

Reactive Fault Management: Support Tools Manager

Betty Li

betty.li@hp.com

HP (Event Management Lab)



Support Tools Manager

Introduction

- Support Tools Manager Overview
- Benefits of the Support Tools Manager
- Support Tools Usage Flow
- Types of Support Tools Available
- Levels of Tool Licensing
- Support Tools Manager Architecture
- Support Tools Manager Daemon

Support Tools Manager Overview



- Support Tools Manager (STM) consists of a complete set of online diagnostics support tools
- To assist you in verifying and trouble-shooting your systems against any system hardware failures
- Standard package as part of HP-UX to help keep your systems running at peak performance by providing you with predictive and preventative maintenance diagnostics for your hardware

Benefits of the Support Tools Manager

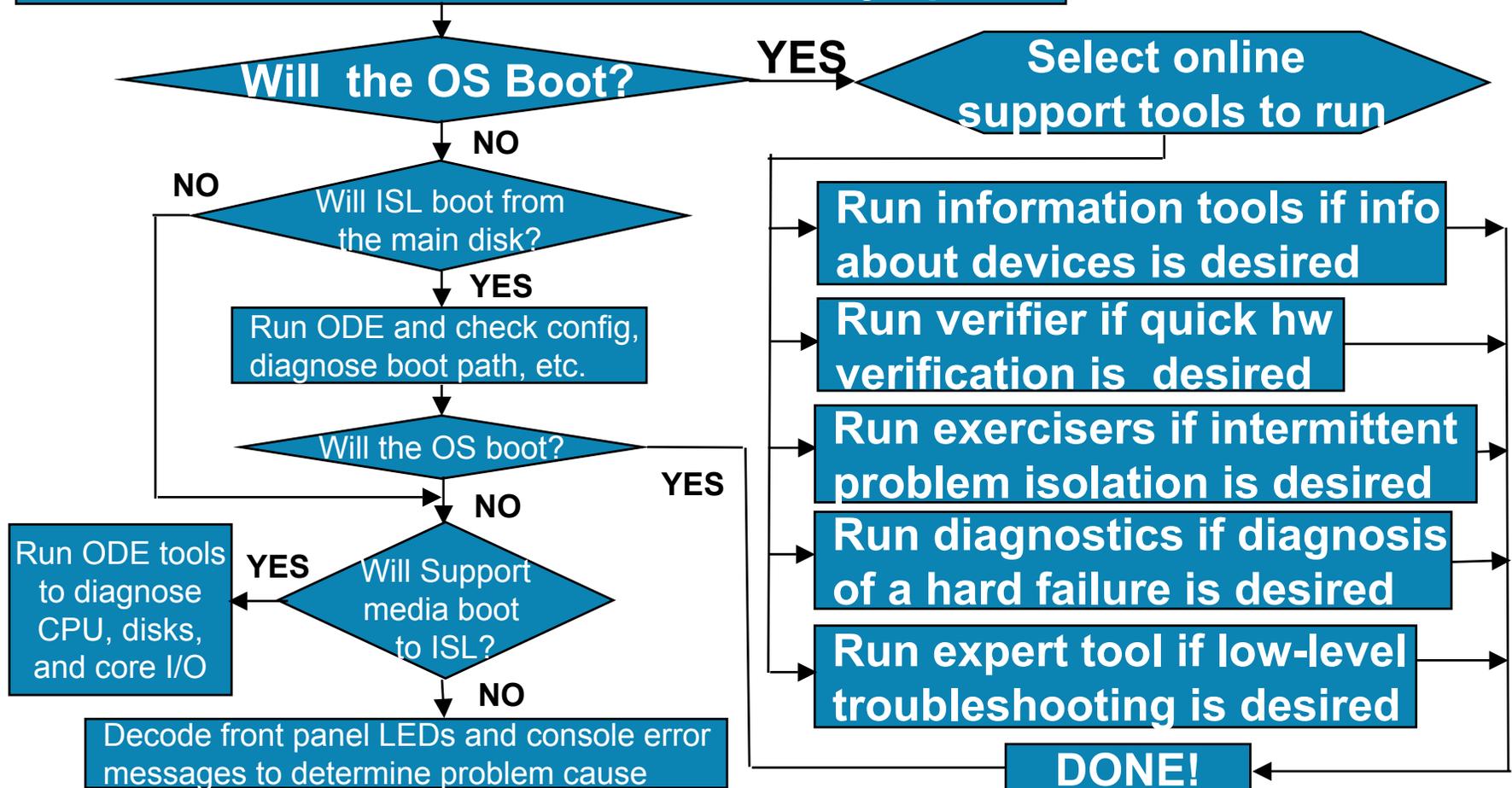


- Provide the ability to test the system while it is online
- Provide a representation of all of the hardware devices on the system, plus useful information about them
- Exercise the system to uncover intermittent problems
- Reduce time to repair
- Reduce system downtime
- Easy to use

Support Tools Usage Flow

EMS Hardware Monitors are watching!!!

Record events, error conditions, and symptoms



Types of Support Tools Available (1 of 4)

■ Identification Modules

- Identify devices on the system in order to provide a representation of all of the hardware
- Only executed when the configuration map is built

■ Information Tools

- Provide quick access to the most useful information about hardware components
- Typical information includes
 - Product identifier
 - Physical path
 - Firmware revisions
 - On-board log information

Types of Support Tools Available (2 of 4)

■ Verifiers

- Provide a quick verification of the hardware to ensure it is properly connected and functional from an end-user perspective
- Isolate the cause of failures

■ Exercisers

- Stress the hardware in order to facilitate the reproduction of intermittent problems
- Isolate errors, if possible

■ Diagnostics

- Perform as complete a test as possible on the hardware to detect and isolate faulty hardware on the device
- Isolate failures to FRU & component level

Types of Support Tools Available (3 of 4)

■ Expert Tools

- Device-specific sophisticated troubleshooting utilities for expert users
- Functionality depends on the type of device and needs of users
- Interactive tool

■ Firmware Update Tools

- Initiate the firmware update process for a selected device
- Provide a common front-end for various device-specific firmware update processes

Types of Support Tools Available (4 of 4)

■ Utilities

- Logtool
 - Access to system log files that contain recoverable errors detected by the system
- Copyutil
 - Backup data from a SCSI disk device, and at a later time, to restore the data from the backup medium to the desired disk
- Modmutil
 - Display modem information, reset the internal modem, run terminal commands, and test the internal modem
- MOutil
 - Retrieve information about the MO devices and run various diagnostic tests to verify that all MO devices are functional

Example: Memory Information Tool

- Provide general information about the memory hardware subsystem
 - Information on amount of memory installed, configured, or deconfigured on the system
 - Inventory of all DIMM slots on the system
 - Summary of memory errors on the system
 - Summary of memory entries in the Page Deallocation Table
- Can be used for support, manageability, and memory upgrade activity

Example: Disk Verifier

- Provide quick verification on the selected disk device to determine if it is functional
- Write/Read tests will be performed when:
 - Disk is mounted and media is fixed
 - Media is removable and write enabled
- Read-Only tests will be performed when:
 - Media is removable and write protected
 - Full media verification required

Example: Tape Exerciser

- Stress the selected tape device in order to assist in finding intermittent problems
- Stress the tape channel by performing continuous read and write operations to the selected device

Example: Fibre Channel Interface Diagnostic Tool

- Perform as complete a test to check the functionality of the selected Fibre Channel Interface card
- An external loop back test is performed to identify any FRU level problems
- Both internal and external loop back tests are performed to identify any component level problems

Example: CPU Expert Tool

- Provide sophisticated troubleshooting for problems associated with a specific processor
 - Current processor status information (active state, configuration state)
 - The ability to assign a process to a specific processor
 - The ability to enable or disable individual processor modules without requiring restart of the OS or reset of the system
 - The ability to mark individual processor modules for deconfiguration or reconfiguration on the next reboot
 - Extensive testing of individual processor modules

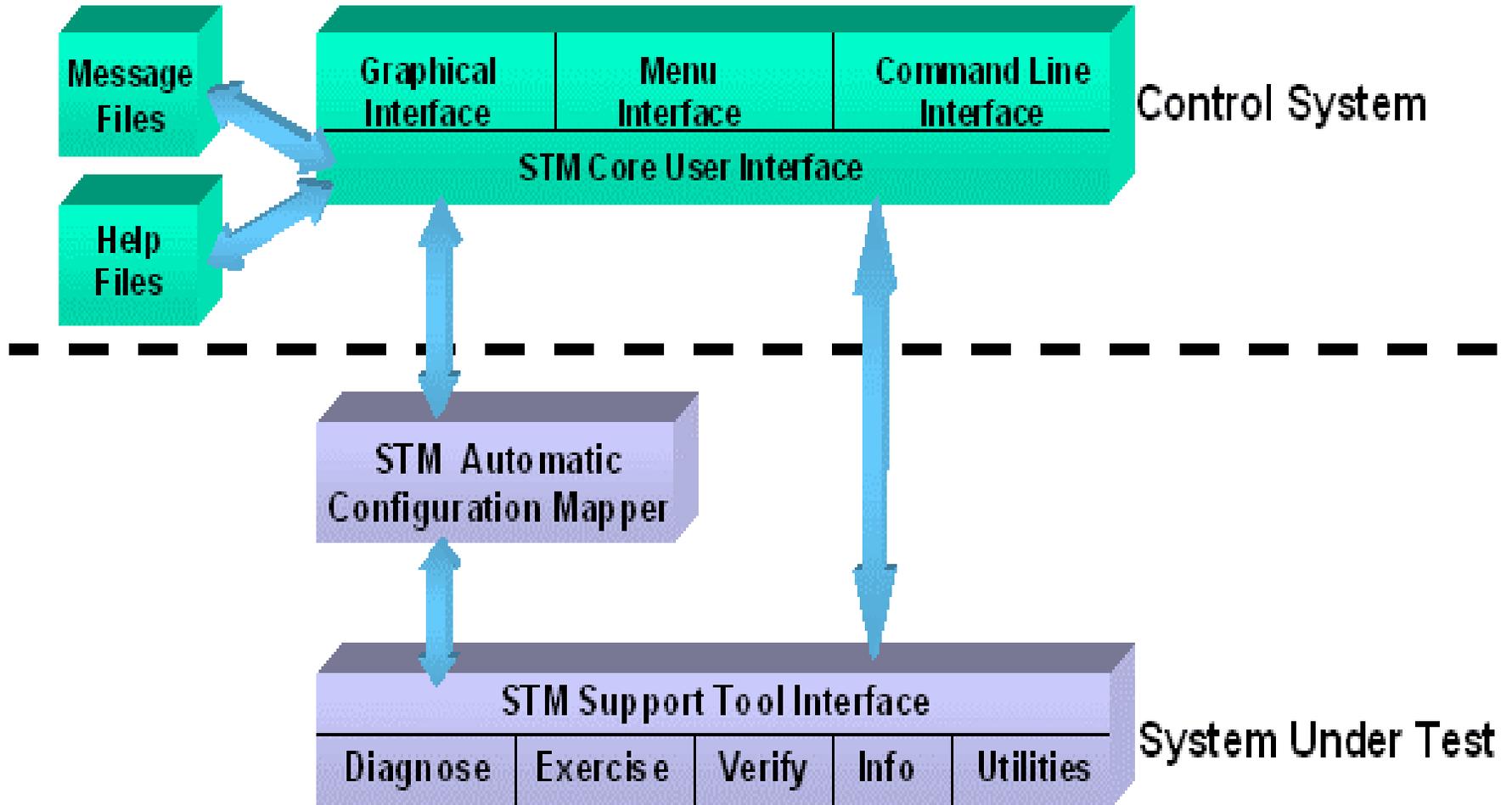
Levels of Licensing

- 3 levels of licensing:
 - Free (no license required)
 - Licensed
 - HP Only
- Licenses are obtained by:
 - Purchasing a support contract
 - Temporary licenses provided by HP support

Tool Licensing

Tool Type	Licensing Required
Information Tools	No
Verifiers	No
Exercisers	No
Diagnostics	Yes
Expert Tools	Yes
Firmware Update Tools	Yes
Logtool Utility	No
Copyutil Utility	Yes
Modmutil Utility	No
MOutil Utility	No

Support Tools Manager Architecture



Support Tools Manager Daemon

- Support Tools Manager's monitor daemon (diagmond) is the heart of the online support tools
- Started automatically at boot time
 - Keep track of the system hardware configuration
 - Manage launching and controlling support tools
 - Maintain device/tool state information
 - Service user interface connection requests

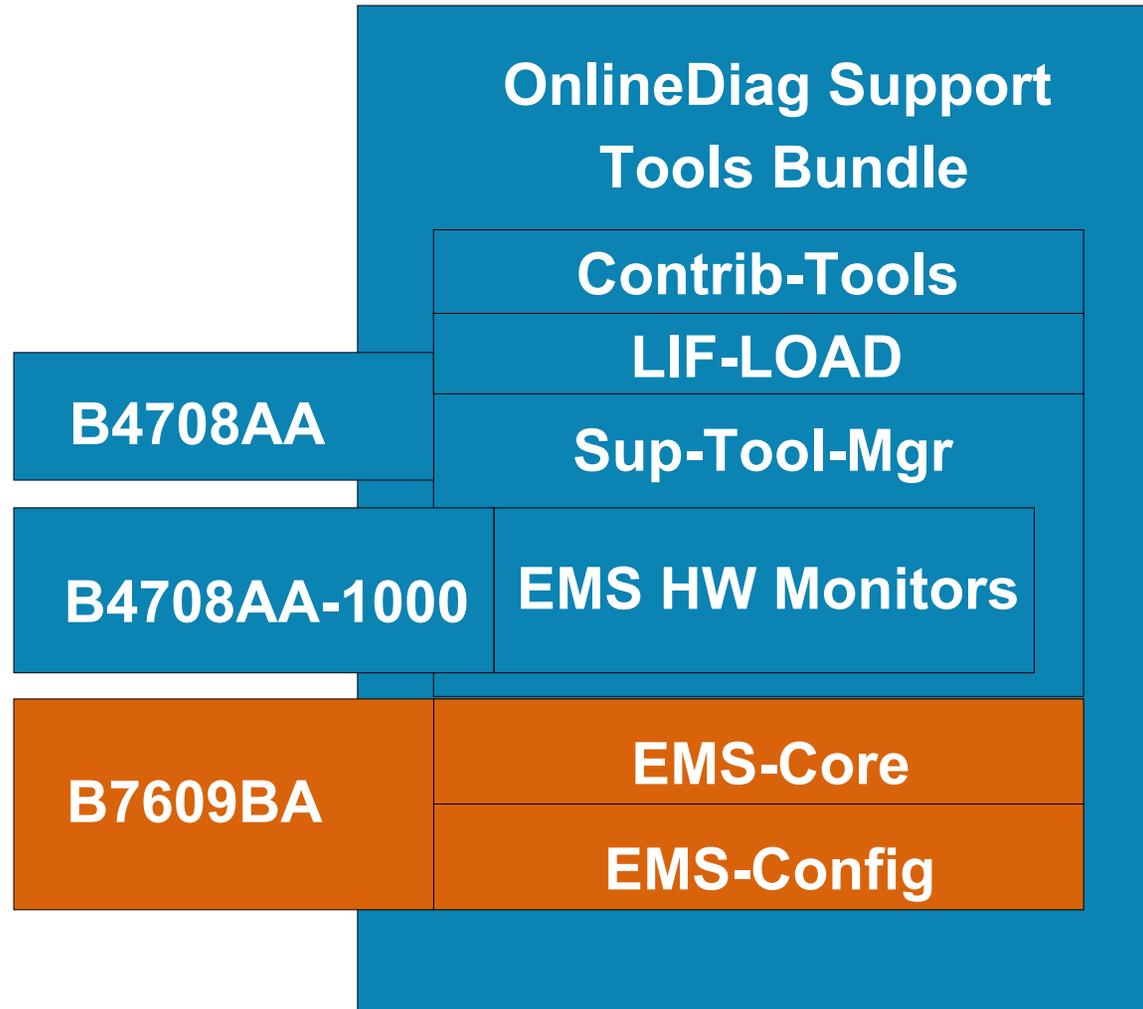
Support Tools Manager

Installation

- Product Structure
- Installing the Support Tools Manager

Product Structure

S800
HP-UX 11.00
HP-UX 11.11
.....



Installing the Support Tools Manager



- By default, the Diagnostics and Support Tools are AUTOMATICALLY installed when you install the HP-UX operating system
- New versions of the Diagnostics and Support Tools are released
 - Incorporate improvements to the interface, tools, or functionality
 - Support new functionality or new hardware
- A copy of the OnlineDiag Software Depot can be obtained from:
 - Update Media (CD-ROM)
 - HP Software Depot (<http://www.software.hp.com>)

Support Tools Manager

Usage and Operation

- User Interface
- Running the Support Tools Manager
- System Map
- Running Support Tools
- Getting Result Information
- UI Files
- System Files
- List of All Commands

User Interface

- Support Tools Manager can be accessed through any of three interfaces
- Graphical User Interface (XSTM)
 - X Window graphics terminals or workstations
- Menu User Interface (MSTM)
 - Non-graphics terminals
- Command Line User Interface (CSTM)
 - Non-graphics terminals
 - Useful for running scripts

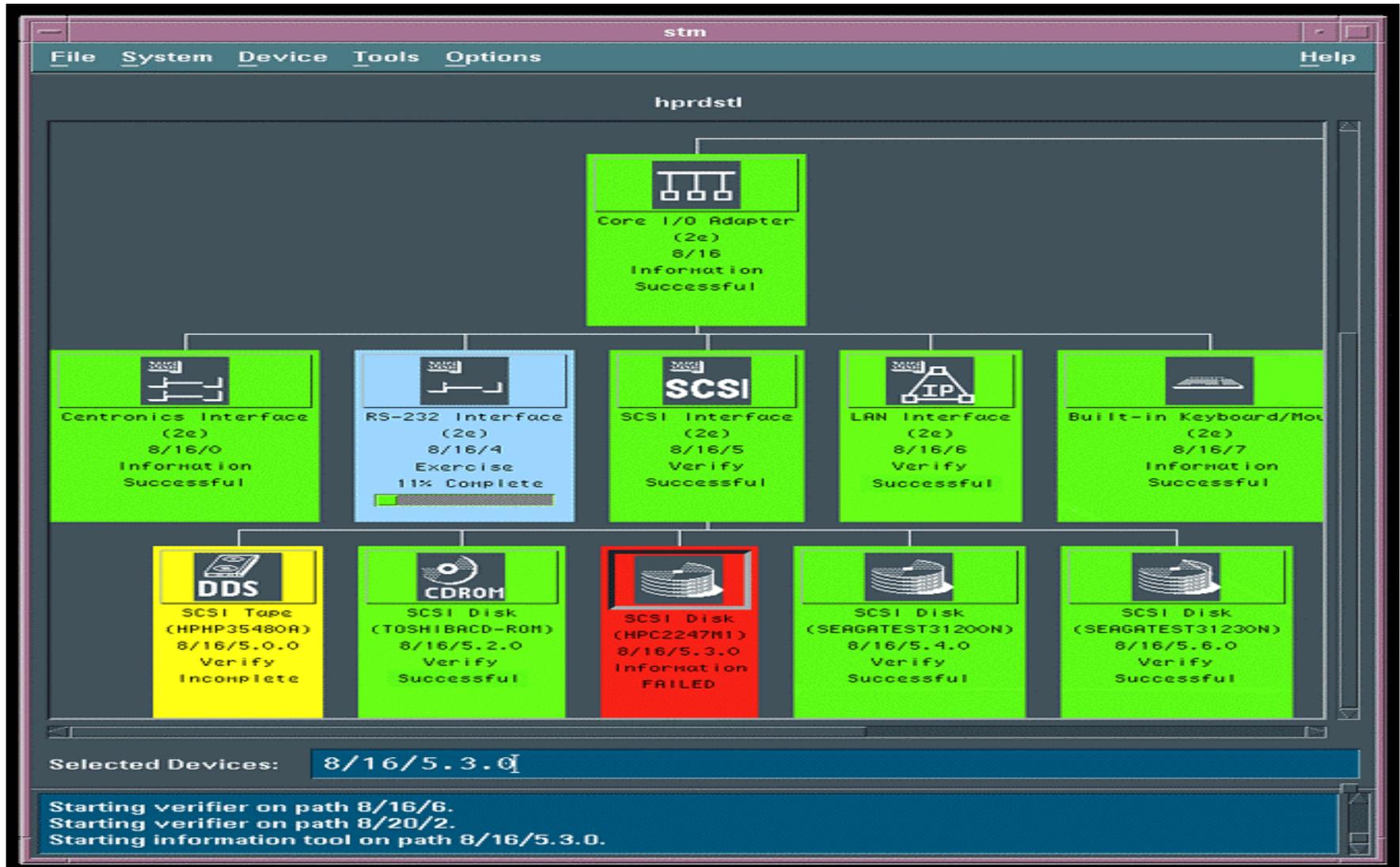
Running the Support Tools Manager

- Start the Support Tools Manager with the desired user interface
 - Graphical: */usr/sbin/xstm*
 - Menu: */usr/sbin/mstm*
 - Command Line: */usr/sbin/cstm*

System Map

- Upon startup, the Support Tools Manager provides you with a system map displaying all of the hardware within the system
- The system map is used to select the specific devices to test and to display a summary of the test results
- The system map also provides information on device type, device path, last active tool, and test status

Graphical User Interface (XSTM): System Map



Menu User Interface (MSTM): System Map

dot

/usr/sbin/stm/ui/bin/stm

File	System	Device	Tools	Options	Help
		Current Device Status		up.hp.com	
		Clear Tool Status		Last Active Tool	Last Op Status
Path		Select All			
8		Select Class...	e (4)	Verify	Successful
8.1)	Verify	Successful
24		Unselect All	(4)		
24.0.0		Unselect Class...	80A)		
25			/ce (4)		
32		NIO Fast/Wide SCSI Interf		Verify	Aborted
32.5.0		SCSI Disk (SEAGATEST31200		Verify	Successful
32.6.0		SCSI Disk (HPC2490WD)		Verify	Successful
36		NIO Token Ring LAN Interf		Verify	Incomplete
40		NIO LAN Interface (4)			
48		NIO Terminal Multiplexor			
49		NIO Terminal Multiplexor			
56		NIO LAN/Console Interface			
62		CPU (283)			
63		MEMORY (14)			

help Alt Select/Deselect Menubar on/off dot REFRESH EXIT

Command Line User Interface (CSTM): System Map

```
dot
```

Dev Num	Path	Product	Last Active Tool	Last Op Status
1	8	NIO HP-IB Interface (4)		
2	8.1	HP-IB Disk (HP1707)	Verify	Aborted
3	24	NIO SCSI Interface (4)	Verify	Aborted
4	24.0.0	SCSI Tape (HPHP35480A)		
5	25	Centronics Interface (4)		
6	32	NIO Fast/Wide SCSI Interf	Verify	Aborted
7	32.5.0	SCSI Disk (SEAGATESTI31200		
8	32.6.0	SCSI Disk (HPC2490WD)	Verify	Aborted
9	36	NIO Token Ring LAN Interf		
10	40	NIO LAN Interface (4)	Verify	Aborted
11	48	NIO Terminal Multiplexor	Verify	Successful
12	49	NIO Terminal Multiplexor	Verify	Successful
13	56	NIO LAN/Console Interface	Verify	Incomplete
14	62	CPU (283)		
15	63	MEMORY (14)		

```
cstm>
```

Running Support Tools

- Support tools can be run using a simple three-step paradigm:
 - Select the devices to test
 - Select a tool (test) to execute on the devices
 - Examine the results

Getting Result Information (1 of 2)

- Result information from support tools can be obtained easily from the system map device status
 - Successful
 - Failed
 - Incomplete
 - Abort Pending
 - Aborted
 - Query Pending
 - Warning
 - Hung
 - Killed
 - Suspended

Getting Result Information (2 of 2)



■ Tool Logs

– Failure Log

- Tool failure information identifying the likely causes for the device failure and probable cause(s)/recommended action(s)

– Test Activity Log

- Tool activity information showing detailed tool status, test options, etc.

– Information Tool Log

- Information tool data (created by the information tools only) providing useful information on the selected device

UI Files

- XSTM X resource file (*/usr/lib/X11/app-defaults/XStm*)
 - Contain X resource definitions
 - Size of windows
 - Foreground colors
 - Background colors
 - Highlights
 - Colors for different tool states
- .stmrc startup script (*/usr/sbin/stm/ui/config/.stmrc*)
 - Contain UI startup commands
 - User can copy the default script into their \$HOME directory to create customize startup script
- config.stm configuration file (*\$HOME/config.stm*)
 - Contain UI configuration when user selects to save it

System Files

- `id_mod_xref (/var/stm/data/id_mod_xref)`
 - Determine identify modules to execute to identify hardware on the system
 - Identify modules to determine product information
- `prod_op_xref (/var/stm/data/prod_op_xref)`
 - Determine device-class information
 - Determine list of available tools for product information (determined by identify modules)
- `diagmond.cfg (/var/stm/config/sys/diagmond.cfg)`
 - Contain configuration information for the *diagmond* daemon

File Commands (1 of 3)

- Save/restore UI configuration on
 - Map options
 - General options
 - Tool options
- Start/stop recording command file
 - Create command files by recording actions
- Run command file
 - Read in and execute a sequence of commands from file
- Start/stop recording output
 - Save UI output to a file

File Commands (2 of 3)

- UI activity log
 - Format and display *ui_activity_log*
- Reread UUT configuration
 - Have *diagmond* reread *diagmond.cfg* file
- Update tool information
 - Reread *prod_op_xref* entry for selected devices
- Local startup/shutdown
 - Startup and shutdown local *diagmond*
- Local map log
 - Format and display *scan_hw_log* on local system
 - Does not require UI to be connected or *diagmond* to be up

File Commands (3 of 3)

- Local system activity log
 - Format and display system *activity_log* on local system
 - Does not require UI to be connected or *diagmond* to be up
- Local syslog
 - Display log created by *syslogd*
- Escape to OS (MSTM and CSTM only)
 - Suspend user interface and bring up Shell prompt
- Exit

System Commands (1 of 3)

- Connect to systems
 - Connect UI to the selected system
- Select current system
 - Makes selected system current with its system map displayed
- Disconnect system
 - Disconnect UI from selected system
- Save map
 - Save a text version of the map for the current system to a file
- Print map
 - Print a text version of the map for the current system

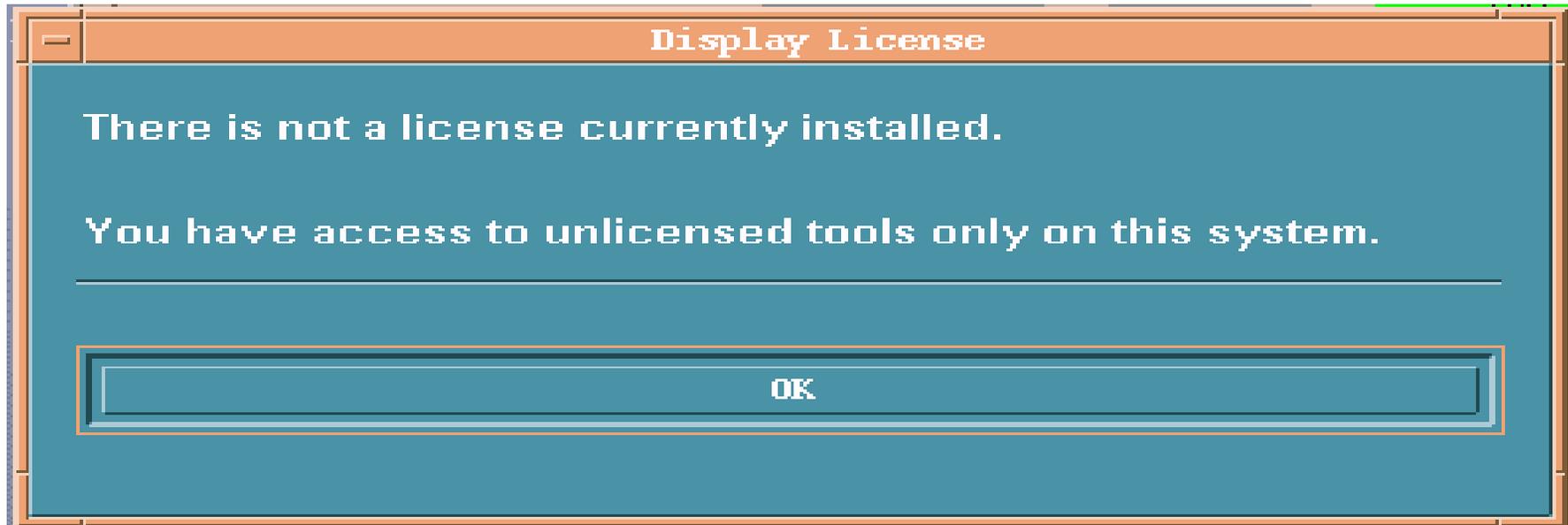
System Commands (2 of 3)

- Remap system
 - Rescan the hardware on the current system and rebuild the system map
- Map log
 - Format and display *scan_hw_log* for current system
- Display license
 - Display the license level active for the current system
- Install license
 - Install a normal license on the current system
- Install HP-Only license
 - Install an HP-Only license for the session in which the UI is active

System Commands (3 of 3)

- Deinstall license
 - De-install all licenses on the current system
- System activity log
 - Format and display the system *activity_log* for the current system
- Map (CSTM only)
 - Display the map for the current system

XSTM: Display License



Device Commands (1 of 2)

- Current device status
 - Format and display information about the current state of the selected device
- Clear tool status
 - Reset tool history for the currently selected devices to indicate no tools have been executed
- Select all/unselect all
 - Select or unselect all devices on the current system
- Select class/unselect class
 - Select/unselect device on current system based on device type and device qualifier selected

Device Commands (2 of 2)

- Filter set/clear
 - Limit the number of items which are displayed in the system map at a given time

XSTM: Current Device Status

X Current Device Status Log for SCSI Disk on path 10/0.3.0

```

-- Current Device Status Log for SCSI Disk on path 10/0.3.0 --

The following information was archived during the last hardware scan:

Product           : SCSI Disk
Qualifier         : SEAGATEST34371W
Hardware Path     : 10/0.3.0
Device Type       : Disk
Device Qualifier  : Hard

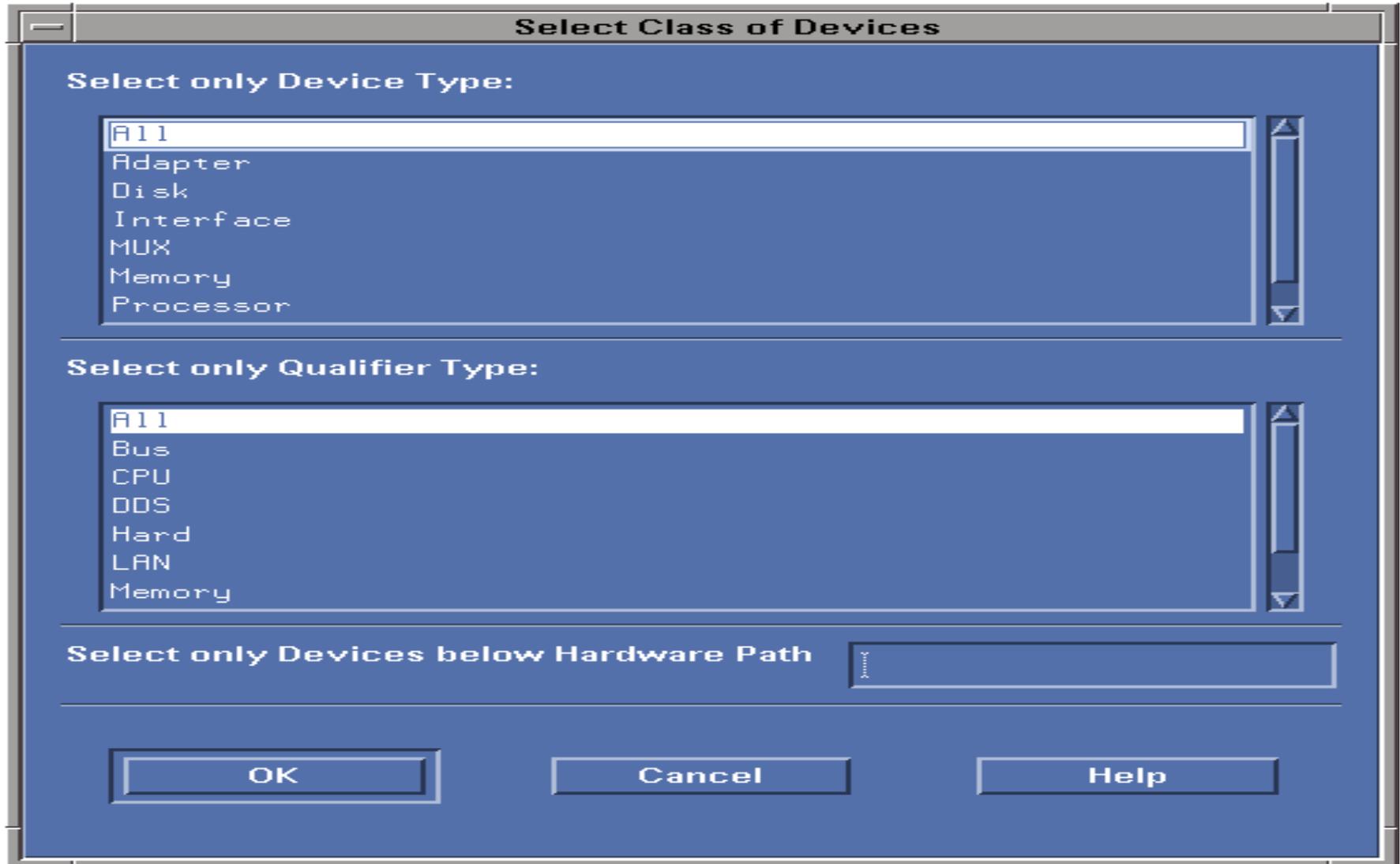
Most Recent Tool Run : Information
Tool Exit Status    : Success
Current Status      : Success

Recommended Action  : None

Installed tools:
Diagnostic          : None
Verifier            : disk
Exerciser           : disk
Information         : scsi_disk
Expert Tool        : scsi_disk (Licensed)
Firmware Update    : scsi_disk
  
```

Search FindNext Print SaveAs Done Help

XSTM: Select/Unselect Class



Tools Commands (1 of 2)

■ Run

- Run the tool on the selected devices

- * Information

- * Diagnose

- * Verify

- * Expert Tool

- * Exercise

- * Firmware Update

- * Utility

■ Information log (Information Tools only)

- Format and display the information retrieved by the information tool

■ Activity log

- Format and display the *activity_log* created by the tool

Tools Commands (2 of 2)

- Failure log
 - Format and display the *failure_log* created by the tool
- Info
 - Format and display basic information about the tool
- Abort/suspend/resume/kill tool
 - Abort/suspend/resume/kill the tool executing on the currently selected device
- Abort/kill utility
 - User interface will ask the user which active utility to abort
- Display “Query Pending”
 - Display the query from the currently selected tool

XSTM: Memory Information Tool

Information Tool Log for IPF_MEMORY on path memory

-- Information Tool Log for IPF_MEMORY on path memory --
Log creation time: Thu Jul 24 22:39:02 2003
Hardware path: memory

Basic Memory Description

Module Type: MEMORY
Page Size: 4096 Bytes
Total Physical Memory: 9216 MB
Total Configured Memory: 9216 MB
Total Deconfigured Memory: 0 MB

Memory Board Inventory

DIMM Location	Size(MB)	State	Serial Num	Part Num
Cab 0 Cell 0 DIMM 0A	512	Config	A56E03476756	A5198-60001
Cab 0 Cell 0 DIMM 0B	512	Config	A56E03884192	A6097-60001
Cab 0 Cell 0 DIMM 1A	512	Config	A56E03884500	A6097-60001
Cab 0 Cell 0 DIMM 1B	512	Config	A56E03884183	A6097-60001
Cab 0 Cell 0 DIMM 2A	2048	Config	A56E04110020	A6100-60001

Selected Devices

Connected to
The current h
Starting infor

Search FindNext Print SaveAs Done Help

XSTM: Disk Verifier

The screenshot displays the XSTM Disk Verifier application window. The main window has a menu bar with 'File', 'System', 'Device', 'Tools', 'Options', and 'Help'. On the left, a tree view shows a 'PCI SCSI Interface (10000021) 0/0/0/2/0' connected to a 'SCSI Disk (HP18.2GATLAS10K3_18_SCA) 0/0/0/2/0.6.0'. The disk is highlighted in green, and a 'Verify Successful' message is shown below it. A 'Selected Devices:' field contains '0/0/0/2/0.6.0'. At the bottom left, a status bar reads 'Connected to host hpdst34. The current host has been Starting information tool or...'. A large log window titled 'Verify Activity Log for SCSI Disk on path 0/0/0/2/0.6.0' is open, displaying the following text:

```
-- Verify Activity Log for SCSI Disk on path 0/0/0/2/0.6.0 --
Log creation time:
Thu Jul 24 20:35:49 2003

Thu Jul 24 20:35:49 2003: Verify tool (disk) starting on path (0/0/0/2/0.6.0)
with the following tool options:

Thu Jul 24 20:35:49 2003:   The tool will loop 1 time(s).

Thu Jul 24 20:35:49 2003:   The tool will continue execution until a maximum
of 10 error(s) occur(s).

Thu Jul 24 20:35:49 2003:   The tool will perform medium test coverage. This
means the tool will perform its testing as quickly
as possible but will achieve as much test coverage
as possible without taking an excessive amount of
time.

Thu Jul 24 20:35:52 2003: The disk verifier will perform read and write test on
device on file system that is mounted on /var.

Thu Jul 24 20:35:52 2003: Tool completed with exit_status SUCCESSFUL (0)
indicating tool completed without errors.
```

At the bottom of the application window, there are buttons for 'Search', 'FindNext', 'Print', 'SaveAs', 'Done', and 'Help'.

XSTM: Tape Exerciser

stm

File System Device Tools Options Help

Exercise Activity Log for SCSI Tape on path 10/4/4.3.0

```
-- Exercise Activity Log for SCSI Tape on path 10/4/4.3.0 --

Log creation time:
Thu Jul 24 18:02:32 2003

Thu Jul 24 18:02:32 2003: Exercise tool (tape) starting on path (10/4/4.3.0)
with the following tool options:

Thu Jul 24 18:02:32 2003: The tool will execute for 10 minute(s).

Thu Jul 24 18:02:32 2003: The tool will continue execution until a maximum
of 10 error(s) occur(s).

Thu Jul 24 18:02:32 2003: The tool will perform medium stress level testing.
This means the tool will stress the hardware as
much as possible without causing any other tools
to fail due to system resource contention. System
```

DLT

SCSI Tape
(QuantumDLT4000)
10/4/4.3.0
Exercise
0% Complete

Selected Devices: 1

The current host h
Starting exerciser
Starting exerciser

Search FindNext Print SaveAs Done Help

XSTM: Fibre Channel Interface Diagnostic Tool

The screenshot displays the XSTM diagnostic tool interface. The main window has a menu bar with 'File', 'System', 'Device', 'Tools', 'Options', and 'Help'. A central panel shows a green box with the 'FC' logo and the text 'Fibre Channel Interface (HP3740A_Tachyon) 8/0/1/0 Diagnose Successful'. Below this, it says 'Selected Devices: 8/0/1/0' and 'Connected to host hpdst The current host has been...'. A floating window titled 'Diagnose Activity Log for Fibre Channel Interface on path 8/0/1/0' is open, showing a log of events:

```
-- Diagnose Activity Log for Fibre Channel Interface on path 8/0/1/0 --  
  
Log creation time:  
Thu Jul 24 20:39:12 2003  
  
Thu Jul 24 20:39:12 2003: Diagnose tool (fc_adaptor) starting on path (8/0/1/0)  
with the following tool options:  
  
Thu Jul 24 20:39:12 2003: The tool will loop 1 time(s).  
  
Thu Jul 24 20:39:12 2003: The tool will isolate failures to the Field  
Replaceable Unit (FRU).  
  
Thu Jul 24 20:39:12 2003: The tool will perform medium test coverage. This  
means the tool will perform its testing as quickly as possible but will achieve as  
much test coverage as possible without taking an excessive amount of time.  
  
Thu Jul 24 20:40:00 2003: Tool completed with exit_status SUCCESSFUL (0)  
indicating tool completed without errors.
```

At the bottom of the log window, there are buttons for 'Search', 'FindNext', 'Print', 'SaveAs', 'Done', and 'Help'.

XSTM: CPU Expert Tool

The screenshot shows the XSTM CPU Expert Tool interface. The main window has a menu bar with 'File', 'System', 'Device', 'Tools', 'Options', and 'Help'. A tree view on the left shows a device hierarchy with 'CPU (5ea) 6/10 Expert Tool Running' selected. A modal dialog box titled 'Expert Tool for device CPU on path 6/10.' is open, displaying the following information:

```

Expert Tool version A.01.07

Use Help to get more information and operation instruction guide.

SPU Number:           0
Physical Device:      6/10
HPA:                  0xfffffffffc678000
Active:               Active
Configured:           Configured
Marked for Configuration: Not Marked
Monarch:              Yes

SPU Number:           1
Physical Device:      6/11
HPA:                  0xfffffffffc67a000
Active:               Active
Configured:           Configured
Marked for Configuration: Not Marked
Monarch:              No

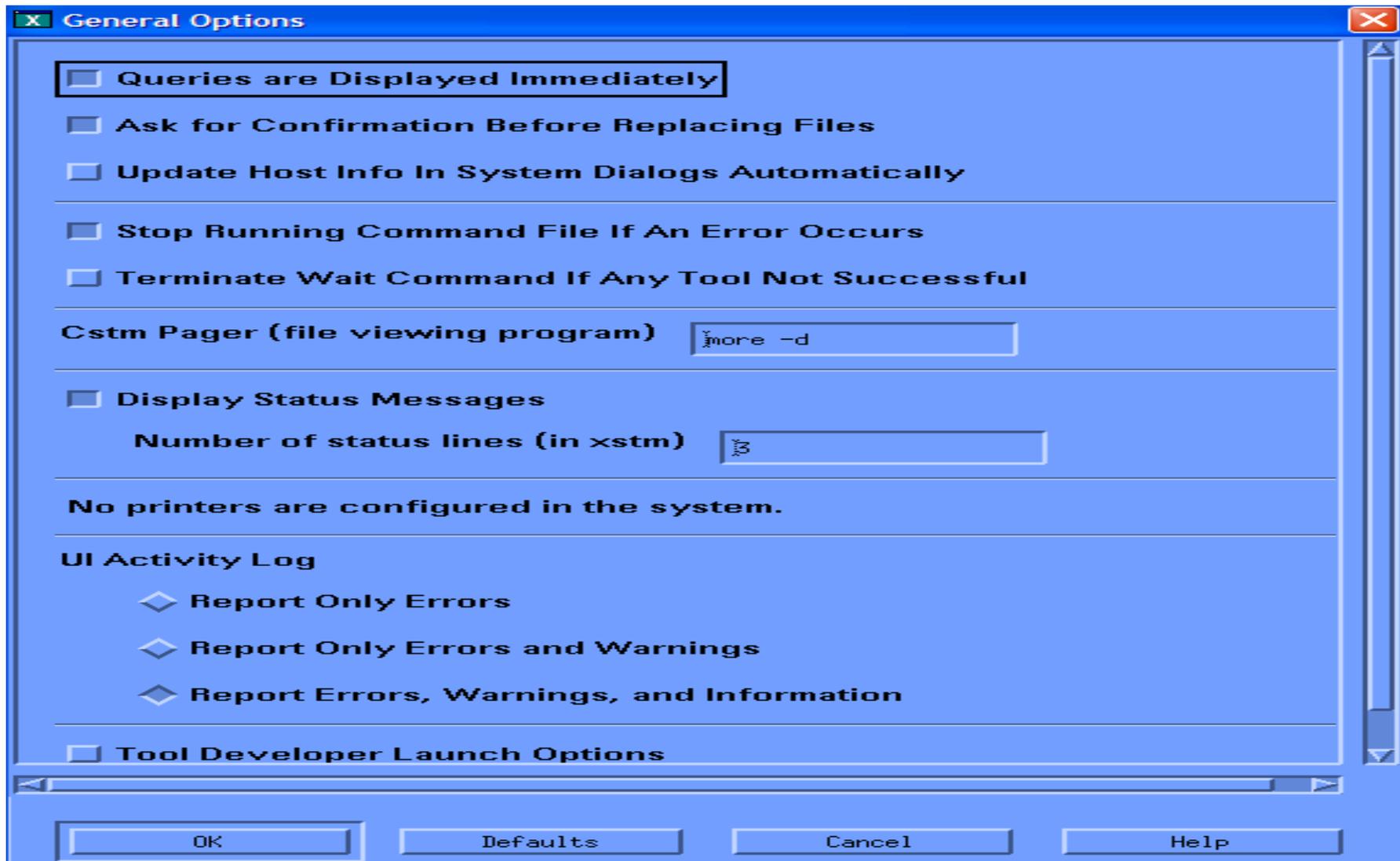
SPU Number:           2
Physical Device:      11/10
HPA:                  0xfffffffffcb78000
Active:               Active
  
```

At the bottom of the dialog box, there are two buttons: 'Interrupt' and 'Abort'.

Options Commands

- General options
 - Options for controlling UI operation
- Map options
 - Options for controlling fields displayed in system map
- Tool options
 - Set of options for each tool type

XSTM: General Options



XSTM: Map Options

Map Options

Map Refresh Rate (in seconds):

Xstm text map (graphical map limited to 254 devices)

Include in Text Device Map:

- Path
Path field width:
- Product
 Product Qualifier
Product field width:
- Active Tool
- Time Used
- Time to Go
- Loops Done
- Loops to Go
- Last Operation Status / Percent Complete

OK Defaults Cancel Help

XSTM: Verify Options

Verify Options

Refer to Tool specific help for the effect of these option settings.

Execution Control:

- Iterations to Loop
- Execution Time Limit, in Minutes
- Loop Continuously

Behavior on Errors:

- Exit on Error
- Errors Allowed before Test Termination

Test Coverage:

- Maximum
- Medium
- Minimum

Generate Tool Activity Log

- Report Only Errors
- Report Only Errors and Warnings
- Report Errors, Warnings, and Information

User Queries:

OK Defaults Cancel Help

Help Commands

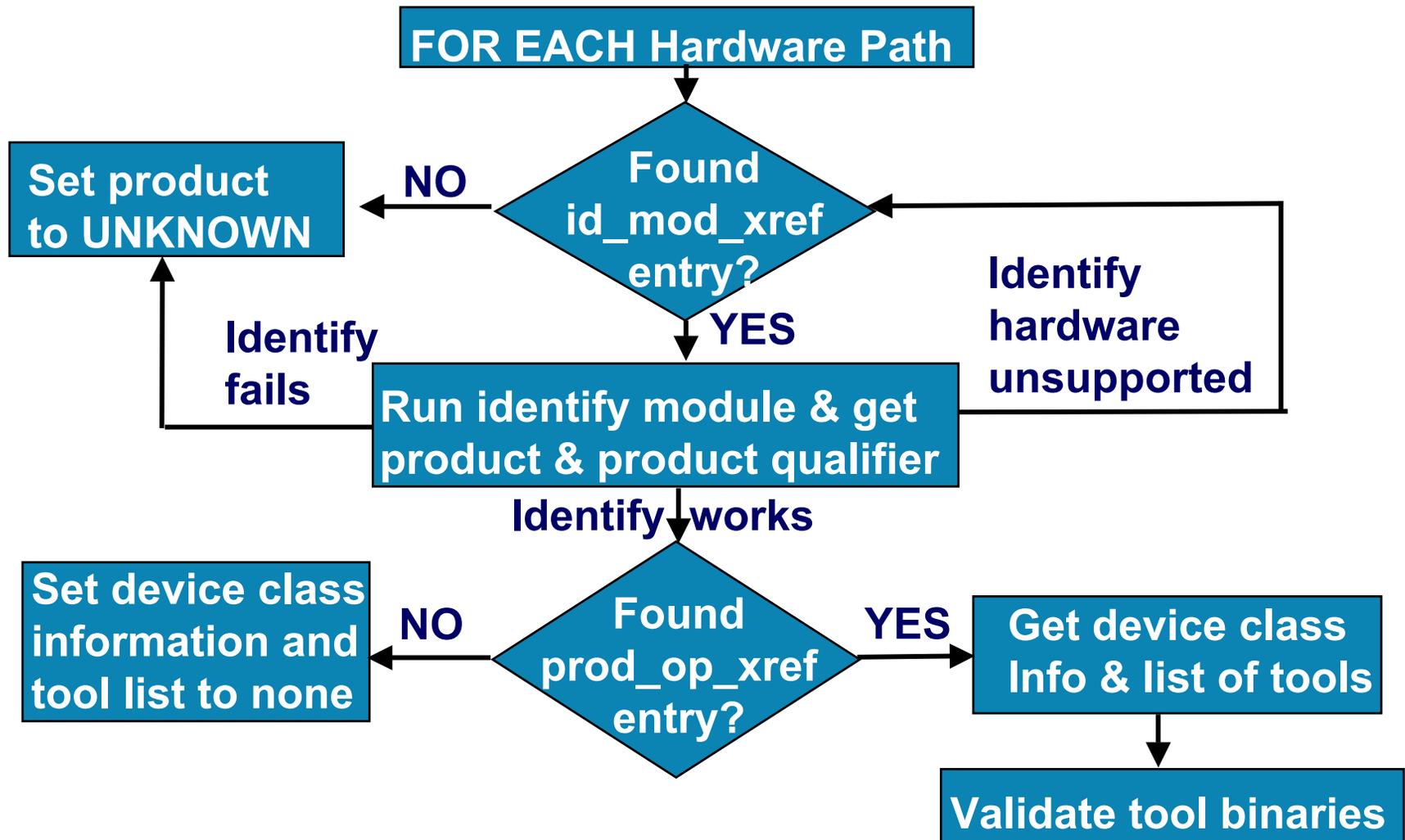
- On item
 - Select the particular item on which to display help
- On tasks
 - Display help on common tasks
- On application
 - Display general help on STM
- On help
 - Display help on how to use the help system
- On version
 - Display STM version information
- On menus/commands
 - Display help on specific menus/commands

Support Tools Manager

Troubleshooting

- System Map Building
- Unknown Device in System Map
- Disabled Commands/Menus
- Hung State
- Cannot Start Tool
- Useful URL Links

System Map Building



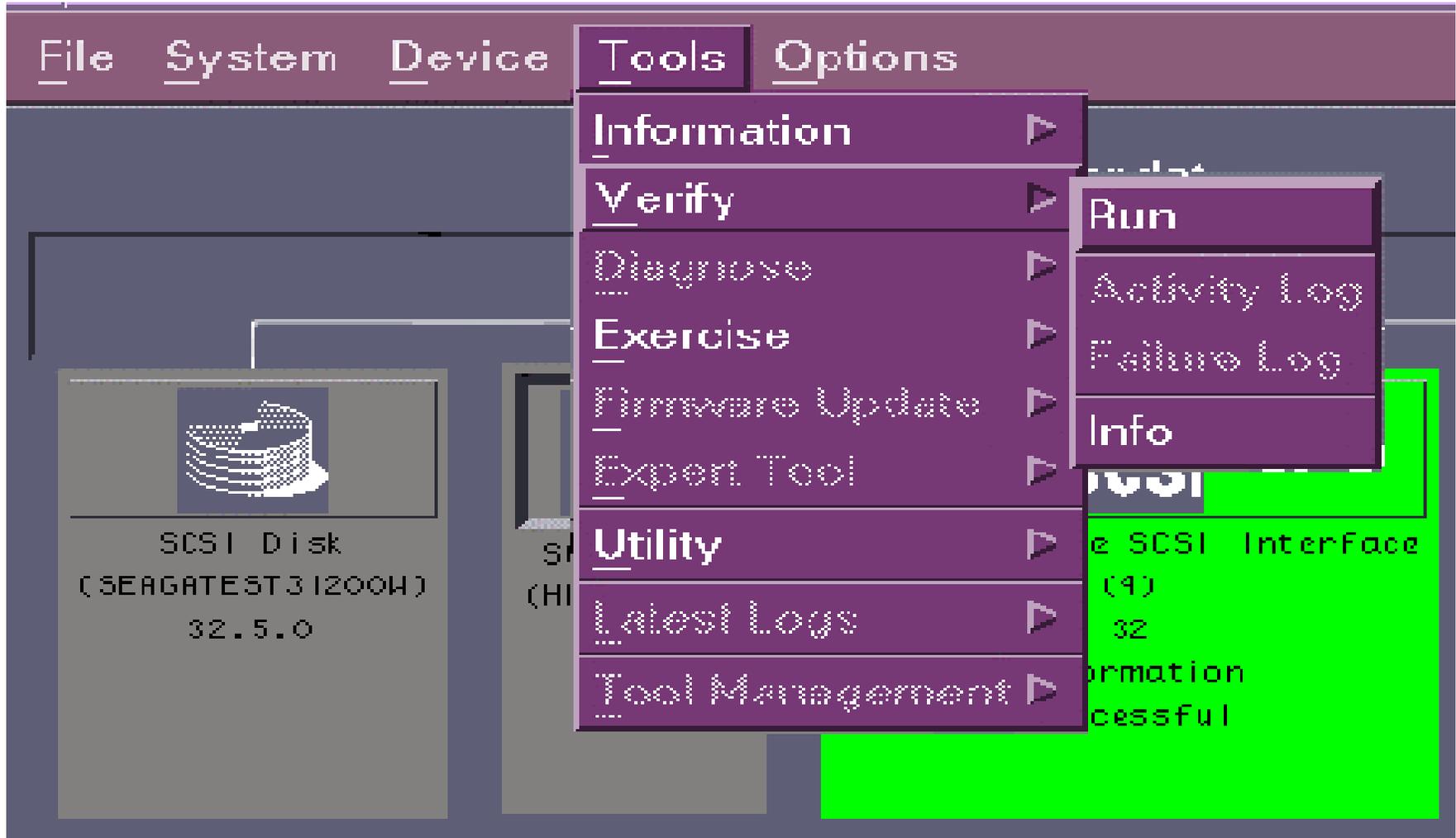
Unknown Device in System Map

- A device in the Support Tools Manager system map is “Unknown” (or its icon is blank)
- Reasons for an “Unknown” device:
 - The device was turned off or removed from the system but a reboot has not yet been performed
 - The driver associated with the device is not recognized by the Support Tools Manager
 - The device file for the device was not created by the system at boot time
- In any case, display the *scan_hw_log* file for the cause of the “Unknown” device and what to do about it
- Check if your version of the Support Tools Manager needs to be updated

Disabled Commands/Menus

- There may be commands/menus in the Support Tools Manager that are disabled
- Disabled commands/menus:
 - In XSTM, will appear dimmed compared to other elements in the pull-down menu
 - In MSTM, will appear “grayed-out” on the menu keys
 - In CSTM, will display an error message when the command is typed at the prompt
- Reasons for disabled commands/menus:
 - Command requires a device to be selected
 - Command requires a license to be installed
 - Command runs on a tool that is not available

XSTM: Disabled Commands/Menus



Tool in “HUNG” State

- Tool going into and out of “HUNG” state
 - Indicate the tool cannot get enough time to execute properly
 - System is very busy
 - User is attempting to start many tools simultaneously
 - User has multiple tools already running
 - System has limited resources
 - Update the diagmond configuration to wait longer
- Tool stays in “HUNG” state
 - Determine if there is an error by examining the tool activity log file for errors
 - Examine the last time the tool logged compared to the current time

Cannot Start Tools

- Tools fail to start from user interface
 - UI occasionally fails to start tools if STM cannot get enough time to initiate the tool properly
 - View the UI activity log file for a message indicating a timeout when trying to start the tool
- Tools start but exit with an incomplete status
 - Tools occasionally cannot perform initiation tasks if they cannot get enough time to initiate properly
 - View the UI activity log file for a message indicating a timeout when trying to perform initialization
- In both cases, retry at a later time when system is not so busy

Useful URL Links (1 of 2)

- For an overview on the Support Tools Manager, see the “STM Overview”:
 - http://docs.hp.com/hpux/onlinedocs/diag/stm/sto_summ.htm
- For a tutorial on the Support Tools Manager, see the “STM Tutorial”:
 - http://docs.hp.com/hpux/onlinedocs/diag/stm/stt_summ.htm
- For online help on the Support Tools Manager, see the “STM Online Help”:
 - http://docs.hp.com/hpux/onlinedocs/diag/stm/sth_summ.htm
- For a quick reference guide on the Support Tools Manager, see the “STM Quick Reference Guide”:
 - http://docs.hp.com/hpux/onlinedocs/diag/stm/stm_qik.htm

Useful URL Links (2 of 2)

- For a history of changes to the Support Tools Manager, see the “STM Release Notes”:
 - http://docs.hp.com/hpux/onlinedocs/diag/stm/stm_rel.htm
- For information on both general and specific Frequently Asked Questions (FAQs) about the Support Tools Manager, see the “STM FAQs”:
 - http://docs.hp.com/hpux/onlinedocs/diag/stm/stm_faq.htm
- For information on the installation of the Support Tools Manager, see the “Diagnostics: Installation”:
 - <http://docs.hp.com/hpux/diag/index.html#Diagnostics:%20Installation>
- For information on individual tools (Logtool), see the “Online Diagnostics: Individual Tools”:
 - <http://docs.hp.com/hpux/diag/index.html#Online%20Diagnostics:%20Individual%20Tools>

Questions?



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