the process was not running the entire window of time, the process itself should not be captured but the CPU busy (or some other field of the CPU such as Overhead) would be captured. This does not mean it will be displayed, unless it was busy enough to make the Top Processes on the system, but the snapshot captures the process.

Some screens, such as the screen <u>Processes / Process Entity</u>, that directly invoke MEASURE and read its result do capture all process activity.

The intention of these snapshots is not to try to capture every single process activity on the system, but capture process activity that occurs long enough that its activity could be noticed or acted on.

MEASURE can capture every process startup and shutdown. MOMI snapshots cannot. MOMI can display short duration processes on the screen <u>Processes / Process Entity</u> by starting this screen with a process name of \$* and by sorting ascending on the Measure Window Size (last column scrolling the screen all the way to the right).

Where MOMI stores data

Generally speaking, MOMI data concerning the overall program is stored on the NonStop System and on the local PC for user specific settings.

MOMI Server

The MOMI server stores configuration data in the <u>CNF01DB</u> file and contain the following:

Alarm definitions (including actions, times, email and email group) Client Access (all settings and users) EventBX User Defined User Hints

The file can be moved from one NonStop System to another.

Other files such as history and work files are stored as directed by their CONFMOMI keywords (or defaults).

MOMI PC Client

When a Client is started for the first time, it creates the MOMI.INI file with a default location:

Windows Vista / Windows 7 -

C:\Users\<UserID>\AppData\Roaming\BlackWood Systems\MOMI\

Other Windows versions -

C:\Documents and Settings\<UserID>\Application Data\BlackWood Systems\MOMI\

Where <UserID> is the name used at logon to Windows. You must enable the display of 'hidden' locations within Windows in order to see these locations.

The MOMI.INI file contains all client specific settings for the Windows logged user such as: last screen size and position, color trigger levels, timers, fonts and other screen defaults. Generally, if the setting is located under **Configure / Client & Define Systems** it is stored within the MOMI.INI file.

The file can be moved to another PC to transfer settings. Export and Import abilities are found under <u>Con-figure / Client / File Locations</u>.

Defined Systems can be pre-loaded for new MOMI Client users via this procedure.

Support

Reporting a problem

To report a problem, ask a question or provide other feed-back you can either use MOMI's built-in problem reporting software or send an email to:

Support@BlackWood-Systems.com

MOMI's built-in problem reporting software captures the current PC MOMI Client screen image, constructs and send a message directly to BlackWood. Additionally, a Diagnostic Text File that contains a great deal of PC, MOMI PC Client and NonStop System configuration information is automatically generated and attached. The Diagnostic Text File is in plain ASCII text and helps us understand your environment and resolve the issue (also saves us from asking lots of basic questions such as what software releases are being used, how many processors, what type of PC O/S, etc). Screen Prints are in JPG format.

On the screen to capture, right-click on the **Print Screen** button located in the lower right-hand corner of the window (this button is labeled **Clipboard** if a printer is not available) and select **Email BlackWood with Screen Print...**.

00,00	0053 \$ZEXP 180 P OZEXP	0.21
01,0	Configure Button Action	0.21
	Email BlackWood with Screen Print	
	Display Popup Memo	
00,0-	Cancel	0.15
Chat Not Logge	ed Un Hints On ? Help Prir	nt Screen

This selection displays the window below and captures the current PC MOMI Client screen. Additional screens may also be attached to the same email by selecting another screen within the MOMI PC Client again right-click on the **Print Screen** button and select **Email BlackWood with Screen Print...** (up to 30 screens may be attached in one message). Once all desired screens are captured, fill in the **From** with your email address and optionally add **CC** email addresses. In the body of the message type in any descriptive information concerning the problem or question (please try to give us enough detail so we may reproduce the problem or understand the question within the context of your environment). Push **Send Email** to transmit the data.

TEMail BlackWoo	d Systems (version 1.04)
Config From:	fred_smith@mycompany.com BlackWood SMTP Server
To:	Support@BlackWood-Systems.com
Cc:	
Subject:	MOMI Support Question
Attachments	Diagnostic Text File Screen Print
My System Seria My Client/Serve	al Number is: W40344
The heritation	
a valid name an	d it broke.
Fred	
Send	
EMail	

MOMI's problem reporting software uses the DNS addresses of momi-mail.blackwood-systems.com (backup is momi-mail-b.blackwood-systems.com) over port 80. If access via port 80 is blocked in your local network, pressing **Config** displays a window with the following selections:

1) Use the BlackWood Systems Server (the default)

This selection sends directly to BlackWood and does not require any email server nor configuration from the user

2) **Use NonStop SMTP** server (what is defined in the CONFMOMI file for <u>ALARM-SMTP-</u> <u>SERVER-ADDR</u>), or 3) **Use Local SMTP Server** and manually enter an SMTP server DNS or IP-Address and optionally specify a User Name and Password (this User Name and Password provide access to this local SMTP server if required).

Configure Server			
🔾 Use BlackWood Systems Server			
O Use NonStop SMT	🔿 Use NonStop SMTP Server		
192.168.20.82			
• Use Local SMTP Server			
smtp.inside.mycompany.com			
User Name	fred_smith		
User Password	****		
	OK		

Any selection other than **Use BlackWood Systems Server** will communicate using standard SMTP protocol over port 25.

In the event a MOMI program abends on the Nonstop Server, please transfer in <u>BINARY</u> the ZZSAnnnn file(s) to our FTP site and then use MOMI's built-in problem reporting software or an email and let us know happened. Please include any information you may have pertaining to the occurrence.

Our FTP site is accessed with the following information:

```
ftp address : ftp.blackwood-systems.com
user name : momisave
password : momisave (both are the same and lower case)
```

The logon will take you to a special area on our FTP site where this User ID has access to place (i.e. write) files. Please send us an email if you have any trouble accessing the FTP site.

If sending a SAVEABEND via email, the file **must** be compressed (either using PAK on the Nonstop Server or ZIP on the PC) then attach the resulting file. When compressing a file, please use a file extension to denote the type of compression (i.e. .zip for ZIP and .1729 for PAK).



Comments and suggestions

We welcome your comments and suggestions. You can either use MOMI's built-in problem reporting software or send an email to:

Support@BlackWood-Systems.com

Please note that while suggestions are considered, they may or may not be included in a future release.

Network / Troubleshooting

Overview

Today's networks are increasingly complex and installing a new application may require interaction from several operational groups in order to insure success. This section describes how MOMI communicates between the PC Client and NonStop based MOMI server.

The MOMI PC Client uses native TCP/IP (i.e. no RSC or anything like that is used) and opens a TCP socket to the MOMI Server on the NonStop platform.

Common problem scenarios are described and discussed.

Basic Network Information

The MOMI PC Client and MOMI server both use an address and port defined by the user. Communication originates from the MOMI PC based Windows client program and is destined to a NonStop Server based server process. The TCP level socket provides two-way or bi-directional communication. Multiple sockets may be used, but all originate from the MOMI PC Client.

MOMI uses 'plain Jane' TCP/IP native to Windows and the NonStop System. No other communication software is required.

If a network firewall is in-between the PC Client and HP NonStop server it must be configured to allow 'through' the TCP/IP address and port specified in the CONFMOMI keyword <u>TCPIP-LISTEN</u>. The TCP/IP address may be directly defined or is assigned to the TCP/IP stack (in the example below the IP address is what was assigned to \$ZTC0 which is outside of MOMI server configuration).

Data encryption

MOMI network traffic encrypts passwords but by default not data. Encryption of data may be enabled with the CONFMOMI keyword <u>ENCRYPTION-ALGORITHM</u>.

If everything goes right

The MOMI server on the NonStop System is started first. This allows the server to initialize and prepare to receive incoming connections.

On the NonStop server, in the subvolume where MOMI is installed the edit format file CONFMOMI contains at least one of the following lines:

== TCP/IP process and port

== the MOMI server listens

TCPIP-LISTEN \$ZTC0 * 2000

In this example, the line specifies that the MOMI server is listening on the TCP/IP process \$ZTC0 port 2000.

Once the MOMI Server is running, give it a couple of minutes after starting, in the MOMI PC Client, assuming that \$ZTC0 has a TCP/IP address of 192.168.20.10, you would enter the following information (color high-lighted) on the screen <u>Configure / Define Systems</u>:

MOMI (Client version 5.19)			
Black Wood		2010/12/29 14:45:58	
	CPUs Processes Files SubSystems History	Configure	
Diagnostics Server Settings Define Systems Client Access UserHints Tools Reference Chat			
Set default system Def	fault System	Delete selected system	
TCP/IP Address:F	Port MOMI Logical Name		
Clear addr/port	TCP/IP Address 192.168.20.10 Port 200	00 Add new system	
	Chat Not Logged On	Hints On ? Help Print Screen	

If communication is successfully established, the following displays:

MOMI (Client version 5.19)				
Black Wood			_ <u>_</u>	Resume 2010/12/29 14:32:06
	view CPUs Processes	Files SubSystems History	Configure	
Diagnostics Server Settings	Define Systems Client	t Access UserHints Tools Re	eference	hat
Set default system	Default System		Dele	te selected system
TCP/IP Addre	ess:Port MO	OMI Logical Name		
	Con	Sum Custom Namo		
	System Description	<pre>System Name </pre>	n>	
	Addr: Port	102 168 20 10:2000		
		192.100.20.10.2000		
		BW31		
	Save	L	ancei	
Clear addr/port	TCP/IP Address	Port	A	dd new system
•		Chat Not Logged On	Hints On	Help Print Screen

The pop-up window entitled "Confirm System Name" indicates communication was successfully established. If desired update the text field, showing the system name \BWS1 above, and then push Save to complete the operation of defining a system to MOMI.

The first system successfully defined becomes the default system displayed on subsequent startups of the MOMI PC Client. The default system displayed may be changed on this screen.

Now, what can go wrong (i.e. troubleshooting)

If communication was not successful, the following displays:

MOMI (Client version 5.19)				
Black Wood		2010/12/29 14:33:30		
- Systems	Overview CPUs Processes Files SubSystems History	Configure		
Diagnostics Server Se	Diagnostics Server Settings Define Systems Client Access UserHints Tools Reference Chat			
Set default system	Default System	Delete selected system		
TCP/IP	Address:Port MOMI Logical Name			
	·			
	DNS Lookup results	X		
HostName/Addr	192.168.20.11			
Resolved Name/Addr	bws1-m1.office.blackwood-systems.local	(1 addresses)		
List of DNS results	bws1-m1.office.blackwood-systems.local	*		
		Ψ.		
	TOD/TD 4 Harry 102 160 20 11			
Clear addr/port ICP/IP Address 192.108.20.11 Port 2001 Add hew system				
Error: Cannot connect	to MOMI Server Chat Not Logged On	Hints On ? Help Print Screen		

I pressed Add new System... and nothing happed

It can take up to 30 seconds for a response if a timeout or retries occur. Normally, after pressing "Add new System", the response from the MOMI server is immediate.

I pressed Add new System... and the MOMI PC Client locks up or terminates

This indicates that AntiVirus and/or firewall software is blocking the TCP socket connect from the client to the server.

Check with your PC and/or network support groups and see what authorization is required to enable a new PC application. MOMI uses a TCP level socket over the port number you specify. You may need 1) the MOMI PC Client itself authorized to operate, and 2) the TCP level socket and port authorized.

The TCP/IP process name is not valid

Shortly after starting the MOMI server, check the EMS log on the NonStop System. If MOMI encounters any error accessing the TCP/IP process, messages are logged to EMS.

To determine if the TCP/IP process named entered in the CONFMOMI file (\$ZTC0 used in our example) is correct, from a TACL prompt enter the following command:

STATUS \$ZTC0

If the process is found, several lines of data appear listing either TCPIP or TCP6SAM as the object file name (usually located in \$SYSTEM.SYSnn). If the process name is not found, TACL returns "Process does not exist". Check with your NonStop System administrator to determine the correct TCP/IP stack process name. Note that multiple stacks may exist on the system (i.e. you need the correct one and not any one).

The TCP/IP port is already in use

Shortly after starting the MOMI server, check the EMS log on the NonStop System. If MOMI encounters any errors accessing the TCP/IP socket (i.e. port), messages are logged to EMS.

To determine if a TCP port is free, start a SCF from a TACL prompt and enter the following command:

SCF status process \$ZTC0

Examine the output and find a port in the LPort column not used (greater than 1024 and less than 32767)

The TCP/IP address entered in the client is not correct

Check with the system and/or network administrator to confirm the address(es) for the TCP/IP stack.

It is possible that your network re-maps addresses. Literally, the NonStop System address may not be directly accessible, but an alternate mapped address is referenced.

The TCP/IP address and port are both correct and not already in use but I still can't connect

 This may indicate a firewall and/or firewall software is in-between your MOMI PC Client and the Non-Stop Server. The firewall may be running on your PC and/or is a physical box on the network inbetween your PC and the NonStop Server. You can try to PING from your PC to the NonStop Server by opening up a command prompt window and entering the following (using the example IP address above):

PING 192.168.20.10

Unfortunately, it is possible that the PING works but a MOMI connection fails. This indicates the ICMP (i.e. what a PING really is) function is allowed but MOMI data flow is not.

The best bet, assuming the required TCP/IP address and port information is valid and the MOMI server is started and successfully running on the NonStop System, is to speak with your network and/or PC administrators and determine what procedures are required to enable a new TCP/IP network application within your environment. It is very possible that both local PC and network authorization is required.

In some environments, the MOMI port (default of 2000) may be internally used by networking equipment. In the CONFMOMI file alter the port (default of 2000) to another value (still has to be free on the NonStop side), restart the MOMI server (wait a bit) then try to reconnect in the client using the old IP and new port.

What things may stop MOMI data flow?

Generally speaking, firewall and Anti-Virus port scanning software.

Network firewalls in-between corporate PC's and Servers are getting to be more common place. The extra level of security means that any new application must be enabled. Literally, firewalls prevent communication to non-approved network methods.

Anti-Virus port scanning software can be configured to examine all TCP/IP port traffic. The examination itself may interfere or the lack of understanding MOMI's communication protocol by the AntiVirus software can prevent or stop communication by error-ing on the side of caution.

In both cases, environments running protections of this type would have a defined procedure available (i.e. forms to fill out) to establish a new software product. Since Introducing new software applications such as MOMI is probably not an everyday occurrence, don't' be surprised if the required underlying tasks need to be dug out from a drawer and 'dusted off' :)