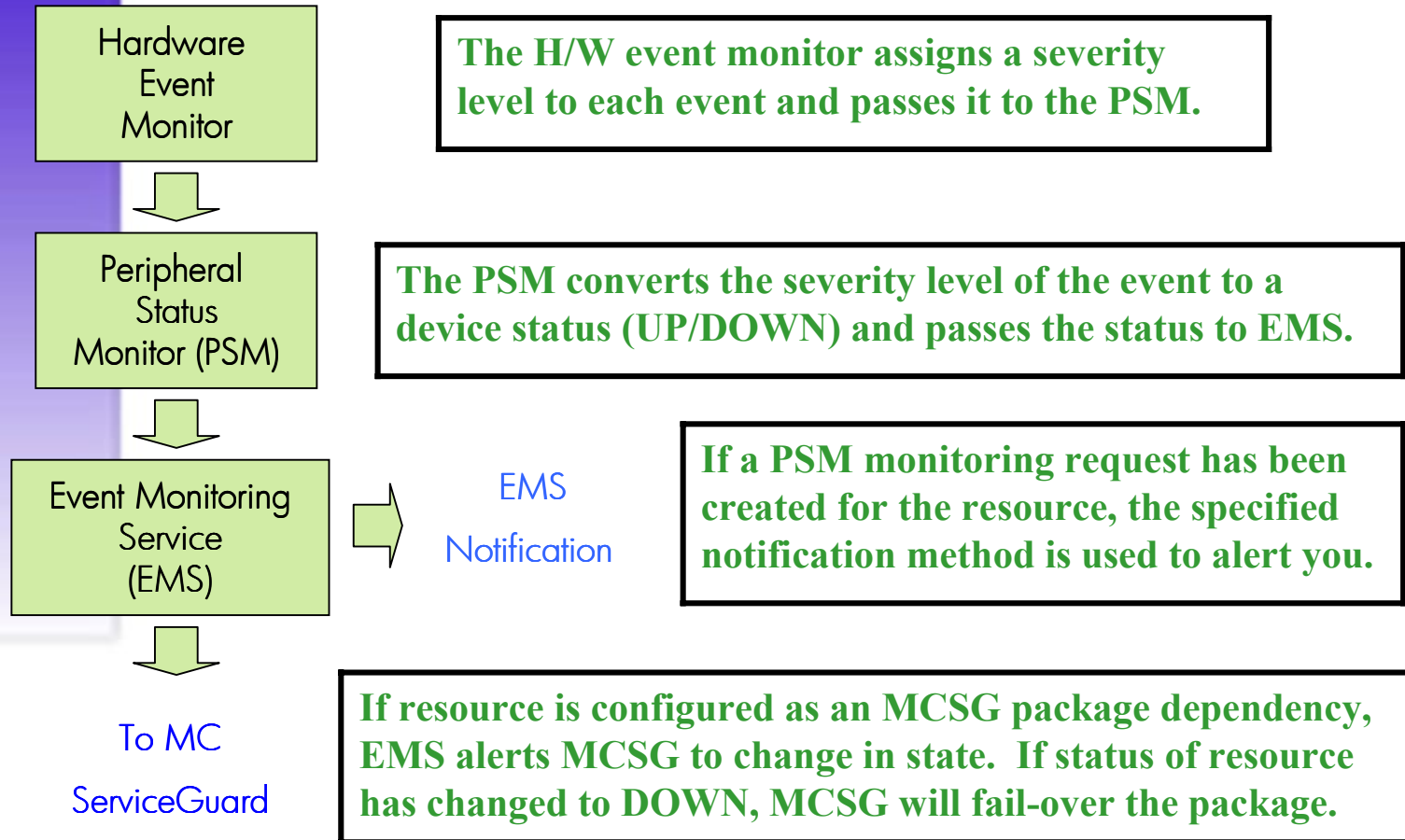


EMS Peripheral Status Monitor: Definition

- **An extension to hardware monitoring**
- **Installed as a part of the H/W monitor software**
- **Converts hardware events detected by the EMS H/W monitors to an “UP” or “DOWN” status, which is used by MC ServiceGuard in controlling package fail-over**
- **Interface between the H/W event monitors and MC ServiceGuard**

EMS Peripheral Status Monitor: Process



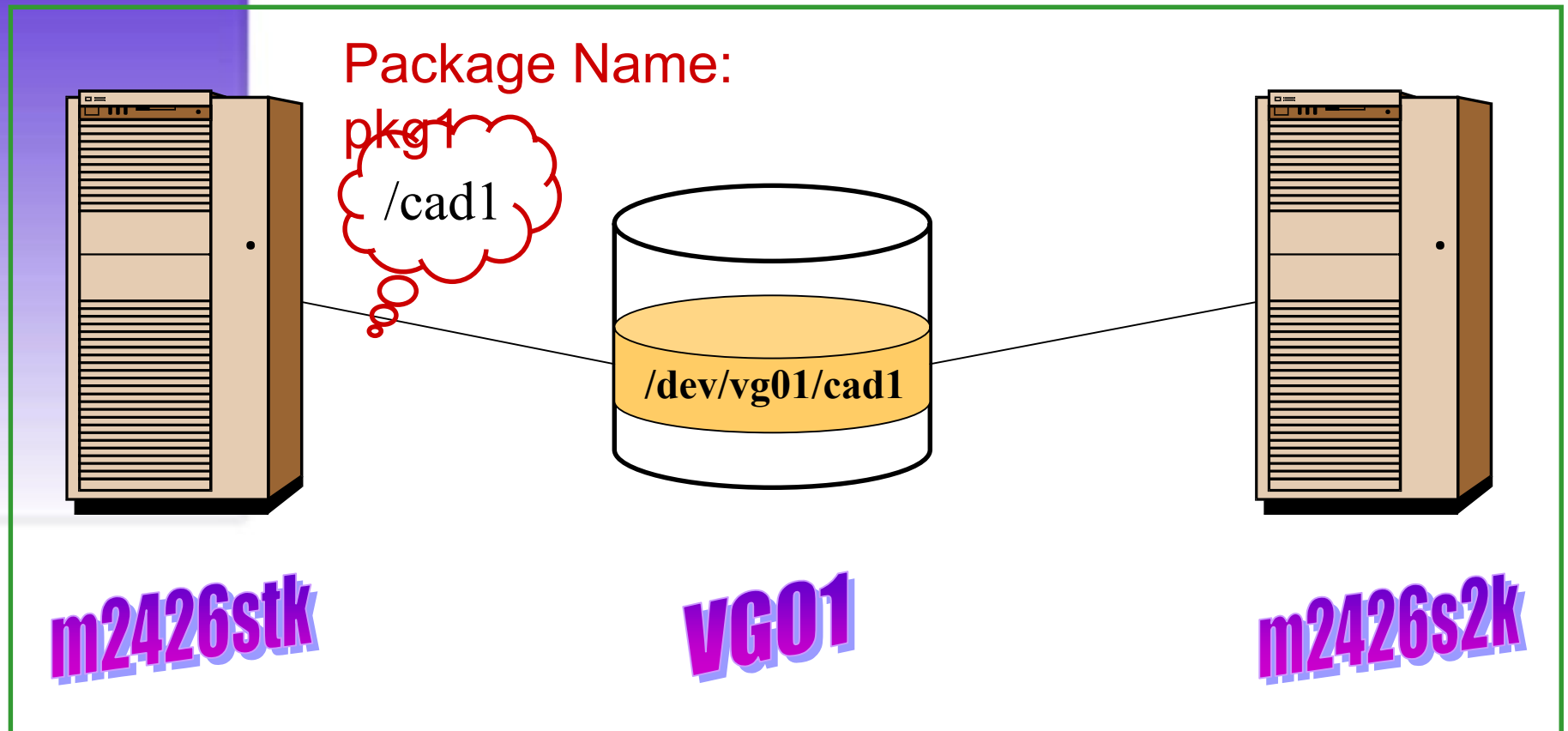
EMS Peripheral Status Monitor: States

Condition	Interpretation
Up	HW is operating normally
Down	An event has occurred that indicates a failure with the H/W
Unknown	Cannot determine the state of the H/W. This state is treated as DOWN by the PSM

**EMS will cause a package failover only
with a severity level of Critical or Serious**

EMS Peripheral Status Monitor: MC ServiceGuard Configuration

Cluster Name: cammi



EMS Peripheral Status Monitor: m2426stk cmviewlcl & bdf output

```

scott1 - WordPad
File Edit View Insert Format Help

CLUSTER      STATUS
canmi        up

  NODE      STATUS      STATE
  m2426s2k   up          running

  Network_Parameters:
  INTERFACE  STATUS      PATH      NAME
  PRIMARY    up          12.1      lan0
  PRIMARY    up          16.1      lan1

  NODE      STATUS      STATE
  m2426stk   up          running

  Network_Parameters:
  INTERFACE  STATUS      PATH      NAME
  PRIMARY    up          8.1       lan1
  PRIMARY    up          4.1       lan0

  PACKAGE    STATUS      STATE      PKG_SWITCH  NODE
  pkg1        up          running    enabled     m2426stk

  Policy_Parameters:
  POLICY_NAME  CONFIGURED_VALUE
  Failover     configured_node
  Failback     manual

  Node_Switching_Parameters:
  NODE_TYPE    STATUS      SWITCHING  NAME
  Primary      up          enabled    m2426stk   (current)
  Alternate     up          enabled    m2426s2k

For Help, press F1
NUM

```

```

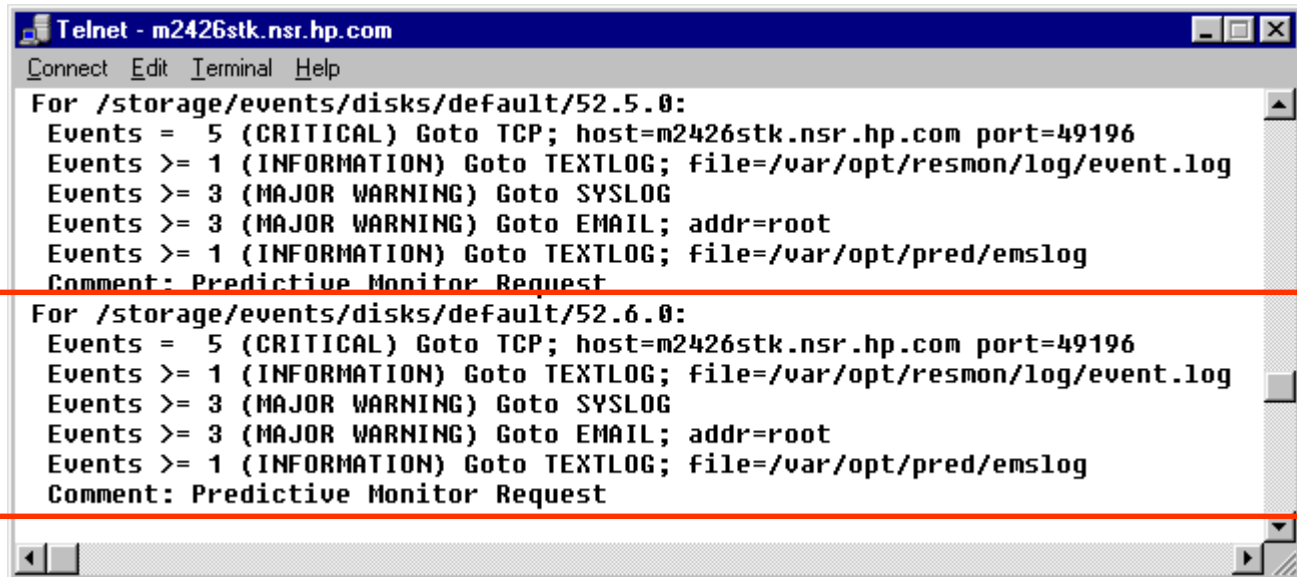
scott2 - WordPad
File Edit View Insert Format Help

Filesystem      kbytes  used  avail %used Mounted on
/dev/vg00/lvol3 143360  31193 105221 23% /
/dev/vg00/lvol1  83733  28877  46482 38% /stand
/dev/vg00/lvol8 512000 391965 112727 78% /var
/dev/vg00/lvol7 614400 451827 152414 75% /usr
/dev/vg00/lvol4  65536   4164   57569 7% /tmp
/dev/vg00/lvol6 512000 441708  65948 87% /opt
/dev/vg00/lvol5 512000 108531  378438 22% /home
/dev/vg01/cad1  102400   4562   91786 5% /cad1

For Help, press F1
NUM

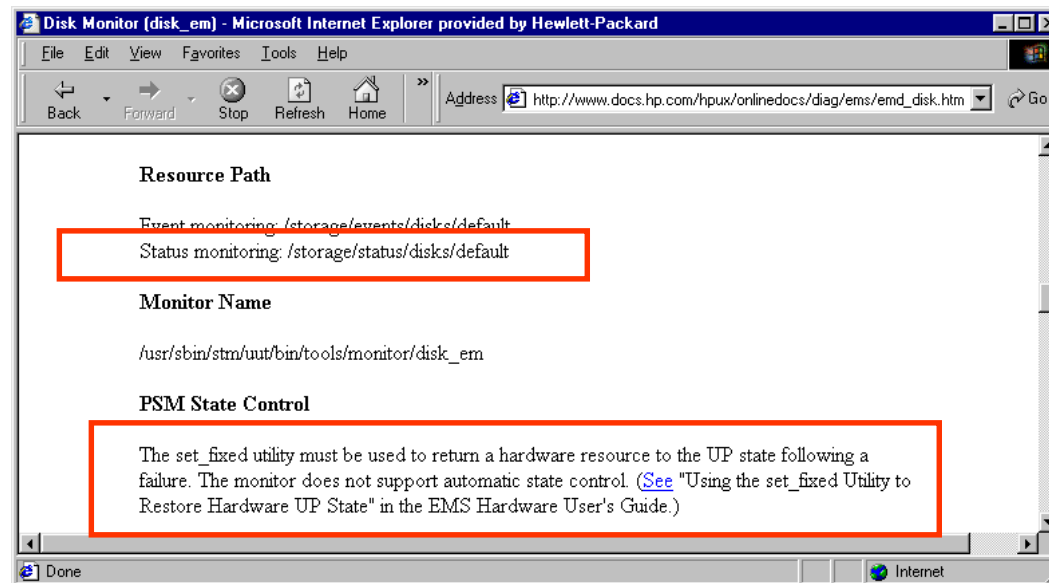
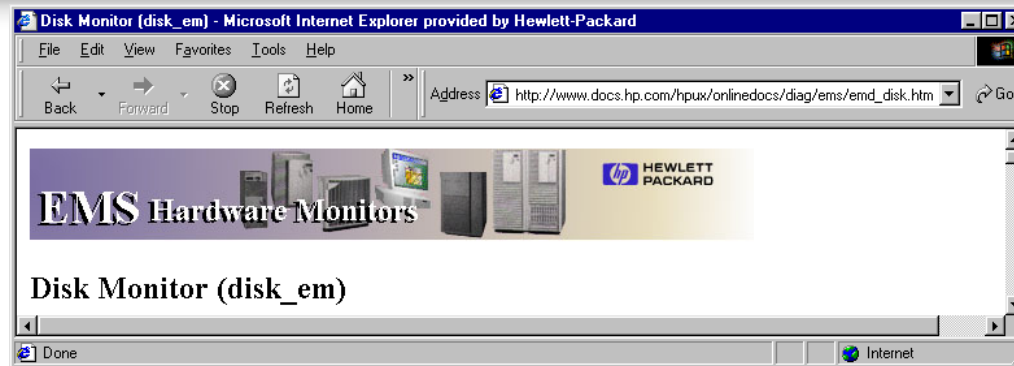
```

EMS Peripheral Status Monitor: Creating package dependency on root disk 52.6.0



```
Telnet - m2426stk.nsr.hp.com
Connect Edit Terminal Help
For /storage/events/disks/default/52.5.0:
Events = 5 (CRITICAL) Goto TCP; host=m2426stk.nsr.hp.com port=49196
Events >= 1 (INFORMATION) Goto TEXTLOG; file=/var/opt/resmon/log/event.log
Events >= 3 (MAJOR WARNING) Goto SYSLOG
Events >= 3 (MAJOR WARNING) Goto EMAIL; addr=root
Events >= 1 (INFORMATION) Goto TEXTLOG; file=/var/opt/pred/emslog
Comment: Predictive Monitor Request
For /storage/events/disks/default/52.6.0:
Events = 5 (CRITICAL) Goto TCP; host=m2426stk.nsr.hp.com port=49196
Events >= 1 (INFORMATION) Goto TEXTLOG; file=/var/opt/resmon/log/event.log
Events >= 3 (MAJOR WARNING) Goto SYSLOG
Events >= 3 (MAJOR WARNING) Goto EMAIL; addr=root
Events >= 1 (INFORMATION) Goto TEXTLOG; file=/var/opt/pred/emslog
Comment: Predictive Monitor Request
```

EMS Peripheral Status Monitor: disk_em data sheet



EMS Peripheral Status Monitor: Add PSM Package Dependencies

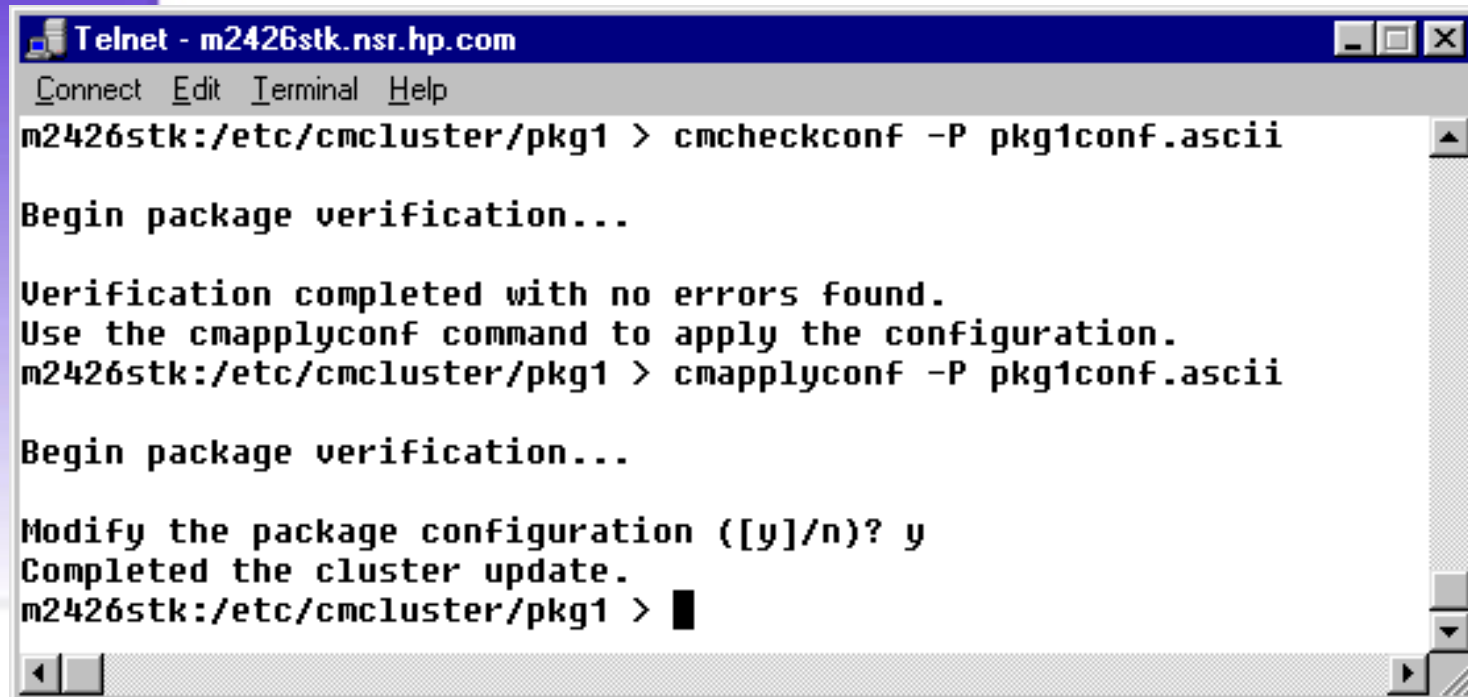
```
Telnet - m2426stk.nsr.hp.com
Connect Edit Terminal Help
m2426stk:/etc/cmcluster/pkg1 > ls
pkg1.sh          pkg1.sh.log      pkg1conf.ascii
m2426stk:/etc/cmcluster/pkg1 > vi pkg1conf.ascii
```

*Package dependencies
can be configured via
SAM or manually*

```
Telnet - m2426stk.nsr.hp.com
Connect Edit Terminal Help
#
# Uncomment the following lines to specify Package Resource Dependencies.
#
#RESOURCE_NAME      <Full_path_name>
#RESOURCE_POLLING_INTERVAL <numeric_seconds>
#RESOURCE_START      <AUTOMATIC/DEFERRED>
#RESOURCE_UP_VALUE   <op> <string_or_numeric> [and <op> <numeric>]

RESOURCE_NAME        /storage/status/disks/default/52.6.0
RESOURCE_UP_VALUE     = UP
```


EMS Peripheral Status Monitor: Verify and apply package configuration



```
Telnet - m2426stk.nsr.hp.com
Connect Edit Terminal Help
m2426stk:/etc/cmcluster/pkg1 > cmcheckconf -P pkg1conf.ascii

Begin package verification...

Verification completed with no errors found.
Use the cmapplyconf command to apply the configuration.
m2426stk:/etc/cmcluster/pkg1 > cmapplyconf -P pkg1conf.ascii

Begin package verification...

Modify the package configuration ([y]/n)? y
Completed the cluster update.
m2426stk:/etc/cmcluster/pkg1 > █
```

EMS Peripheral Status Monitor: m2426stk cmviewlcl & bdf output

```
1scott - WordPad
File Edit View Insert Format Help

CLUSTER      STATUS
cammi        up

  NODE      STATUS      STATE
  m2426s2k   up          running

  Network_Parameters:
  INTERFACE  STATUS      PATH      NAME
  PRIMARY    up          12.1      lan0
  PRIMARY    up          16.1      lan1

  NODE      STATUS      STATE
  m2426stk   up          running

  Network_Parameters:
  INTERFACE  STATUS      PATH      NAME
  PRIMARY    up          8.1       lan1
  PRIMARY    up          4.1       lan0

  PACKAGE    STATUS      STATE      PKG_SWITCH  NODE
  pkg1        up          running    enabled     m2426stk

  Policy_Parameters:
  POLICY_NAME  CONFIGURED_VALUE
  Failover     configured_node
  Failback     manual

  Script_Parameters:
  ITEM      STATUS  MAX_RESTARTS  RESTARTS  NAME
  Resource  up          /storage/status/disks/default/52.6.0

  Node_Switching_Parameters:
  NODE_TYPE  STATUS  SWITCHING  NAME
  Primary    up      enabled    m2426stk   (current)
  Alternate  up      enabled    m2426s2k

For Help, press F1
```

```
2scott - WordPad
File Edit View Insert Format Help

Filesystem      kbytes   used   avail %used Mounted on
/dev/vg00/lvol3  143360   31065  105341 23% /
/dev/vg00/lvol1  83733    28877  46482  38% /stand
/dev/vg00/lvol8  512000  391934  112756 78% /var
/dev/vg00/lvol7  614400  451827  152414 75% /usr
/dev/vg00/lvol4  65536    4159   57574  7% /tmp
/dev/vg00/lvol6  512000  441708  65948  87% /opt
/dev/vg00/lvol5  512000  108531  378438 22% /home
/dev/vg01/cad1   102400   4562   91786  5% /cad1

For Help, press F1
```

EMS Peripheral Status Monitor: Test EMS PSM MCSG PKG Failover

```
Telnet - m2426stk.nsr.hp.com
Connect Edit Terminal Help
m2426stk:/etc/cmcluster/pkg1 > /opt/resmon/bin/send_test_event -av disk_em
```

```
Telnet - m2426stk.nsr.hp.com
Connect Edit Terminal Help
m2426stk      up      running

Network_Parameters:
INTERFACE     STATUS      PATH      NAME
PRIMARY       up          8.1       lan1
PRIMARY       up          4.1       lan0

PACKAGE       STATUS      STATE      PKG_SWITCH  NODE
pkg1          halting     halting     enabled     m2426stk

Policy_Parameters:
POLICY_NAME    CONFIGURED_VALUE
Failover       configured_node
Failback       manual

Script_Parameters:
ITEM           STATUS      MAX_RESTARTS  RESTARTS    NAME
Resource       down
/52.6.0        /storage/status/disks/default

Node_Switching_Parameters:
NODE_TYPE      STATUS      SWITCHING     NAME
Primary        up          enabled       m2426stk    (current)
Alternate       up          enabled       m2426s2k

m2426stk:/etc/cmcluster/pkg1 >
```

*cmviewcl -v output
while package is
failing over*

EMS Peripheral Status Monitor: m2426stk cmviewlcl & bdf output

```

3scott - WordPad
File Edit View Insert Format Help
[Icons]

CLUSTER      STATUS
cammi        up

  NODE      STATUS      STATE
  m2426s2k   up          running

  Network_Parameters:
  INTERFACE  STATUS      PATH      NAME
  PRIMARY    up          12.1      lan0
  PRIMARY    up          16.1      lan1

  PACKAGE    STATUS      STATE      PKG_SWITCH  NODE
  pkg1        up          running    enabled     m2426s2k

  Policy_Parameters:
  POLICY_NAME CONFIGURED_VALUE
  Failover     configured_node
  Failback     manual

  Script_Parameters:
  ITEM      STATUS  MAX_RESTARTS  RESTARTS  NAME
  Resource   up                /storage/status/disks

  Node_Switching_Parameters:
  NODE_TYPE  STATUS  SWITCHING  NAME
  Primary    up      enabled    m2426stk
  Alternate   up      enabled    m2426s2k      (current)

  NODE      STATUS      STATE
  m2426stk   up          running

  Network_Parameters:
  INTERFACE  STATUS      PATH      NAME
  PRIMARY    up          8.1       lan1
  PRIMARY    up          4.1       lan0
  
```

*m2426stk bdf output
/cad1 directory is
no longer mounted*

```

4scott - WordPad
File Edit View Insert Format Help
[Icons]

Filesystem      kbytes  used  avail %used Mounted on
/dev/vg00/lvol3 143360  31193 105221  23% /
/dev/vg00/lvol1  83733  28877  46482   38% /stand
/dev/vg00/lvol8 512000 391965 112727   78% /var
/dev/vg00/lvol7 614400 451827 152414   75% /usr
/dev/vg00/lvol4  65536   4162  57571    7% /tmp
/dev/vg00/lvol6 512000 441708  65948   87% /opt
/dev/vg00/lvol5 512000 108531 378438   22% /home
  
```

EMS Peripheral Status Monitor: m2426s2k bdf output

```
Telnet - m2426stk.nsr.hp.com
Connect Edit Terminal Help
m2426s2k:/ > bdf
Filesystem      kbytes    used    avail  %used  Mounted on
/dev/vg00/lvol3 143360    33787   102738  25%    /
/dev/vg00/lvol1 83733     28856   46503   38%    /stand
/dev/vg00/lvol8 512000    374883  128551  74%    /var
/dev/vg00/lvol7 614400    452347  151962  75%    /usr
/dev/vg00/lvol4 65536     3687    58021   6%     /tmp
/dev/vg00/lvol6 512000    437636  69762   86%    /opt
/dev/vg00/lvol5 512000    99410   386861  20%    /home
/dev/vg01/cad1  102400     4562    91786   5%     /cad1
m2426s2k:/ > █
```

*/cad1 directory
is now mounted
on system m2426s2k*

EMS Peripheral Status Monitor: configuration file .psmcfg

- **/var/stm/config/tools/monitor/monitor_name.psmcfg**
- **Existence determine whether or not status monitoring is supported**
- **Defines event to state/status correlation**
SERIOUS and CRITICAL events usually map to DOWN status
- **Determines what action, if any, is required to return the H/A to UP status**

PSM does not have the ability to determine when a device's status has been returned to UP. Therefore the set_fixed command must be executed

EMS Peripheral Status Monitor: set_fixed command

```
hpterm (m2426s2k.nsr.hp.com via TELNET)
# set_fixed -l
/storage/status/disks/default/8.0.0      UP  TRUE
/storage/status/disks/default/8.2.0      UP  TRUE
/storage/status/disks/default/8.4.0      UP  TRUE
/storage/status/disks/default/52.1.0     UP  TRUE
/storage/status/disks/default/52.5.0     UP  TRUE
/storage/status/disks/default/52.6.0     UP  TRUE
/system/status/core_hw/core_hw          DOWN TRUE
/system/status/memory/63                UP  TRUE
/adapters/status/scsi123_em/52          UP  TRUE
/adapters/status/scsi123_em/8           UP  TRUE
/system/status/system_status/ui_host/m2426s2k.nsr.hp.com UP  TRUE
#
```

```
hpterm (m2426s2k.nsr.hp.com via TELNET)
# set_fixed -n /system/status/core_hw/core_hw

# set_fixed -l
/storage/status/disks/default/8.0.0      UP  TRUE
/storage/status/disks/default/8.2.0      UP  TRUE
/storage/status/disks/default/8.4.0      UP  TRUE
/storage/status/disks/default/52.1.0     UP  TRUE
/storage/status/disks/default/52.5.0     UP  TRUE
/storage/status/disks/default/52.6.0     UP  TRUE
/system/status/core_hw/core_hw          UP  TRUE
/system/status/memory/63                UP  TRUE
/adapters/status/scsi123_em/52          UP  TRUE
/adapters/status/scsi123_em/8           UP  TRUE
/system/status/system_status/ui_host/m2426s2k.nsr.hp.com UP  TRUE
#
```

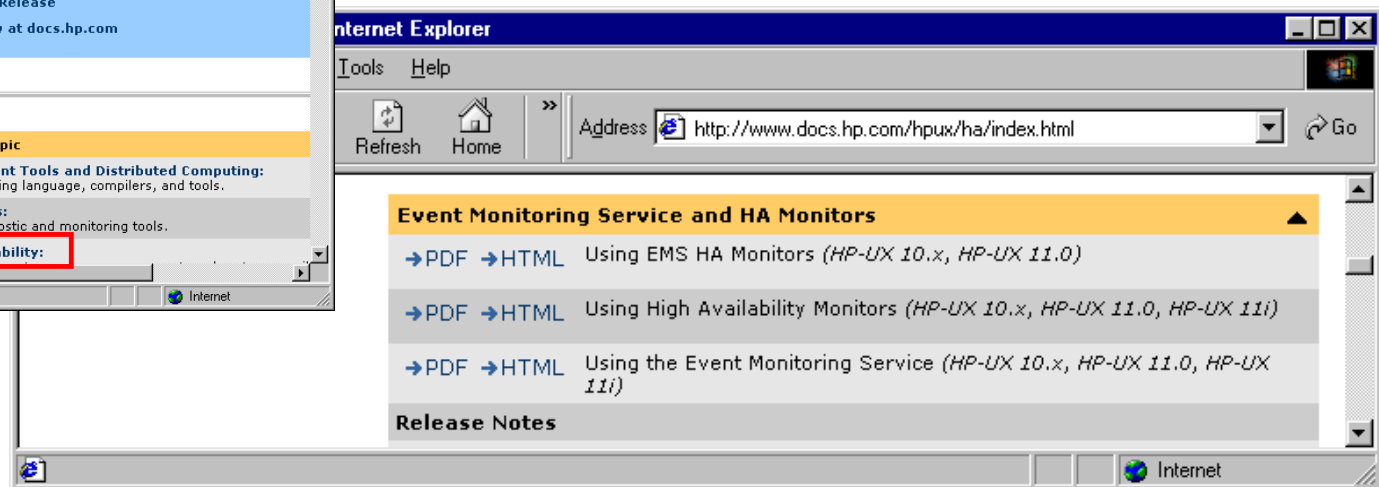
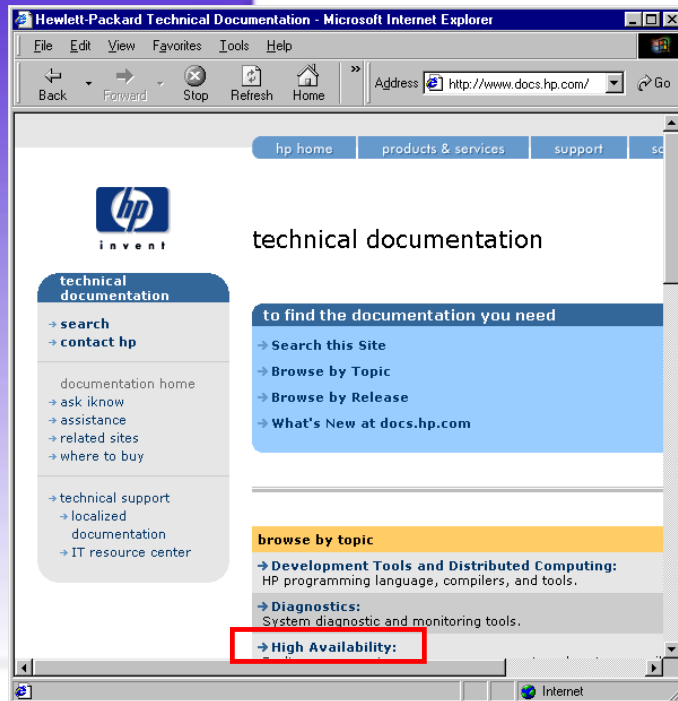
```
hpterm (m2426s2k.nsr.hp.com via TELNET)
# set_fixed -n \*
```

- **-l option** shows the devices current status
- **-n option** sets the device to an UP status
- **-n option and *** sets all devices to an UP status

EMS H/A Monitor Definition

- **Set of monitors that poll a local system or application resource and sends messages when events occur**
- **Send events to a wide variety of software using multiple protocols**
- **Configuration interface is SAM**

EMS H/A Monitor Overview



EMS H/A Monitor Resource Classes

- **Disk Monitor** **Monitors LVM Disks**
- **Cluster Monitor** **MC ServiceGuard**
- **Network Monitor** **LAN Interface**
- **System Monitor** **User, Job Queue, F/S**
- **Database Monitor** **Database Resources**

EMS H/A Monitor Disk Monitor LVM

- **Physical Volume Status**
 - *summary status of all physical volumes in a volume group*
 - *useful for monitoring physical volume groups (PVGs)*
- **Physical Volume and Physical Volume Link Status**
 - *the status of a individual physical volumes and physical volume links (PV Links)*
 - *used to calculate physical volume status*

Both help to provide status on the accessibility of both active and inactive volume groups and logical volumes

EMS H/A Monitor Disk Monitor LVM (con't)

- **Logical Volume Summary**

- *summary status of all logical volumes in an active volume group*
- *determines accessibility of data ... sometimes the physical connection is working but the application cannot read or write data*

- **Logical Volume Status**

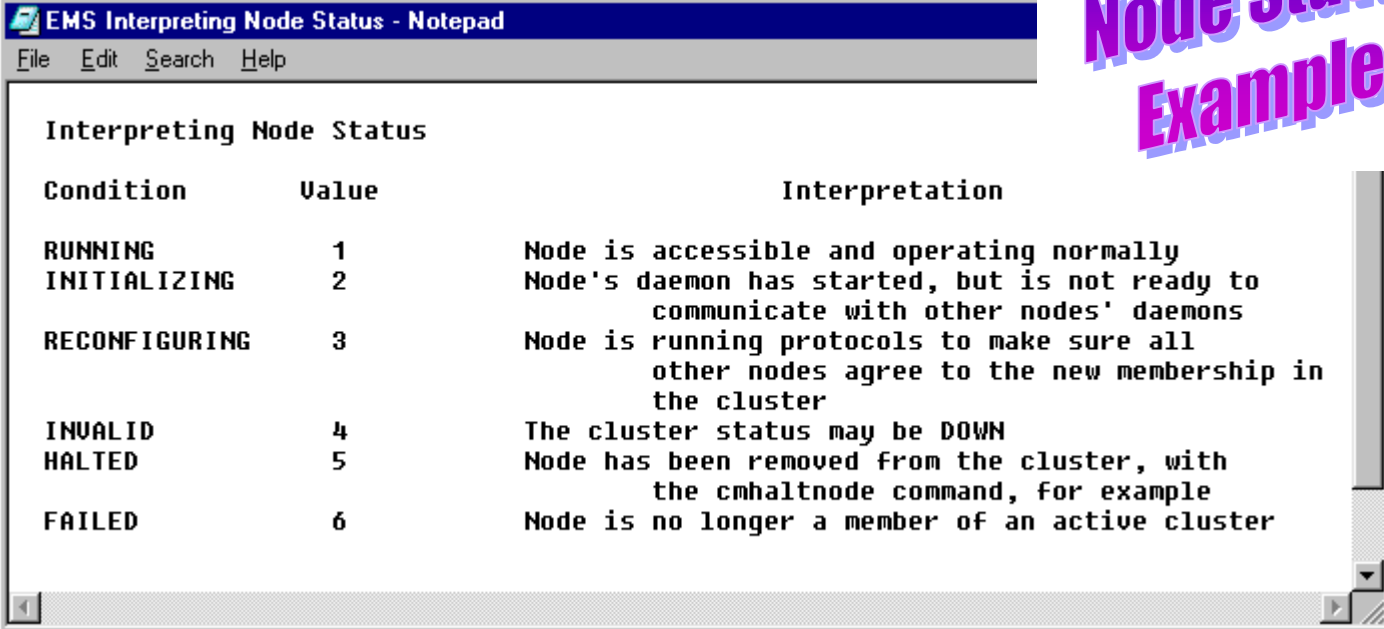
- *status of each logical volume in a volume group*
- *determines which specific logical volumes have failed*

EMS H/A Monitor Disk Monitor LVM (con't)

- **Logical Volume Copies**
 - *the number of copies of data in a volume group*
 - *useful for monitoring mirrored disk configuration*
(MirrorDisk/UX)

EMS H/A Monitor Cluster Monitor

- Cluster Status *node accessing cluster*
- Local Node Status *see example below*
- Package Status *running on local node*



EMS Interpreting Node Status - Notepad

File Edit Search Help

Interpreting Node Status

Condition	Value	Interpretation
RUNNING	1	Node is accessible and operating normally
INITIALIZING	2	Node's daemon has started, but is not ready to communicate with other nodes' daemons
RECONFIGURING	3	Node is running protocols to make sure all other nodes agree to the new membership in the cluster
INVALID	4	The cluster status may be DOWN
HALTED	5	Node has been removed from the cluster, with the cmhaltnode command, for example
FAILED	6	Node is no longer a member of an active cluster

Node Status Example

EMS H/A Monitor Network Monitor

- Status of whether or not the LAN interface is up or down
- MC ServiceGuard standby LANs are reported as **DOWN** unless they have been activated to replace a failed LAN interface

EMS H/A Monitor System Resources Monitor

- **Status of Number of Users**
 - *Total number of users logged on the system*
- **Status of Job Queues**
 - *Average number of jobs in the queue in the last minute*
 - *Average number of jobs in the queue in the last 5 minutes*
 - *Average number of jobs in the queue in the last 15 minutes*
- **File System Available space**
 - *checks number of megabytes available for use*
 - *file system must be mounted*



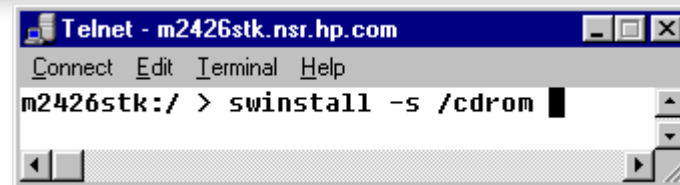
EMS H/A Monitor Database Monitor

- **Database status**
- **Allocated disk space for the database**
- **Percentage and amount of disk space used within the database**
- **Number of transactions completed by server**
- **Current number of connections to the server**
- **Peak connections made since server started**

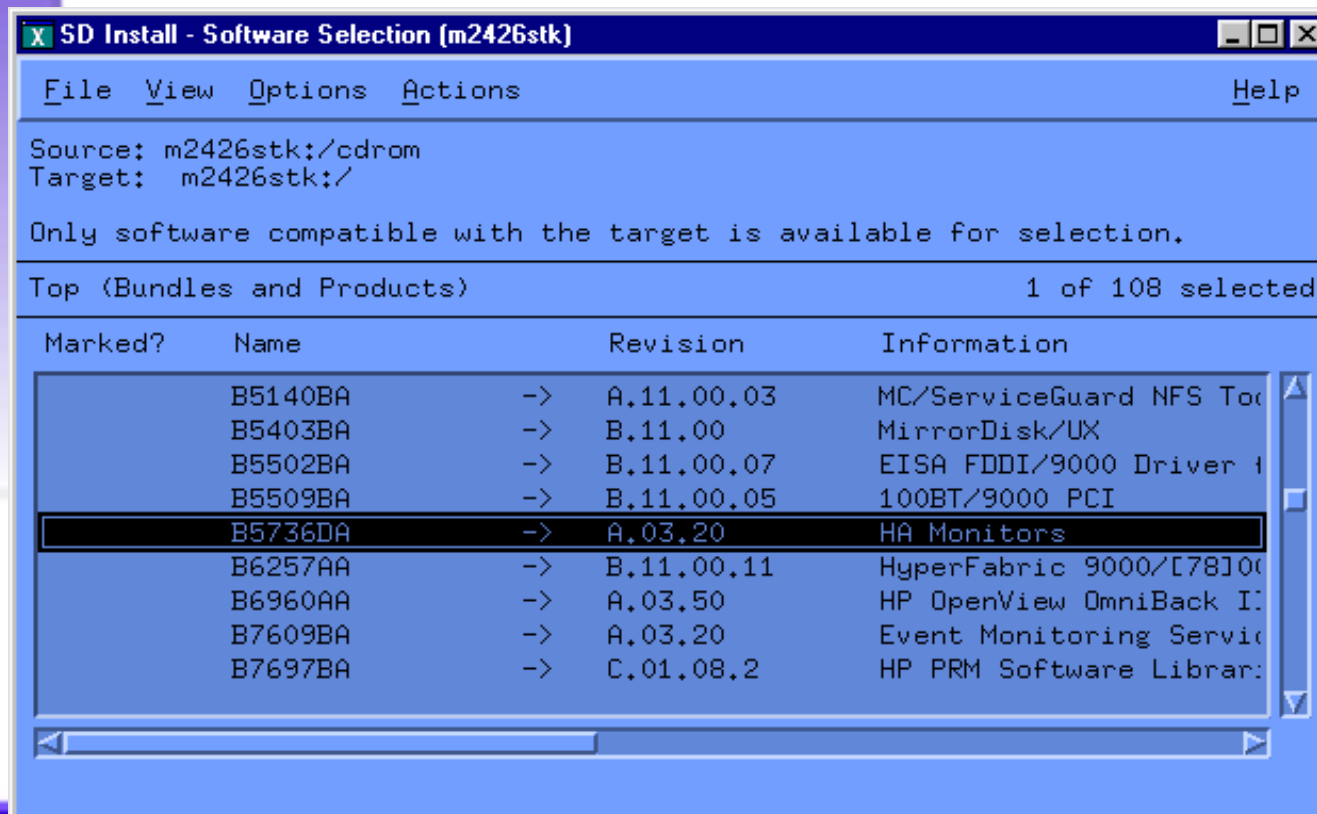
EMS H/A Monitor Requirements

- **Install off of the Application CDROM**
- **Must match Diagnostics and EMS version**
- **Applicable patches**

EMS H/A Monitor Install



```
Telnet - m2426stk.nsr.hp.com
Connect Edit Terminal Help
m2426stk:/ > swinstall -s /cdrom
```



SD Install - Software Selection (m2426stk)

File View Options Actions Help

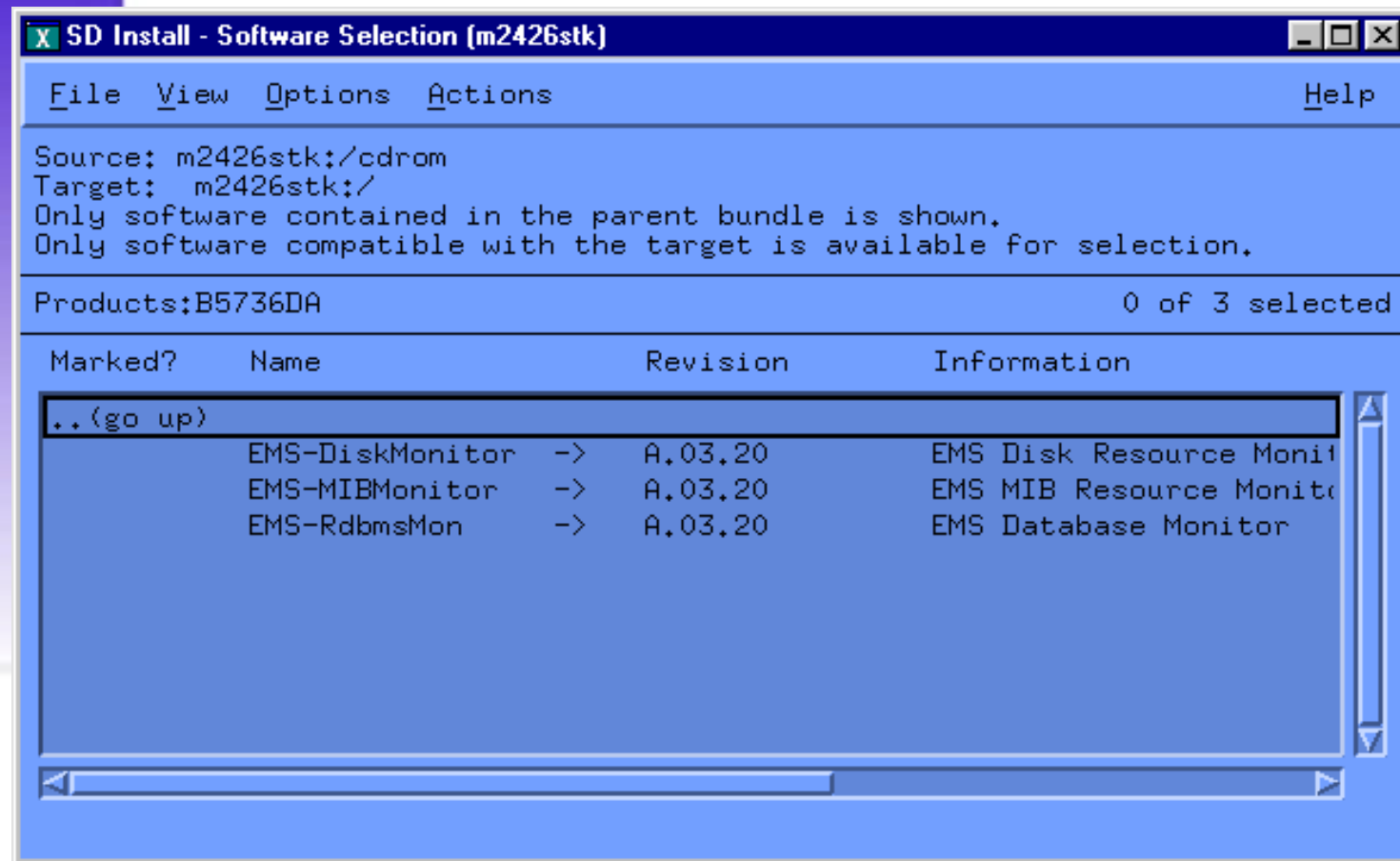
Source: m2426stk:/cdrom
Target: m2426stk:/

Only software compatible with the target is available for selection.

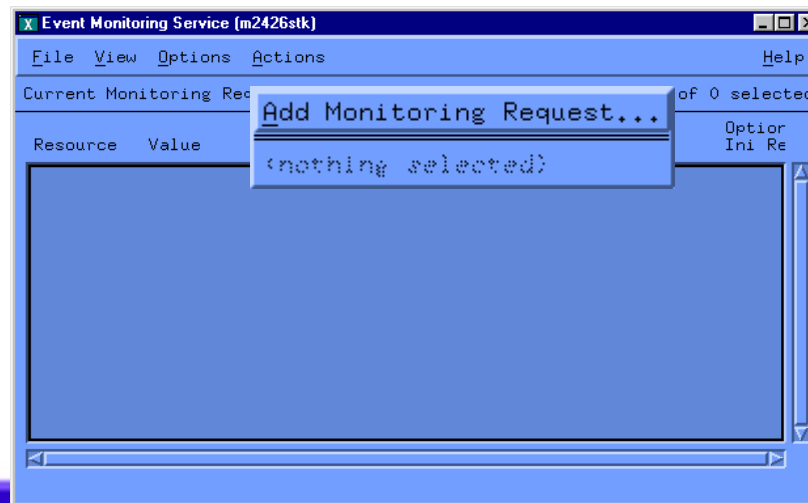
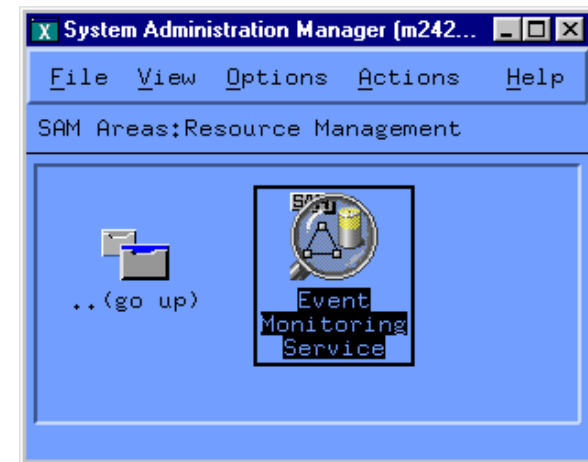
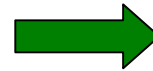
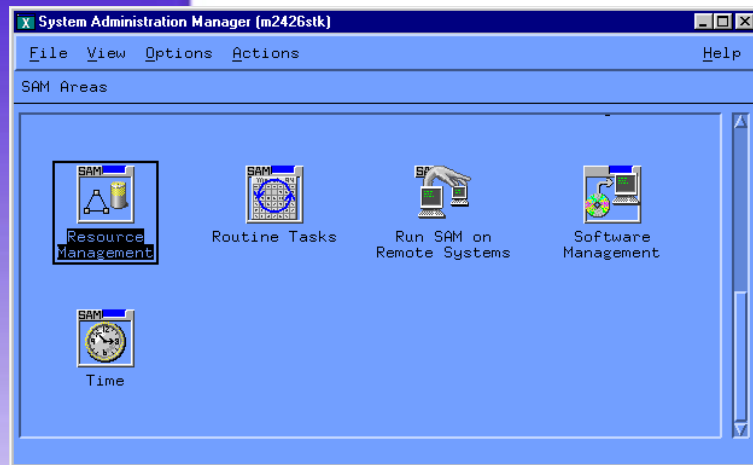
Top (Bundles and Products) 1 of 108 selected

Marked?	Name	Revision	Information
	B5140BA	-> A.11.00.03	MC/ServiceGuard NFS Tool
	B5403BA	-> B.11.00	MirrorDisk/UX
	B5502BA	-> B.11.00.07	EISA FDDI/9000 Driver
	B5509BA	-> B.11.00.05	100BT/9000 PCI
	B5736DA	-> A.03.20	HA Monitors
	B6257AA	-> B.11.00.11	HyperFabric 9000/[78]100
	B6960AA	-> A.03.50	HP OpenView OmniBack II
	B7609BA	-> A.03.20	Event Monitoring Service
	B7697BA	-> C.01.08.2	HP PRM Software Library

EMS H/A Monitor Install

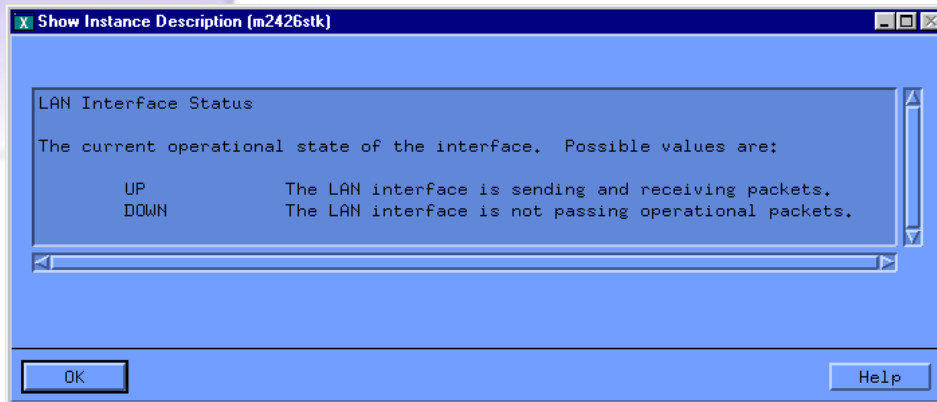
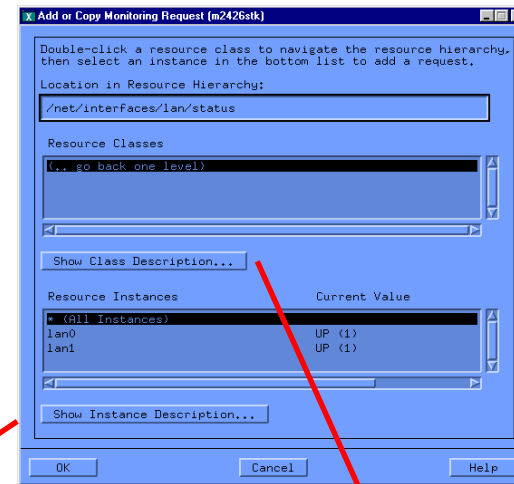
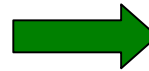
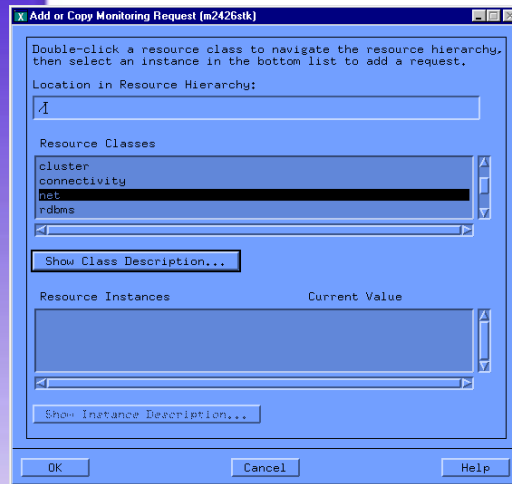


EMS H/A Monitor Configure Network Monitor



EMS H/A Monitor

Configure Network Monitor



EMS H/A Monitor Configure Network Monitor

Monitoring Request Parameters (m2426stk)

Resource: /net/interfaces/lan/status/* (All Instances)
Value:

Show Instance Description...

Notify: When value is... Not Equal UP (1)

When value is...
When value changes
At each interval

Polling Interval: 300 seconds

Notify via: SNMP trap

Severity: Minor

Comment:

OK Cancel Help

Options:
☐ Initial
☐ Repeat
☐ Return

Not Equal
=
<
<=
>
>=

seconds
minutes
hours
day

opcmmsg (IT0)
SNMP trap
TCP
UDP
Email
Syslog
Console
Textlog

Critical
Major
Minor
Warning
Normal

(optional)

Show Instance Description (m2426stk)

LAN Interface Status

The current operational state of the interface. Possible values are:

UP DOWN The LAN interface is sending and receiving packets.
The LAN interface is not passing operational packets.

OK Help

EMS H/A Monitor

Configure Network Monitor

Monitoring Request Parameters (m2426stk)

Resource: /net/interfaces/lan/status/* (All Instances)
Value:

Show Instance Description...

Notify: When value is... Not Equal UP (1)

Polling Interval: 30 seconds

Notify via: opcmgs (IT0)

Severity: Critical

Options:
☒ Initial
☒ Repeat
☒ Return

Comment:
Contact Scott Kaneko for EMS HA lan interface error (optional)

OK Cancel Help



Note (m2426stk)

Monitoring request added.

OK



Event Monitoring Service (m2426stk)

File View Options Actions Help

Current Monitoring Requests 0 of 2 selected

Resource	Value	Notify	Condition	Options Ini Rep Ret	Notify
/net/interfaces/lan/status/lan0	UP (1)	When value is...	Not Equal DOWN (2)	N N N	opcmgs
/net/interfaces/lan/status/lan1	UP (1)	When value is...	Not Equal DOWN (2)	N N N	opcmgs

Event Monitoring Service (m2426stk)

File View Options Actions Help

Current Monitoring Requests 0 of 2 selected

Ret	Notify via	Polling Interval	Client	Comment
N	opcmgs (IT0)	30	HP_EMS_GUI	Contact Scott Kaneko for EMS HA lan interface error
N	opcmgs (IT0)	30	HP_EMS_GUI	Contact Scott Kaneko for EMS HA lan interface error

EMS H/A Monitor

OpenView Operations Configuration

```
hpterm (m2426stk.nsr.hp.com via TELNET)
m2426stk:/ > swinstall -s /cdrom
```

SD Install - Software Selection (m2426stk)

File View Options Actions Help

Source: m2426stk:/cdrom
Target: m2426stk:/

Only software compatible with the target is available for selection.

Top (Bundles and Products) 1 of 109 selected

Marked?	Name	Revision	Information
	B6061AA	-> B.07.00	HP MLIB Math Software Library for HP-UX
	B6192AA	-> B.11.00.10	DCE/9000 Programming & Administration Tool
	B6264BA	-> A.01.01	SRDF Disaster Recovery Toolkit
	B6323BA	-> B.06.03	CXperf Performance Analyzer
	B6733AA	-> B.11.00.10	DCE/9000 Kernel Threads Support
	B6816AA	-> B.11.00.12	SCR & DMI - HPUX
	B7659BA	-> A.01.01	HP Continental Clusters
	B8109BA	-> A.00.03	MetroCluster with Continuous Access XP Tool
	B8313AA	-> B.01.00.02	Netscape Enterprise Server

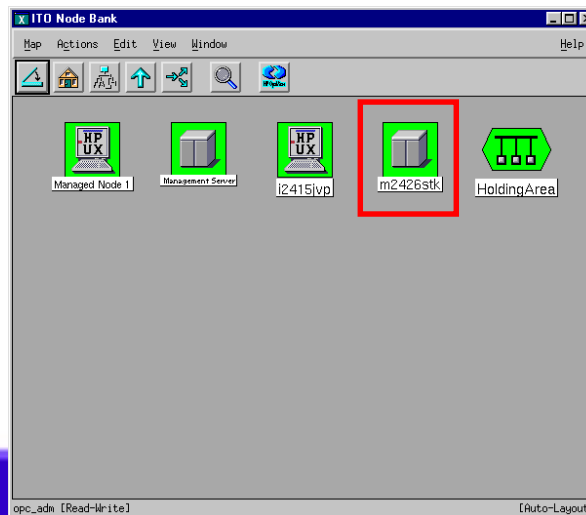
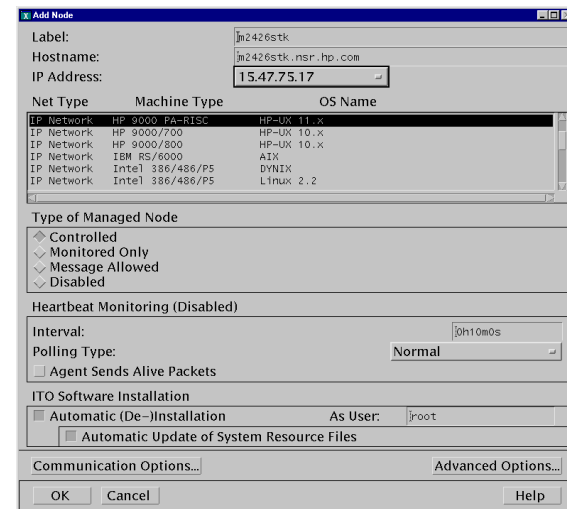
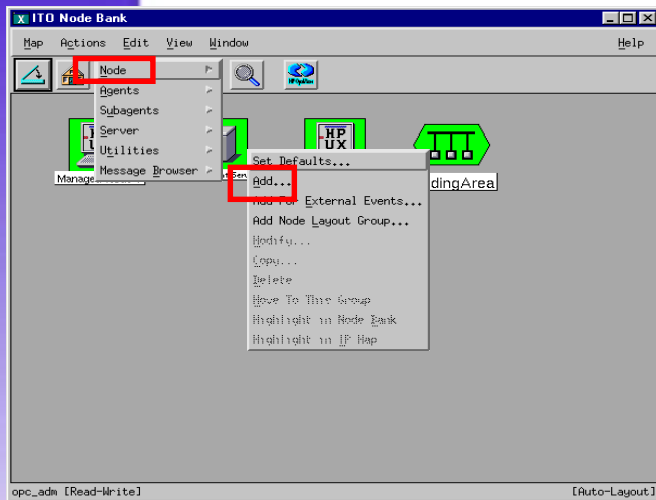
```
Install Window (m2426stk)
Press 'Product Summary' and/or 'Logfile' for more target information.
Target      : m2426stk:/
Status      : Completed
Percent Complete : 100%
Kbytes Installed : 20695 of 20695
Time Left (minutes): 0
Loading Software :

[Product Summary...] [Logfile...]

[Done] [Help]
```

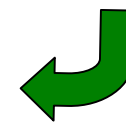
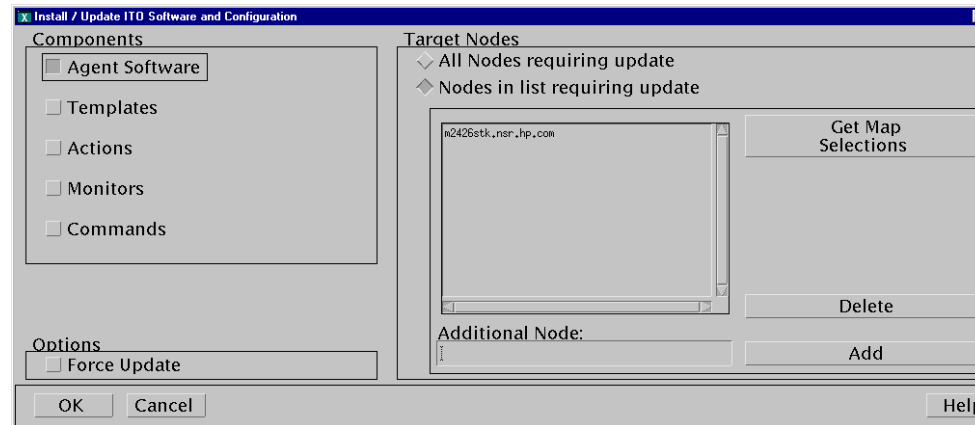
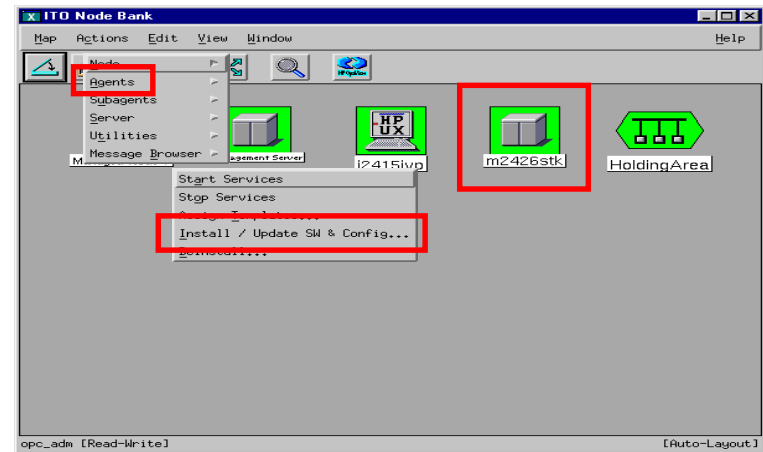
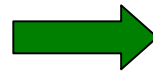
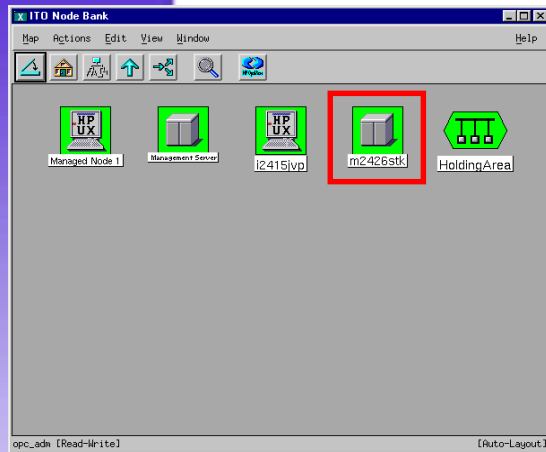
EMS H/A Monitor

OpenView Operations - Adding Node



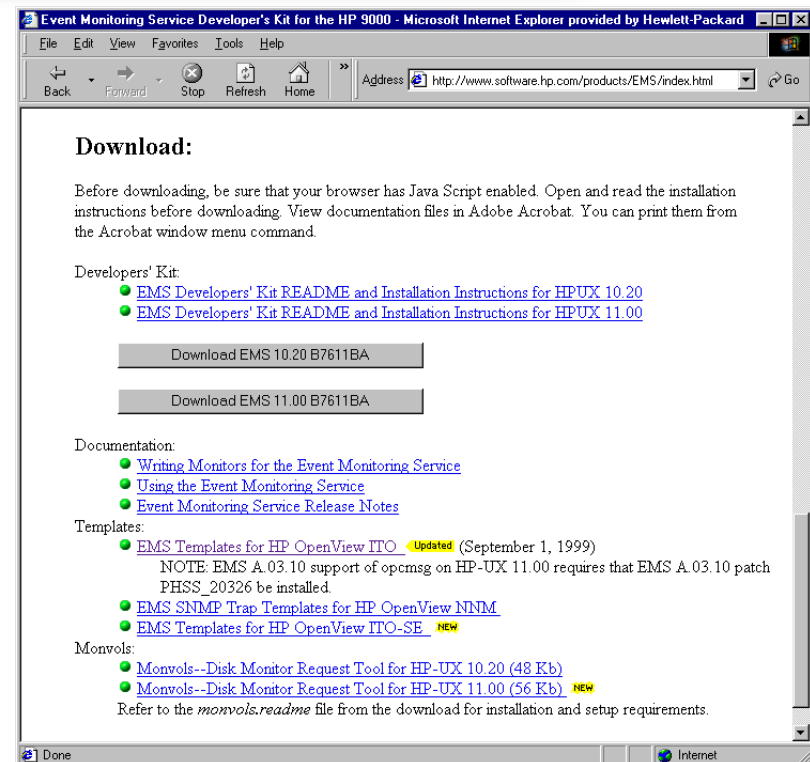
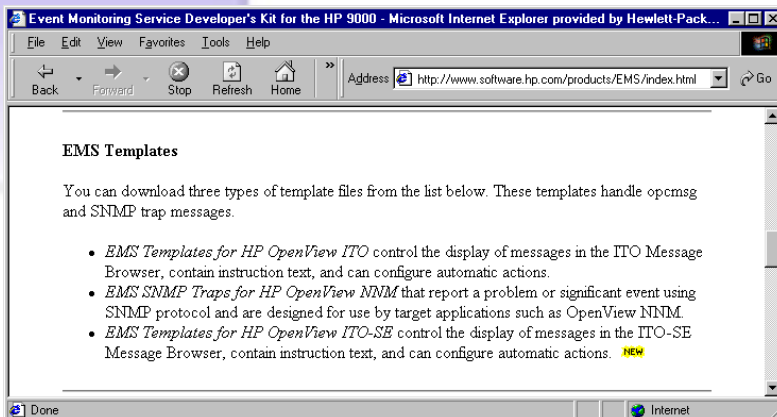
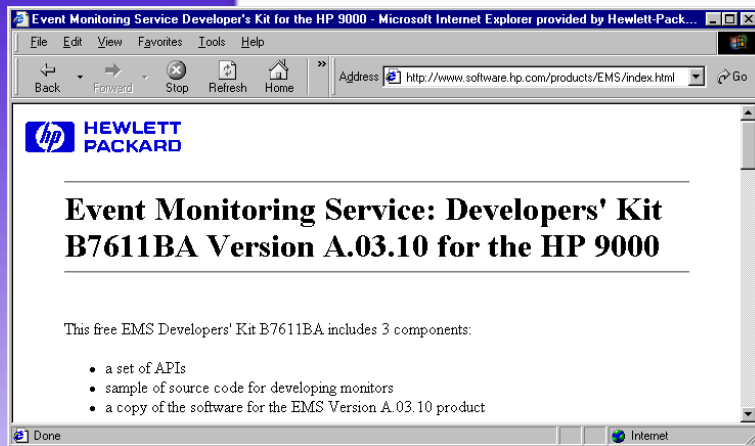
EMS H/A Monitor

OpenView Operations – Adding Agent



EMS H/A Monitor

OpenView Operations – Installing Templates



<http://www.software.hp.com/products/EMS/index.html>

EMS H/A Monitor

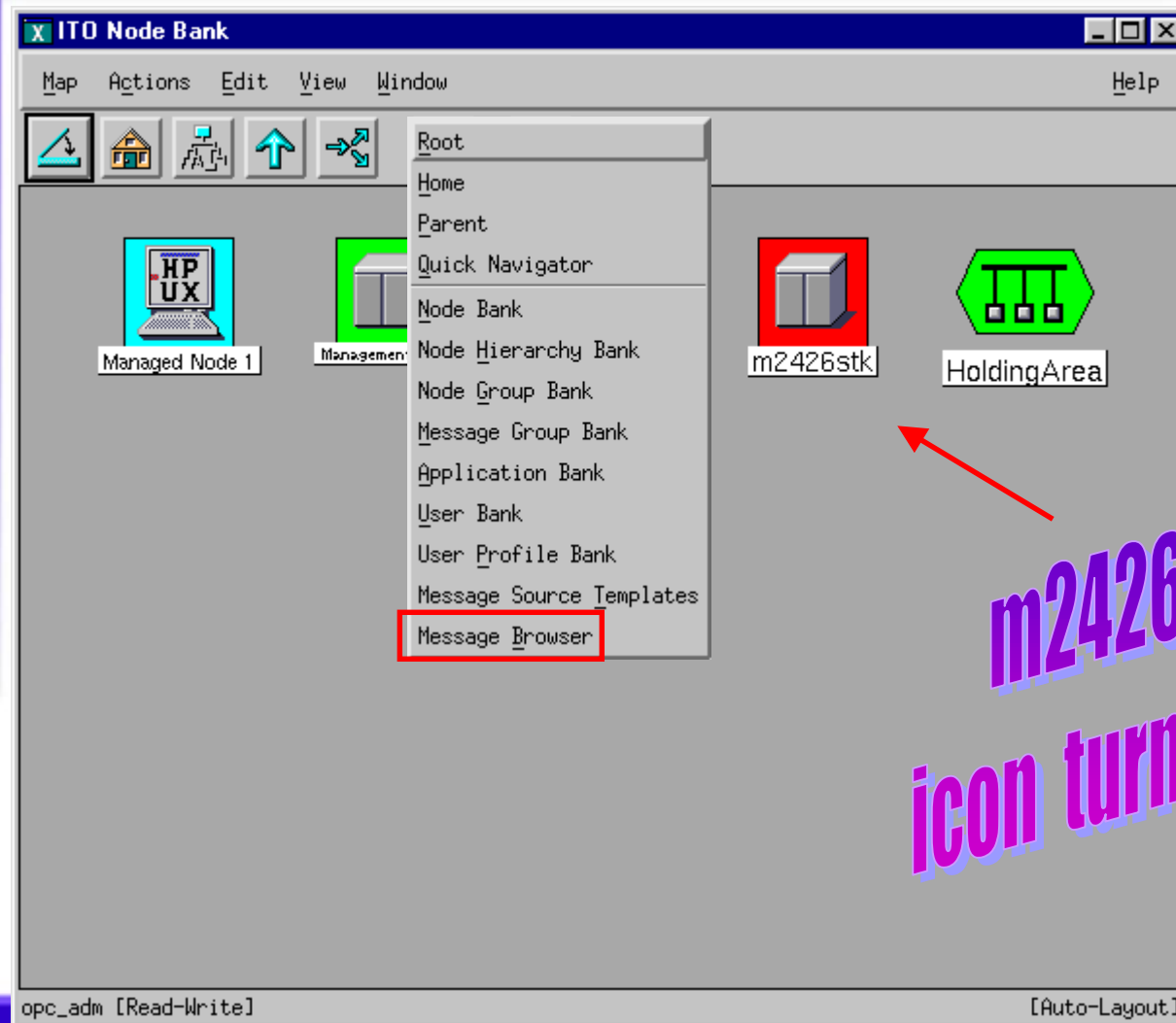
OpenView Operations EMS Integration

- Physically disconnected lan0 cable
- Executed command:
`ifconfig lan1 down`

EMS HA Monitor
LAN Card Errors

EMS H/A Monitor

OpenView Operations EMS Integration



EMS H/A Monitor

OpenView Operations EMS Integration

Message Browser [opc_admin on i2415kxm.rose.hp.com]

	Browser	Actions	View	Window						
Sev.	Dup.	SUIAONE	Date	Time	Node	Application	MsgGroup	Object	Message Text	
Norm		--X--X-	07/03/01	22:56:27	m2426stk.n	HP IT/Opera	OpC	ovoareqsd	Control agent on node m2426stk.ns	
Norm		--XS-X-	07/03/01	22:57:08	m2426stk.n	EMS (HP)	HA	MIR Monit	EMS Monitor restarted due to syst	
Crit		--XS-X-	07/03/01	22:57:08	m2426stk.n	EMS (HP)	HA	/net/inte	EMS Problem Event: Value: "UP(1)	
Crit		--XS-X-	07/03/01	22:57:18	m2426stk.n	EMS (HP)	HA	/net/inte	EMS Problem Event: Value: "UP(1)	
Norm		--X-X--	07/03/01	23:13:45	i2415.rose	alarmgen	Performan	OSSPI	Network collisions, situation bac	
Norm		--X-X--	07/03/01	23:13:45	i2415.rose	alarmgen	Performan	OSSPI	Network collisions, situation bac	

Start | [Icons] | Refl... | hpter... | Eve... | Telh... | Root | ITD ... | Me... | [Icons] | 2:54 PM

1st Critical Message: disconnected lan0 cable

2nd Critical Message: ifconfig lan1 down

EMS H/A Monitor

OpenView Operations EMS Integration

Message Details

Node	m2426stk.nsr.hp.com	Severity	Critical
Application	EMS (HP)	Service Name	
Message Group	HA	Message Key	
Object	/net/interfaces/lan/status/lan0	Message Type	
Source	Message:EMS opcms	Time Created on Managed Node	
Annotations	2	Time Received on Mgmt. Server	
Attributes		Number of Duplicates	
Message ID	bc858e-7a32-71d5-0b4a-c21a04030000	Time Last Received on Mgmt. Server	
Forwarding Manager		Owned by	

Message Text

EMS Problem Event: Value: "UP(1)" For Resource: "/net/interfaces/lan/status/lan0" (Threshold

Actions

	Status	Node	Comment
Automatic	successful	m2426stk.nsr.hp.com	/net/interfaces/lan/status/lan0
Operator Initiated			
Notification			
Trouble Ticket	No		

Escalations

Escalated to by at

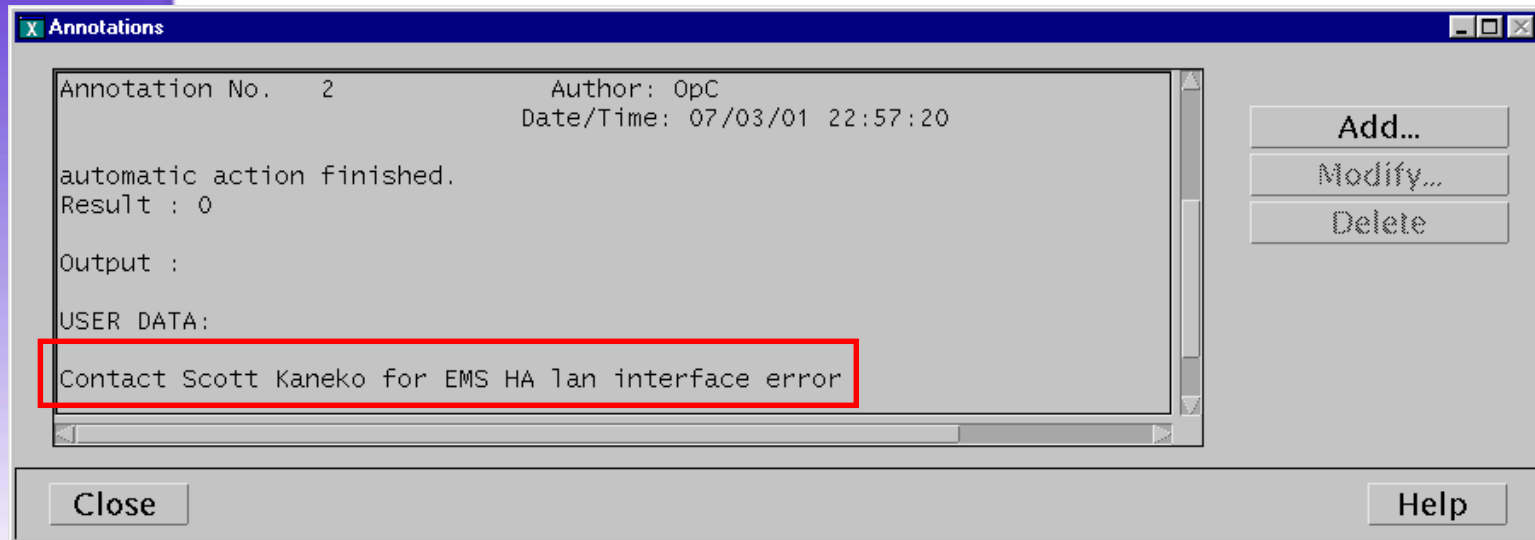
Instructions... Show Original Message... Own

Close Highlight Annotations... Acknowledge

Select Annotations
To See Customized
EMS Message

EMS H/A Monitor

OpenView Operations EMS Integration



EMS Additional Notes

Disabling EMS

- **Disable Entire EMS Monitor**
- **Disable EMS Events**
- **Disable EMS Instance**

EMS Additional Notes

Steps To Disable Entire EMS Monitor

- 1) Disable monitoring**
- 2) Move the executable**
- 3) Move the dictionary entry**
- 4) Move the .hwa existence file**
- 5) Enable monitoring**
- 6) Verify**

EMS Additional Notes

Disable Entire EMS Monitor

```
Telnet - m2426stk.nsr.hp.com
Connect Edit Terminal Help

=====
Monitoring Request Manager Main Menu
=====

Select:
(S)how monitoring requests configured via monconfig
(C)heck detailed monitoring status
(L)ist descriptions of available monitors
(A)dd a monitoring request
(D)elete a monitoring request
(M)odify an existing monitoring request
(E)nable Monitoring
(K)ill (disable) monitoring
(H)elp
(Q)uit
Enter selection: [s] c
```

```
Telnet - m2426stk.nsr.hp.com
Connect Edit Terminal Help

>/system/events/core_hw ... OK.
For /system/events/core_hw/core_hw:
Events >= 4 (SERIOUS) Goto TCP; host=m2426stk.nsr.hp.com port=49198
Events >= 1 (INFORMATION) Goto TEXTLOG; file=/var/opt/resmon/log/event.log
Events >= 3 (MAJOR WARNING) Goto SYSLOG
Events >= 3 (MAJOR WARNING) Goto EMAIL; addr=root
```

EMS Additional Notes

Disable Entire EMS Monitor

```
Telnet - m2426stk.nsr.hp.com
Connect Edit Terminal Help

=====
Event Monitoring Service
Monitoring Request Manager
=====

EVENT MONITORING IS CURRENTLY ENABLED.
EMS Version : A.03.20
STM Version : A.25.00

=====
Monitoring Request Manager Main Menu
=====

Select:
(S)how monitoring requests configured via monconfig
(C)heck detailed monitoring status
(L)ist descriptions of available monitors
(A)dd a monitoring request
(D)delete a monitoring request
(M)odify an existing monitoring request
(E)nable Monitoring
(K)ill (disable) monitoring
(H)elp
(Q)uit
Enter selection: [s] k
```

```
Telnet - m2426stk.nsr.hp.com
Connect Edit Terminal Help

=====
Disable Monitoring
=====

Hardware event monitoring watches the system for hardware problems. If
you shut this facility down, the system will no longer be able to alert
you to many hardware problems.
In addition, if ServiceGuard is configured to use hardware event monitoring
to determine the health of your system, then disabling monitoring may cause
it to consider this system as having failed. This will result in a package
failover. Type "h" for help to find out more about the implications of
shutdown on ServiceGuard.
Furthermore, if you have used the Event Monitoring Service (EMS) Graphical
User Interface (GUI) within the System Administration Manager (SAM) to
configure the event monitors, this configuration will not be saved, and no
actual monitoring will take place until hardware event monitoring is
re-enabled and you add the monitoring requests back again using the EMS
GUI. Event monitoring resources show up in the EMS GUI under the resource
class "status".

Are you sure you wish to disable event monitoring?
{(Y)es,(N)o,(H)elp} [n] y
```

```
Telnet - m2426stk.nsr.hp.com
Connect Edit Terminal Help

EVENT MONITORING IS CURRENTLY DISABLED.

=====
Monitoring Request Manager Main Menu
=====

Select:
(S)how monitoring requests configured via monconfig
(C)heck detailed monitoring status
(L)ist descriptions of available monitors
(A)dd a monitoring request
(D)delete a monitoring request
(M)odify an existing monitoring request
(E)nable Monitoring
(K)ill (disable) monitoring
(H)elp
(Q)uit
Enter selection: [s]
```

EMS Additional Notes

Disable Entire EMS Monitor

```
Telnet - m2426stk.nsr.hp.com
Connect Edit Terminal Help
m2426stk:/ > cd /usr/sbin/stm/uut/bin/tools/monitor
m2426stk:/usr/sbin/stm/uut/bin/tools/monitor > mkdir org
m2426stk:/usr/sbin/stm/uut/bin/tools/monitor > mv dm_core_hw org
m2426stk:/usr/sbin/stm/uut/bin/tools/monitor > █
```

**Move Executable
File**

```
Telnet - m2426stk.nsr.hp.com
Connect Edit Terminal Help
m2426stk:/ > cd /etc/opt/resmon/dictionary/
m2426stk:/etc/opt/resmon/dictionary > mkdir org
m2426stk:/etc/opt/resmon/dictionary > mv dm_core_hw.dict org
m2426stk:/etc/opt/resmon/dictionary > █
```

**Move Dictionary
File**

```
Telnet - m2426stk.nsr.hp.com
Connect Edit Terminal Help
m2426stk:/ > cd /var/stm/data/tools/monitor
m2426stk:/var/stm/data/tools/monitor > mkdir org
m2426stk:/var/stm/data/tools/monitor > mv dm_core_hw.hwa org
m2426stk:/var/stm/data/tools/monitor > █
```

**Move Existence
File**

EMS Additional Notes

Disable Entire EMS Monitor

```
Telnet - m2426stk.nsr.hp.com
Connect Edit Terminal Help
=====
Event Monitoring Service
Monitoring Request Manager
=====

EVENT MONITORING IS CURRENTLY DISABLED.
EMS Version : A.03.20
STM Version : A.25.00

=====
Monitoring Request Manager Main Menu
=====

Select:
(S)how monitoring requests configured via monconfig
(C)heck detailed monitoring status
(L)ist descriptions of available monitors
(A)dd a monitoring request
(D)elete a monitoring request
(M)odify an existing monitoring request
(E)nable Monitoring
(K)ill (disable) monitoring
(H)elp
(Q)uit
Enter selection: [s] e
```

```
Telnet - m2426stk.nsr.hp.com
Connect Edit Terminal Help

Waiting for changes in monitoring requests or in hardware configuration
to take effect...

EVENT MONITORING IS CURRENTLY ENABLED.

=====
Monitoring Request Manager Main Menu
=====

Select:
(S)how monitoring requests configured via monconfig
(C)heck detailed monitoring status
(L)ist descriptions of available monitors
(A)dd a monitoring request
(D)elete a monitoring request
(M)odify an existing monitoring request
(E)nable Monitoring
(K)ill (disable) monitoring
(H)elp
(Q)uit
Enter selection: [s]
```

EMS Additional Notes

Disable Entire EMS Monitor

```
Telnet - m2426stk.nsr.hp.com
Connect Edit Terminal Help

=====
Monitoring Request Manager Main Menu
=====

Select:
(S)how monitoring requests configured via monconfig
(C)heck detailed monitoring status
(L)ist descriptions of available monitors
(A)dd a monitoring request
(D)elete a monitoring request
(M)odify an existing monitoring request
(E)nable Monitoring
(K)ill (disable) monitoring
(H)elp
(Q)uit
Enter selection: [s] c
```

```
Telnet - m2426stk.nsr.hp.com
Connect Edit Terminal Help

>/system/events/core_hw ... NOT MONITORING.
(Possibly there is no hardware to monitor.)

>/connectivity/events/hubs/FC_hub ... NOT MONITORING.
(Possibly there is no hardware to monitor.)
```


EMS Additional Notes

Disabling EMS

- **Disable Entire EMS Monitor**
- **Disable EMS Events**
- **Disable EMS Instance**

EMS Additional Notes

dm_core_hw events 51 & 55

```
Untitled - Notepad
File Edit Search Help

>----- Event Monitoring Service Event Notification -----<
Notification Time: Tue Jun 19 02:09:41 2001

system1 sent Event Monitor notification information:

/system/events/core_hw/core_hw is >= 3.
Its current value is SERIOUS(4).

Event data from monitor:
Event Time.....: Tue Jun 19 02:09:41 2001
Severity.....: SERIOUS
Monitor.....: dm_core_hw
Event #.....: 51
System.....: system1.company1.com

Summary: I/O power supply 14 failure in compute cabinet

Description of Error: An I/O power supply has failed.

Probable Cause / Recommended Action:

The power supply is not connected to a working AC power source.
Verify that the power supply is connected properly. The power supply
is disabled. If present, verify that the switch on the front of the
power supply is in the "On" position.
The power supply has failed. Repair or replace the power supply.
```

```
Untitled - Notepad
File Edit Search Help

Additional Event Data:
System IP Address....: 1.2.3.4
Event Id.....: 0x3b2f16d500000000
Monitor Version.....: B.01.00
Event Class.....: System
Client Configuration File.....:
/var/stm/config/tools/monitor/default_dm_core_hw.clcfg
Client Configuration File Version...: A.01.00
Qualification criteria met.
Number of events...: 1
Associated OS error log entry id(s):
None
Additional System Data:
System Model Number.....: 9000/800
EMS Version.....: A.03.20
STM Version.....: A.04.00

Latest information on this event:
http://docs.hp.com/hpux/content/hardware/ems/dm_core_hw.htm#51

v-v-v-v-v D E T A I L S v-v-v-v-v

Device identification information:

Number of failed power supplies.....: 1
Location of failed power supplies.....: compute cabinet
Failed power supply number(s).....: 14

>----- End Event Monitoring Service Event Notification -----<
```

ONLY APPLICABLE TO SYSTEMS (N AND L CLASS)
LOADED FROM DECEMBER 2000 SUPPORT PLUS CD-ROM

EMS Additional Notes

dm_core_hw events 51 & 55

```
Untitled - Notepad
File Edit Search Help

>----- Event Monitoring Service Event Notification -----<
Notification Time: Tue Jun 19 02:09:42 2001
system1 sent Event Monitor notification information:
/system/events/core_hw/core_hw is >= 3.
Its current value is SERIOUS(4).

Event data from monitor:
Event Time.....: Tue Jun 19 02:09:42 2001
Severity.....: SERIOUS
Monitor.....: dm_core_hw
Event #.....: 55
System.....: system1.company1.com

Summary: Backplane power board 8,9,13,16,18,19 failure in compute
cabinet

Description of Error: An Backplane power board has failed.

Probable Cause / Recommended Action:

The power board is not connected to a working AC power source.
Verify that the power board is connected properly.
The power board has failed. Repair or replace the power board.
```

```
Untitled - Notepad
File Edit Search Help

Additional Event Data:
System IP Address....: 1.2.3.4
Event Id.....: 0x3b2f16d600000000
Monitor Version.....: B.01.00
Event Class.....: System
Client Configuration File.....:
/var/stm/config/tools/monitor/default_dm_core_hw.clcfg
Client Configuration File Version...: A.01.00
Qualification criteria met.
Number of events...: 1
Associated OS error log entry id(s):
None
Additional System Data:
System Model Number.....: 9000/800
EMS Version.....: A.03.20
STM Version.....: A.24.00
Latest information on this event:
http://docs.hp.com/hpux/content/hardware/ems/dm_core_hw.htm#55

v-v-v-v-v D E T A I L S v-v-v-v-v

Device identification information:

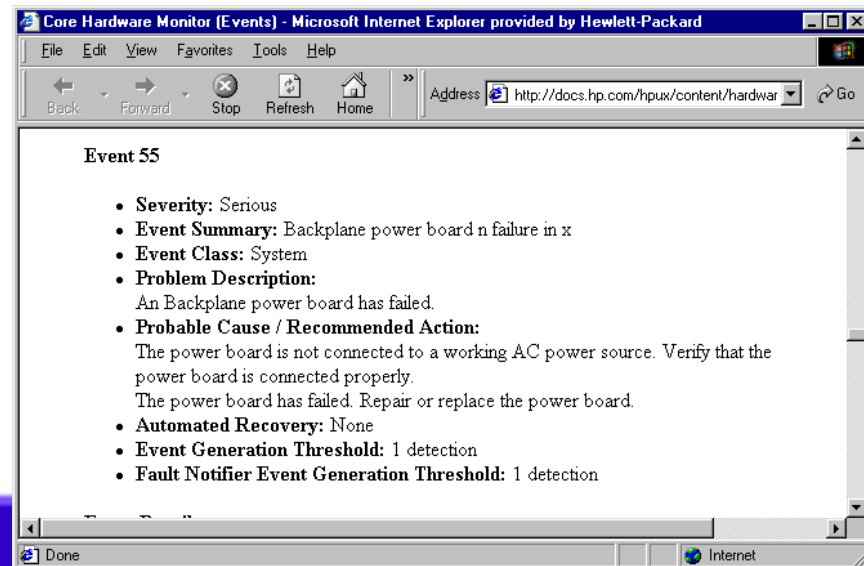
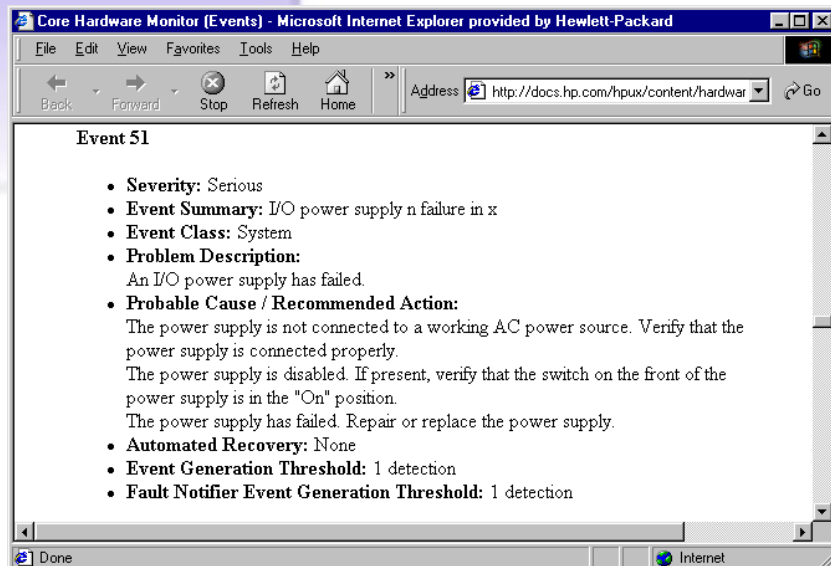
Number of failed power boards.....: 6
Location of failed power boards.....: compute cabinet
Failed power board number(s).....: 8,9,13,16,18,19

>----- End Event Monitoring Service Event Notification -----<
```

ONLY APPLICABLE TO SYSTEMS (N AND L CLASS)
LOADED FROM DECEMBER 2000 SUPPORT PLUS CD-ROM

EMS Additional Notes

dm_core_hw events 51 & 55



EMS Additional Notes

Steps To Disable EMS Events

- 1) Disable monitoring**
- 2) Change directory to
var/stm/config/tools/monitor**
- 3) Edit the appropriate .clcfg file**
- 4) Enable monitoring**
- 5) Verify**

EMS Additional Notes

Disable EMS Events

```
Telnet - m2426stk.nsr.hp.com
Connect Edit Terminal Help
m2426stk:/ > cd /var/stm/config/tools/monitor
m2426stk:/var/stm/config/tools/monitor > ls default_dm_core*
default_dm_core_hw.clcfg
m2426stk:/var/stm/config/tools/monitor > cp default_dm_core_hw.clcfg \
> default_dm_core_hw.orig
m2426stk:/var/stm/config/tools/monitor > vi default_dm_core_hw.clcfg
```

```
Telnet - m2426stk.nsr.hp.com
Connect Edit Terminal Help
#
# EVENT_CAB_POWER_REDUNDANT
EQ:50 :INFORMATION :TRUE :9999999 :ANY :1 :NONE :NO_OP:NO_OP:NONE
#
# EVENT_IO_POWER_FAIL
EQ:51 :SERIOUS :TRUE :1440 :ANY :1 :NONE :NO_OP:NO_OP:NONE
#
# EVENT_IO_POWER_NOT_REDUNDANT
EQ:52 :SERIOUS :TRUE :1440 :ANY :1 :NONE :NO_OP:NO_OP:NONE
#
# EVENT_IO_POWER_NOT_REDUNDANT_OK
EQ:53 :INFORMATION :TRUE :9999999 :ANY :1 :NONE :NO_OP:NO_OP:NONE
#
# EVENT_IO_POWER_REDUNDANT
EQ:54 :INFORMATION :TRUE :9999999 :ANY :1 :NONE :NO_OP:NO_OP:NONE
#
# EVENT_BP_PS_FAIL
EQ:55 :SERIOUS :TRUE :1440 :ANY :1 :NONE :NO_OP:NO_OP:NONE
#
```

```
Telnet - m2426stk.nsr.hp.com
Connect Edit Terminal Help
#
# EVENT_CAB_POWER_REDUNDANT
EQ:50 :INFORMATION :TRUE :9999999 :ANY :1 :NONE :NO_OP:NO_OP:NONE
#
# EVENT_IO_POWER_FAIL
EQ:51 :SERIOUS :FALSE :1440 :ANY :1 :NONE :NO_OP:NO_OP:NONE
#
# EVENT_IO_POWER_NOT_REDUNDANT
EQ:52 :SERIOUS :TRUE :1440 :ANY :1 :NONE :NO_OP:NO_OP:NONE
#
# EVENT_IO_POWER_NOT_REDUNDANT_OK
EQ:53 :INFORMATION :TRUE :9999999 :ANY :1 :NONE :NO_OP:NO_OP:NONE
#
# EVENT_IO_POWER_REDUNDANT
EQ:54 :INFORMATION :TRUE :9999999 :ANY :1 :NONE :NO_OP:NO_OP:NONE
#
# EVENT_BP_PS_FAIL
EQ:55 :SERIOUS :FALSE :1440 :ANY :1 :NONE :NO_OP:NO_OP:NONE
#
```

EMS Additional Notes

Disable EMS Events .clcfg Definitions

```

#
# : event:severity      :en_flg:supp_time>window:thr:val_th1:opr 1:opr 2:val_th2
# :-----:-----:-----:-----:-----:-----:-----:-----:-----:-----:
#
# EVENT_IO_POWER_FAIL
EQ:51 :SERIOUS          :FALSE :1440      :ANY   :1 :NONE   :NO_OP:NO_OP:NONE
#
# EVENT_BP_PS_FAIL
EQ:55 :SERIOUS          :FALSE :1440      :ANY   :1 :NONE   :NO_OP:NO_OP:NONE
#

```

```

#
# event_number : the number of the event
#
# severity : the severity of the event. Valid values are:
# severity : the severity of the event. Valid values are:
# CRITICAL
# SERIOUS
# SERIOUS
# MAJOR_WARNING
# MINOR_WARNING
# INFORMATION
#
# enable flag : whether the event is enabled. Valid values are:
# TRUE - event is enabled
# FALSE - event is not enabled
#
# suppression time : time, in minutes, to suppress generation and trending
# for this event after generating the event.
# Valid values are:
# NOT_USED - Never suppress the event
# 1 - maxint - number of minutes to suppress
# 9999999 - This value is used so that an event will only be generated
# once. In the dm_core_hw monitor, informational events
# stating that a component is OK use this value. The event
# will be cleared if a failure occurs, so that the event
# will be re-generated when the problem is fixed.
#
# time window: amount of time, in minutes, event must be seen to
# qualify event. Valid values are:
# NOT_USED - time window thresholding not used
# ANY - time window thresholding used but no time window specified
# 1-maxint - time need to see threshold events to qualify
#

```

```

#
# threshold : number of times in time window event must be seen to qualify
# event. Valid values are:
# 1-maxint
# NOTE: to configure event to always be generated every time it is seen,
# threshold should be set to 1 and time window should be set to "ANY"
# value threshold X, operator X : value thresholds to qualify event.
# Valid values for value threshold depend on the type of value associated
# with the event. However, predefined value of "NONE" means this value
# threshold is not used. Valid values for operator X are:
# NO_OP - this operator not used
# >, <, >=, <=, ==, !=.
# These values are used to qualify the event using the following logic:
# value threshold 1 operator 1 value operator 2 value threshold 2
# For example, if the value is an integer and want to qualify event if
# value is between 60 and 70, inclusive, the entry would be:
# 60 : <= : <= 70. If the value is an integer and want to qualify event
# if value is > 70, the entry would be : NONE : NO_OP : > : 70.
#

```

EMS Additional Notes – Another Example

Disable EMS Events

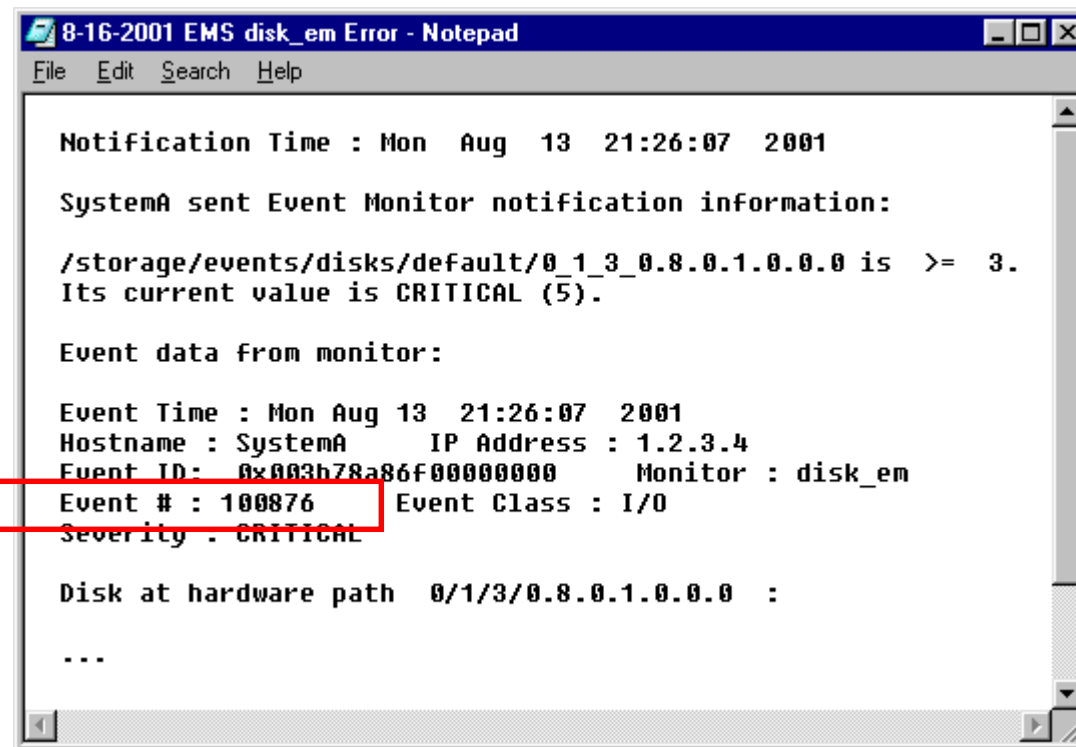


What if the appropriate .clcfg file doesn't exist?

If the .clcfg file doesn't exist then the monitor is not predictive enabled and therefore the .cfg file must be modified

EMS Additional Notes – Another Example

Disable EMS Events



```
8-16-2001 EMS disk_em Error - Notepad
File Edit Search Help

Notification Time : Mon Aug 13 21:26:07 2001

SystemA sent Event Monitor notification information:

/storage/events/disks/default/0_1_3_0.8.0.1.0.0.0 is >= 3.
Its current value is CRITICAL (5).

Event data from monitor:

Event Time : Mon Aug 13 21:26:07 2001
Hostname : SystemA IP Address : 1.2.3.4
Event ID: 0x003b78a86f00000000 Monitor : disk_em
Event # : 100876 Event Class : I/O
Severity : CRITICAL

Disk at hardware path 0/1/3/0.8.0.1.0.0.0 :

...
```

EMS Additional Notes – Another Example

Steps To Disable EMS Events

```
cd /var/stm/config/tools/monitor  
cp disk_em.cfg disk_em.cfg.orig
```

Modify the disk_em.cfg file:

Add the following line to the end of the file:

```
DEFINE_EVENT 100876 CRITICAL IGNORE # msg num127
```

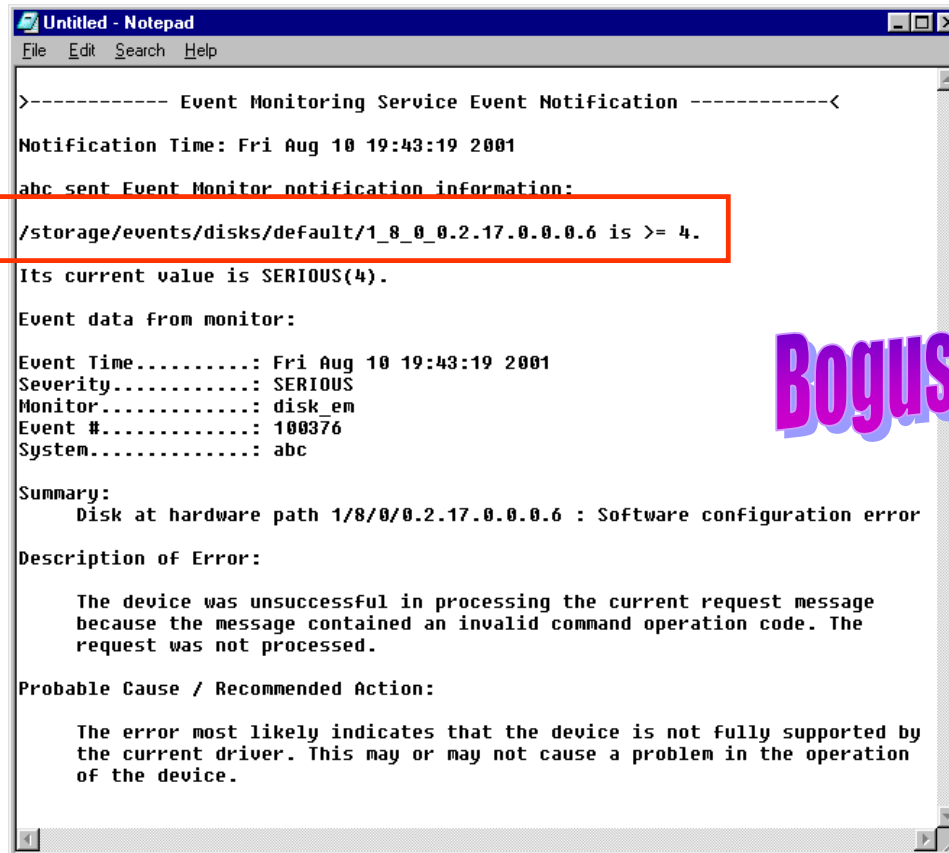
EMS Additional Notes

Disabling EMS

- **Disable Entire EMS Monitor**
- **Disable EMS Events**
- **Disable EMS Instance**

EMS Additional Notes

Steps To Disable EMS Instance



```
Untitled - Notepad
File Edit Search Help

>----- Event Monitoring Service Event Notification -----<
Notification Time: Fri Aug 10 19:43:19 2001
abc sent Event Monitor notification information:
/storage/events/disks/default/1_8_0.2.17.0.0.0.6 is >= 4.
Its current value is SERIOUS(4).
Event data from monitor:
Event Time.....: Fri Aug 10 19:43:19 2001
Severity.....: SERIOUS
Monitor.....: disk_em
Event #.....: 100376
System.....: abc
Summary:
  Disk at hardware path 1/8/0/0.2.17.0.0.0.6 : Software configuration error
Description of Error:
  The device was unsuccessful in processing the current request message
  because the message contained an invalid command operation code. The
  request was not processed.
Probable Cause / Recommended Action:
  The error most likely indicates that the device is not fully supported by
  the current driver. This may or may not cause a problem in the operation
  of the device.
```

Bogus Message

EMC Generated EMS Message

EMS Additional Notes

Steps To Disable EMS Instance

- 1) Disable monitoring**
- 2) Edit the instance file:**
`/var/stm/data/tools/monitor/disabled_instances`
- 3) Add disk resource name**
- 4) Enable monitoring**
- 5) Verify**

EMS Additional Notes

Steps To Disable EMS Instance

Output from main menu monconfig
Select (C) heck detailed monitoring status

```
Telnet - m2426s2k.nsr.hp.com
Connect Edit Terminal Help
Events >= 3 (MAJOR WARNING) Goto EMAIL; addr=scott_kaneko@hp.com
Comment: Scott Kaneko EMS Notification
For /storage/events/disks/default/8.4.0:
Events >= 1 (INFORMATION) Goto TEXTLOG; file=/var/opt/resmon/log/event.log
Events >= 3 (MAJOR WARNING) Goto SYSLOG
Events >= 3 (MAJOR WARNING) Goto EMAIL; addr=root
Events >= 1 (INFORMATION) Goto TEXTLOG; file=/var/opt/pred/emslog
Comment: Predictive Monitor Request
Events = 5 (CRITICAL) Goto TCP; host=m2426s2k.nsr.hp.com port=55382
Events >= 3 (MAJOR WARNING) Goto EMAIL; addr=scott_kaneko@hp.com
Comment: Scott Kaneko EMS Notification
For /storage/events/disks/default/52.1.0:
Events >= 1 (INFORMATION) Goto TEXTLOG; file=/var/opt/resmon/log/event.log
Events >= 3 (MAJOR WARNING) Goto SYSLOG
```

**Example:
Disable This
Instance**

```
Telnet - m2426s2k.nsr.hp.com
Connect Edit Terminal Help
# vi /var/stm/data/tools/monitor/disabled_instances
```

EMS Additional Notes

Steps To Disable EMS Instance

```
Telnet - m2426s2k.nsr.hp.com
Connect Edit Terminal Help
# characters.
#
# When changes are made to this file, the user should run monconfig and
# enable monitoring to make changes in this file take effect.
#
# NOTE: entries in this file do NOT cause a monitor to stop polling an
# instance or stop the PSM monitor from marking an instance as DOWN, it
# just stops the notification of events based on entries in the *.sapcfg
# files for this instance.
/storage/events/disks/default/8.4.0
:~q
```

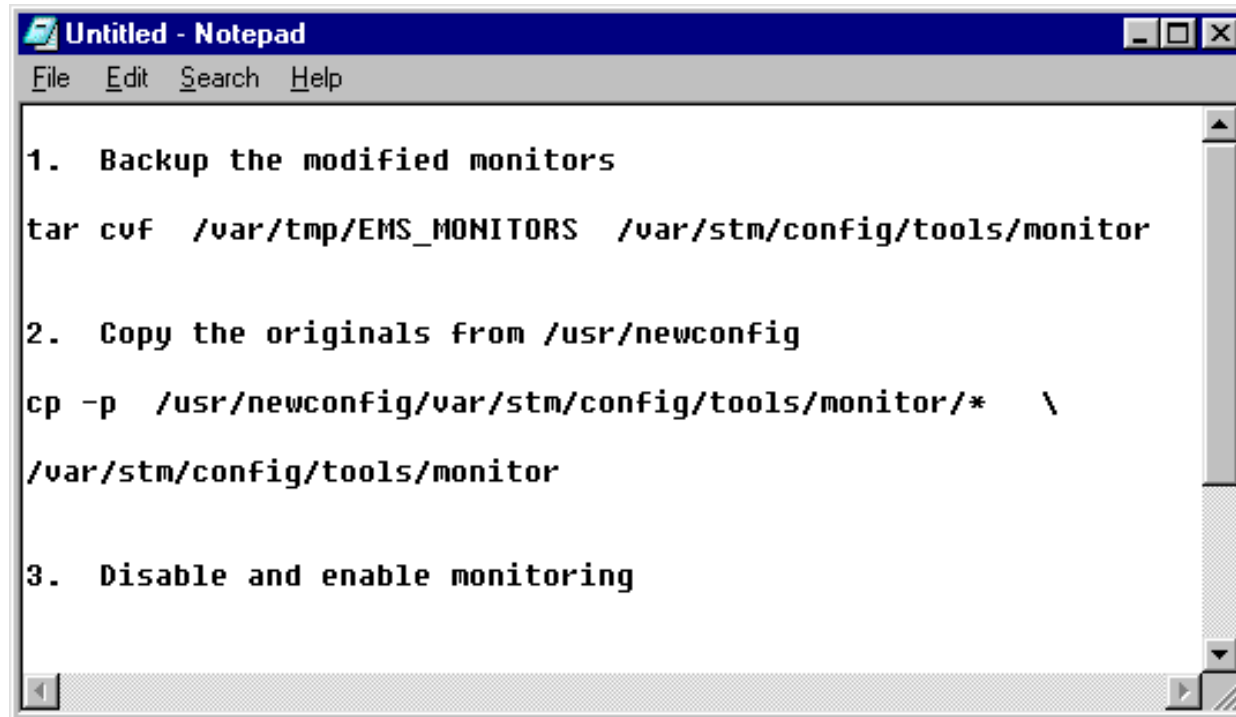
Output from main menu monconfig
Select (C) heck detailed monitoring status

```
Telnet - m2426s2k.nsr.hp.com
Connect Edit Terminal Help
Comment: Predictive Monitor Request
Events = 5 (CRITICAL) Goto TCP; host=m2426s2k.nsr.hp.com port=53464
For /storage/events/disks/default/8.4.0:
Events = 5 (CRITICAL) Goto TCP; host=m2426s2k.nsr.hp.com port=53464
For /storage/events/disks/default/E2.1.0:
Events >= 3 (MAJOR WARNING) Goto EMAIL; addr=scott.kaneko@hp.com
```

Verified:
Instance Is Disabled

EMS Additional Notes

Restoring EMS To Defaults



```
Untitled - Notepad
File Edit Search Help

1. Backup the modified monitors
tar cvf /var/tmp/EMS_MONITORS /var/stm/config/tools/monitor

2. Copy the originals from /usr/newconfig
cp -p /usr/newconfig/var/stm/config/tools/monitor/* \
/var/stm/config/tools/monitor

3. Disable and enable monitoring
```