

Predictive Support: Definition

- Benefits customers by detecting potential problems in a system before its availability is noticeably affected (proactive)
- Integrates with EMS to provide hardware event notification (reactive)
- Typically runs once a day and transmits via Email or Modem
- Predictive support is free to all customers who purchase support from Hewlett Packard



Predictive Support: Location and Components

- Location /opt/pred/bin
- Components
 - OPSDB *Customer/System info database*
 - PSCONFIG *User interface program*
 - Scanners *Examine system for problems*



Predictive Support: Scanners

- LOGSCAN **Disk and Tape Errors**
- MEMSCAN **Memory Errors**
- SCSISCAN **SCSI Disk**
- ARRYSCN1 **AutoRAID Disk Array**
- PROCSCAN **PDC HPMC**
- SGSCAN **MC ServiceGuard**
- EMSSCAN **EMS Events**
- PROPATCH **S/W and Patching Inventory**



Predictive Support: Event Messages

- System Console
- HP Response Center
- Heartbeat Message



Predictive Support: Reports

- Action Summary
- Versions
- Configuration
- Trace
- PSCONFIG Log



Predictive Support: Initial Configuration (Email Only)

- Test Email Communication
- Prerequisite to using Predictive email
- Verifies that Sendmail can transmit and receive mail

mailto:mailtest@predictive.americas.hp.com



Predictive Support: Initial Configuration (Email Only)

```
8-15-2001 Predictive Mail Test - Notepad
File Edit Search Help
----- Forwarded message from mailtest@i3107rcp.external.hp.com -----
From mailtest@i3107rcp.external.hp.com Wed Aug 15 08:24:21 PDT 2001
Received: from palrel2.hp.com (palrel2.hp.com [15.81.176.10])
    by m2426stk.nsr.hp.com (8.9.3 (PHNE_18546)/8.8.6) with ESMTP id IAA25801
    for <root@m2426stk.nsr.hp.com>; Wed, 15 Aug 2001 08:24:15 -0700 (PDT)
From: mailtest@i3107rcp.external.hp.com
Received: from i3107rcp.external.hp.com (i3107rcp.external.hp.com [192.170.29.3])
    by palrel2.hp.com (Postfix) with ESMTP id 9249717E7
    for <root@m2426stk.nsr.hp.com>; Wed, 15 Aug 2001 08:22:46 -0700 (PDT)
Received: (from mailtest@localhost)
    by i3107rcp.external.hp.com (8.9.3 (PHNE_22672)/8.9.3 SMKit7.02) id LAA14799
    for root@m2426stk.nsr.hp.com; Wed, 15 Aug 2001 11:18:25 -0400 (EDT)
Date: Wed, 15 Aug 2001 11:18:25 -0400 (EDT)
Message-Id: <200108151518.LAA14799@i3107rcp.external.hp.com>
Subject: Automated reply from Predictive E-mail server
To: root@m2426stk.nsr.hp.com
In-Reply-To: Your message of Wed, 15 Aug 2001 08:13:57 -0700 (PDT)
Precedence: bulk

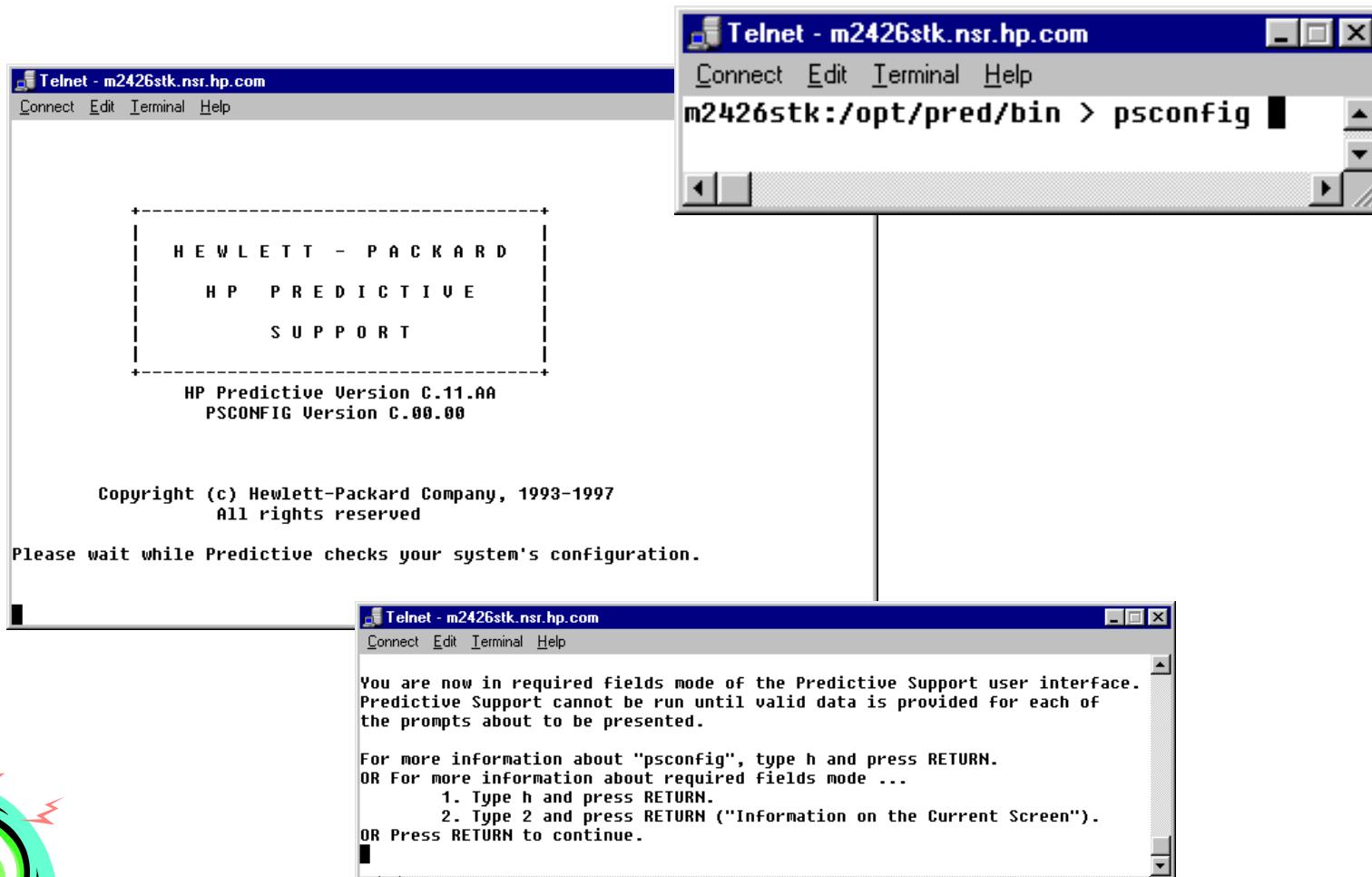
Your mail regarding "test" was received by the Predictive E-mail
transfer host. Your message was originally sent at Wed, 15 Aug 2001
08:13:57 -0700 (PDT). This reply was sent at Wed Aug 15 11:18:24 EDT
2001.

The routing path for this reply is available in the headers of this
message. The routing path for the message you sent was:

Received: from i3107fen.external.hp.com (i3107fen.external.hp.com
[156.152.23.131])
```



Predictive Support: Initial Configuration (Required Fields Mode)

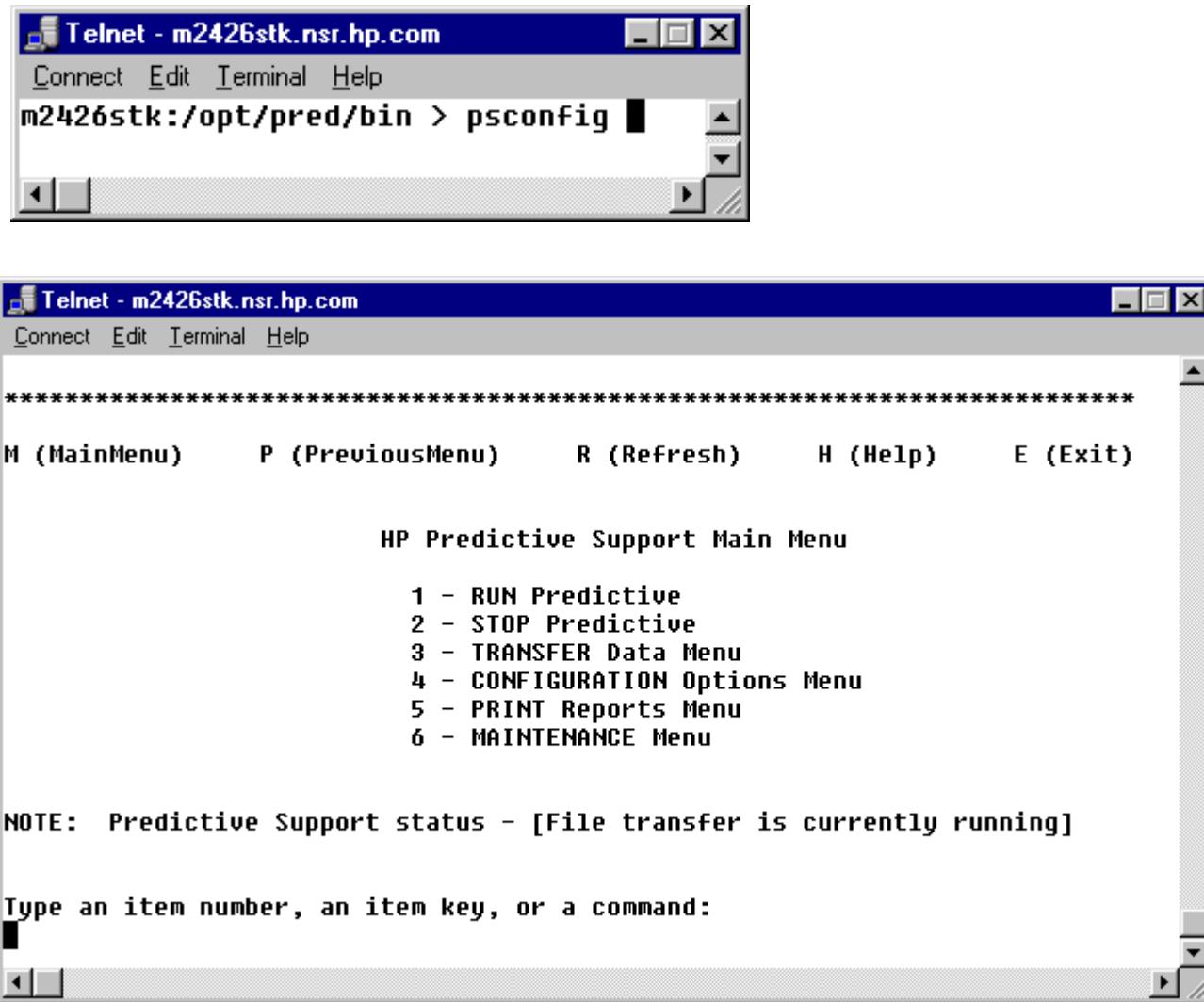


Predictive Support: Initial Configuration (Required Fields Mode)

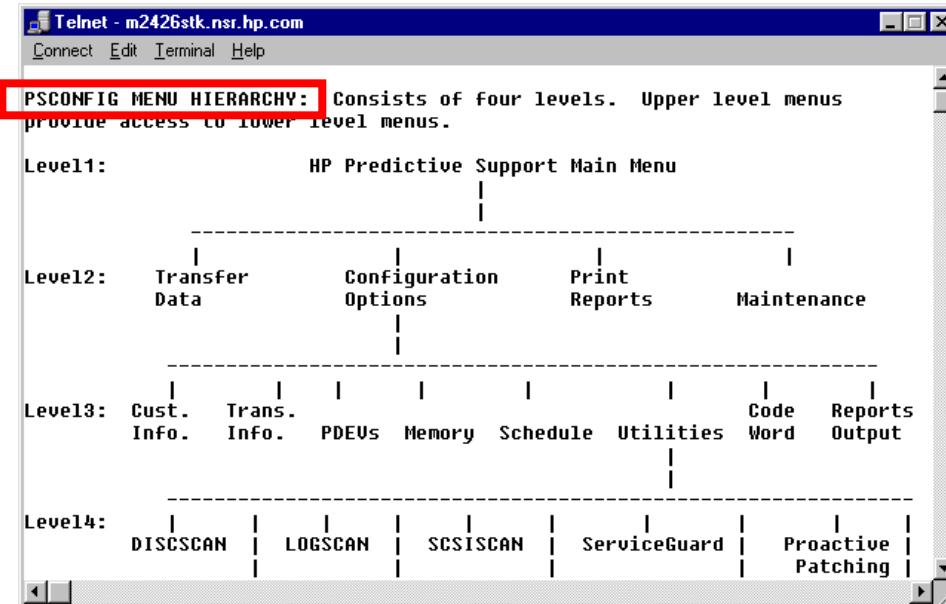
- **Transfer Information (Email / Modem)**
- **System Serial Number**
- **System Model Number**
- **Software Handle**
- **Company Name**
- **Name of contact person**
- **Phone number of contact person**
- **Repair office code**



Predictive Support: Main Menu



Predictive Support: PSCONFIG Main Menu Hierarchy



Telnet - m2426stk.nsr.hp.com

Connect Edit Terminal Help

Menus & Descriptions

Level 1: * Main Menu Start/stop a current Predictive Support run; provide access to Level 2 menus.

Level 2: * Transfer Data Initiate file transfer activity independent of an Predictive Support run

* Print Print reports independent of an Predictive Support run

* Maintenance Perform HP-only functions that communicate with the Response Center when necessary.

* Configuration Options Provide access to the Level 3 Configuration menus.



Predictive Support: PSCONFIG Main Menu Hierarchy

Telnet - m2426stk.nsr.hp.com

Connect Edit Terminal Help

Level 3:

- * Customer Information Configure customer system serial #, model #, contact name and contact phone number, etc.
- * Transfer Information Validate, list, or modify modem port setup; configure the Response Center phone number, etc.
- * Peripheral Devices Configure (enable/disable) coverage on PDEUs
- * Memory Configure (enable/disable) coverage on memory boards and arrays
- * Schedule Configure the Automatic Scheduler, setting the days and times that Predictive is to run
- * Reports Output Set the frequency and output destination(s) of HP Predictive Support reports and messages
- * Code Word Check code word status; change the code word
- * Utilities Provide access to configuration utilities

Press RETURN to continue, or // to return to the menu prompt:

Telnet - m2426stk.nsr.hp.com

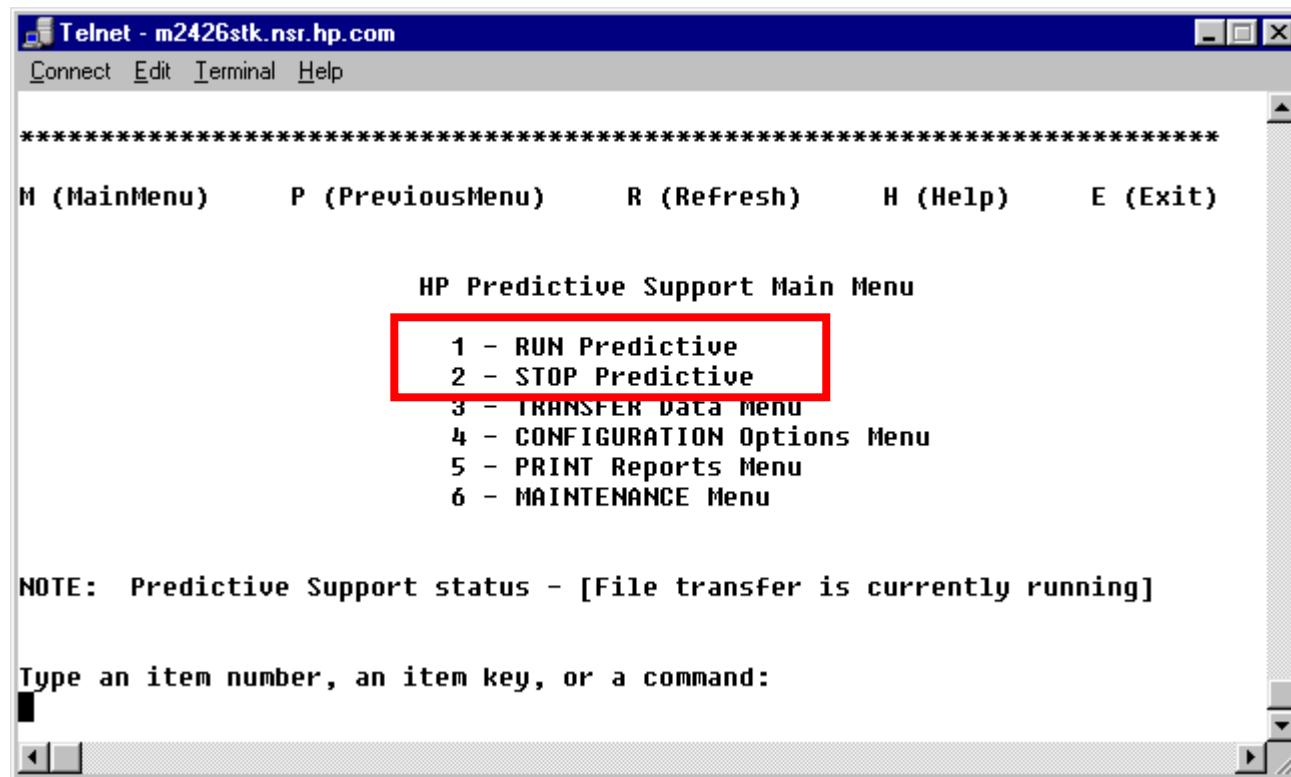
Connect Edit Terminal Help

Level 4:

- * LOGSCAN Configure log file coverage and scheduling
- * MEMSCAN Configure memory log coverage and scheduling
- * SCSISCAN Configure SCSI disk drive log coverage and scheduling
- * TRANSFER Configure data transfer and download capability
- * ARRYSCAN Configure DiskArray coverage and scheduling
- * PROCSCAN Configure processor coverage and scheduling
- * PROACTIVE Configure Proactive Patching
- * ServiceGuard Configure ServiceGuard coverage and scheduling
- * EMS Monitor Configure EMS coverage and scheduling

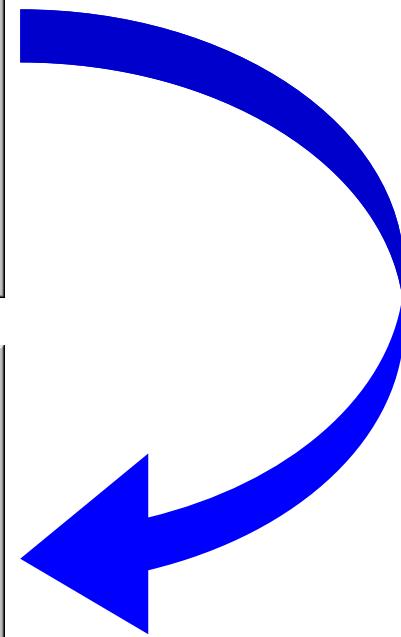
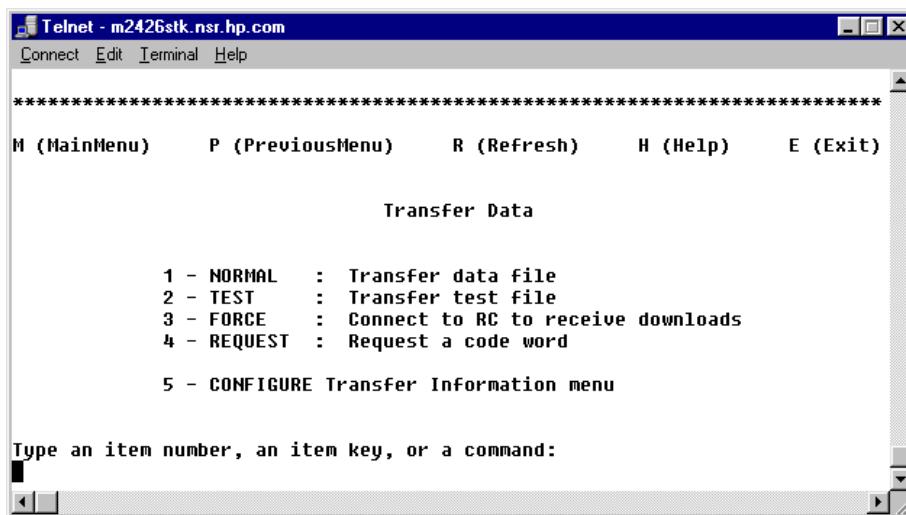
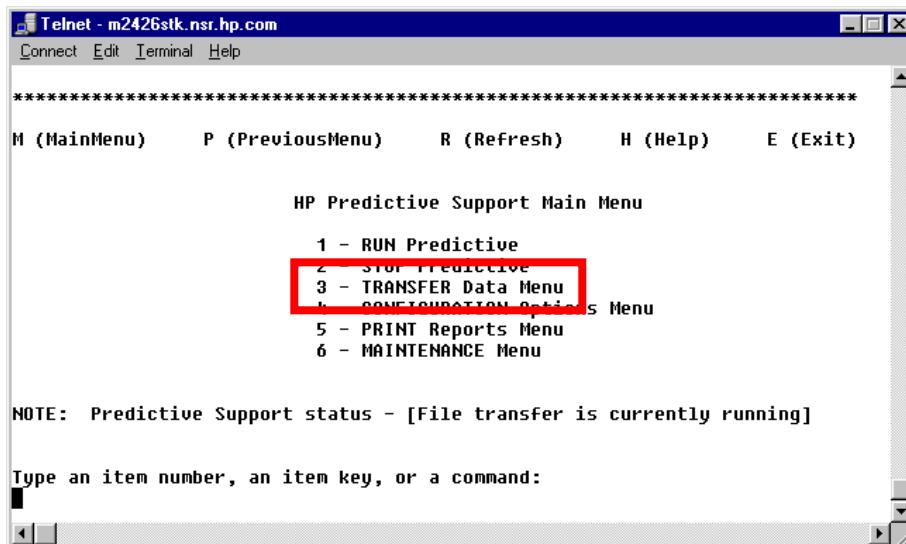


Predictive Support: Starting And Stopping A Predictive Support Run

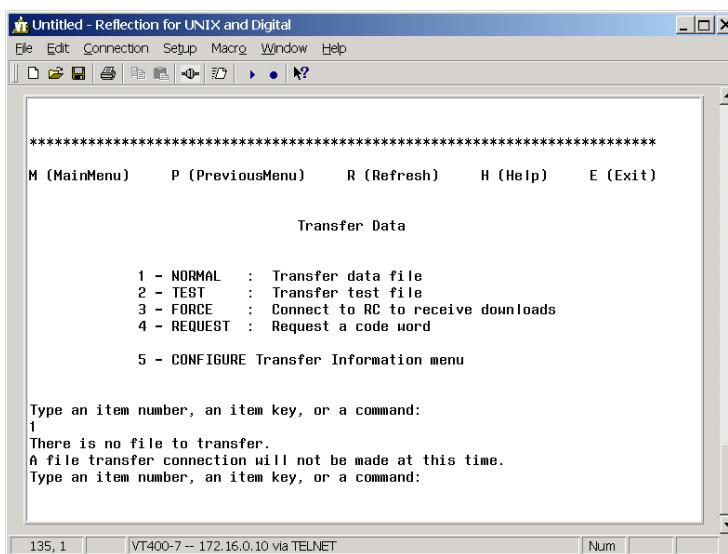
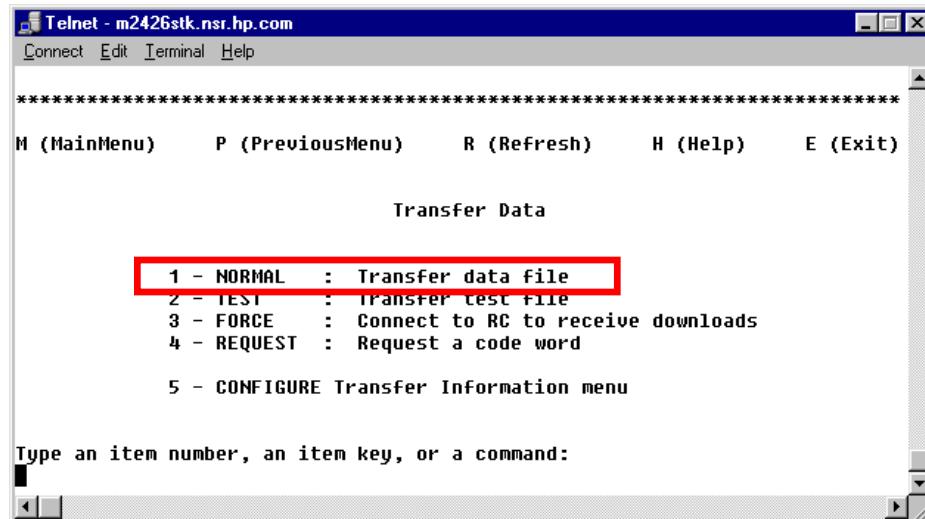


/opt/pred/bin/psconfig run
/opt/pred/bin/psconfig stop

Predictive Support: Transfer Data Menu

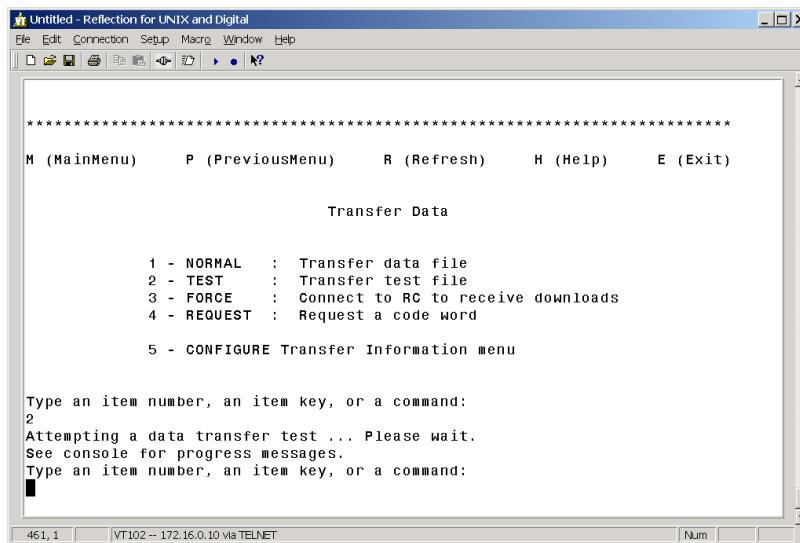
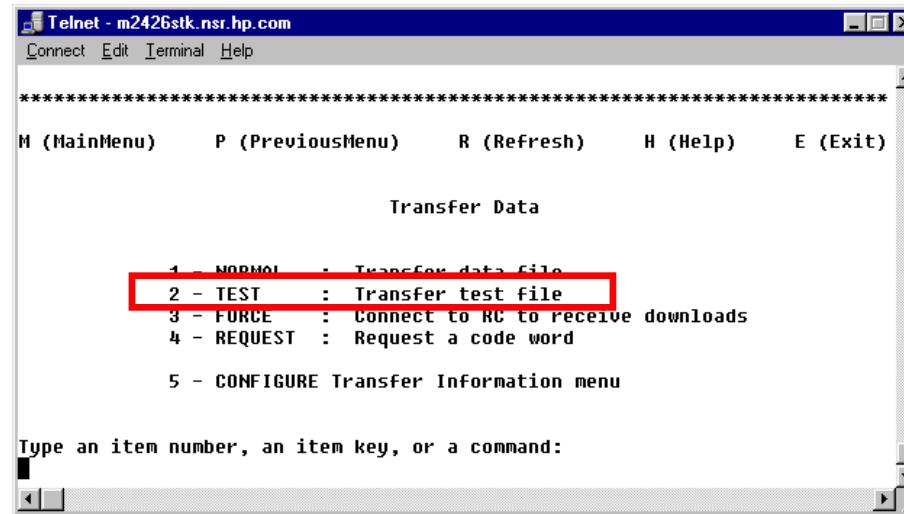


Predictive Support: Transfer Data Menu 1 - Normal

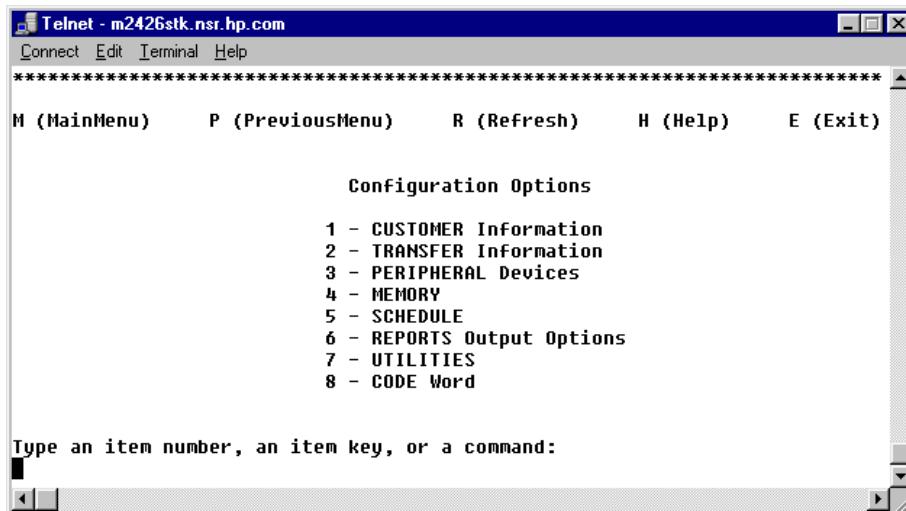
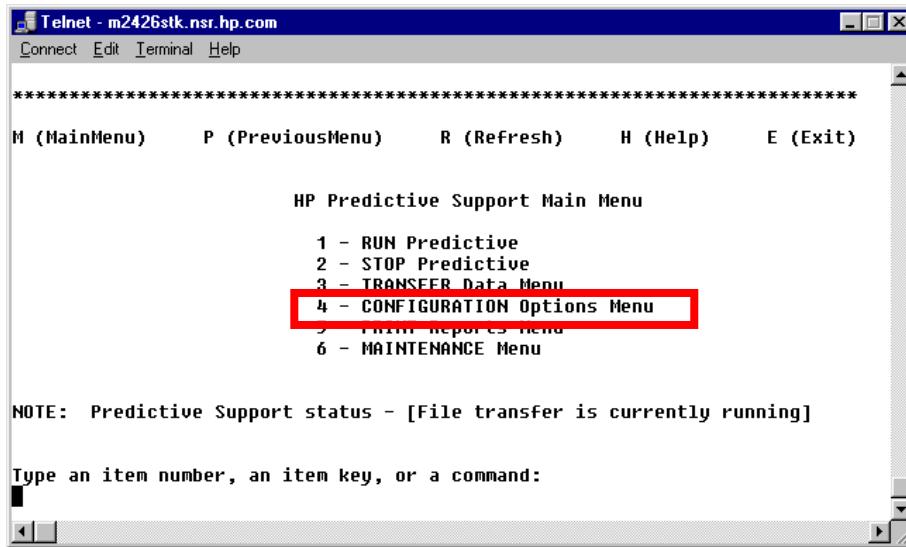


Predictive Support: Transfer Data Menu

2 - Test

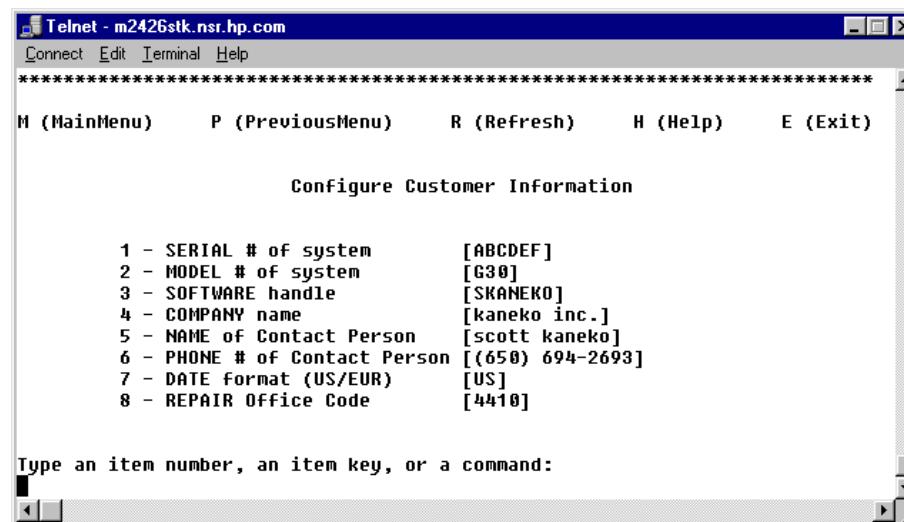
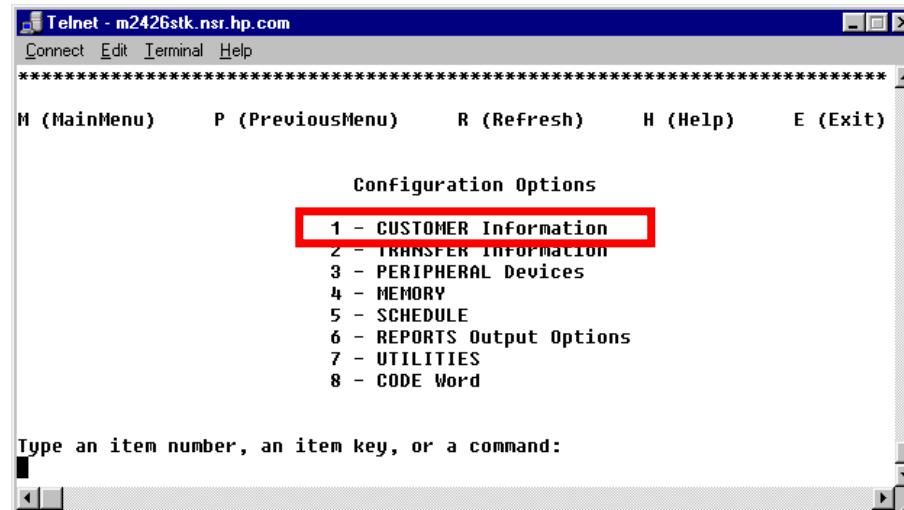


Predictive Support: Configuration Options Menu



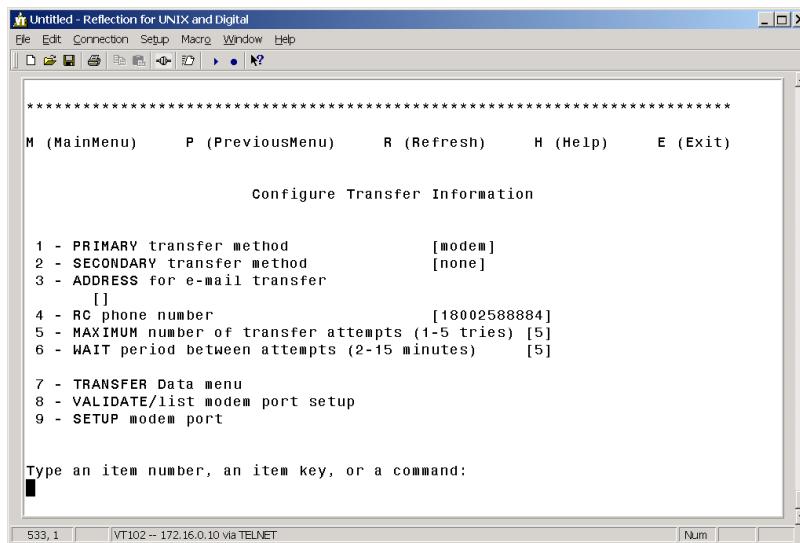
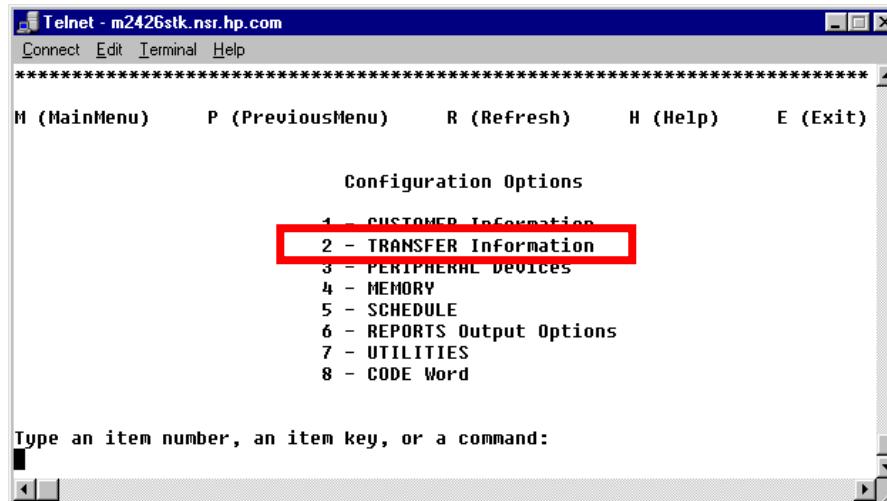
Predictive Support: Configuration Options Menu

1 – Customer Information



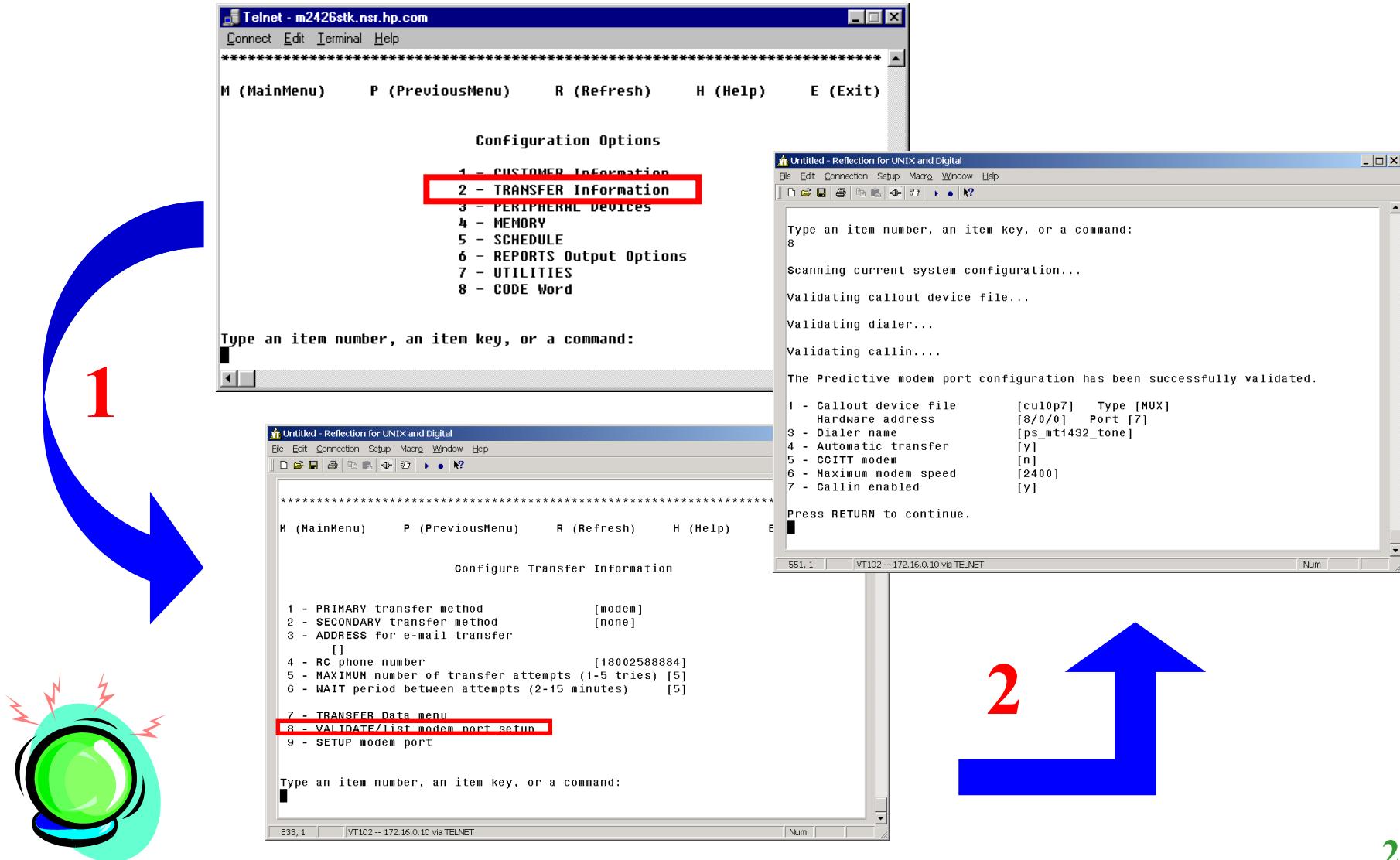
Predictive Support: Configuration Options Menu

2 – Transfer Information

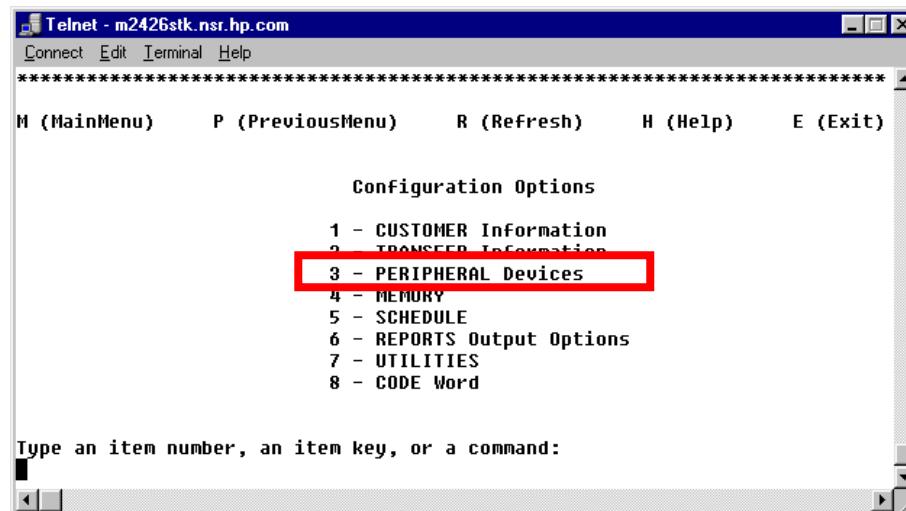


Predictive Support: Configuration Options Menu

2 – Transfer Information 8 - VALIDATE/list modem port setup



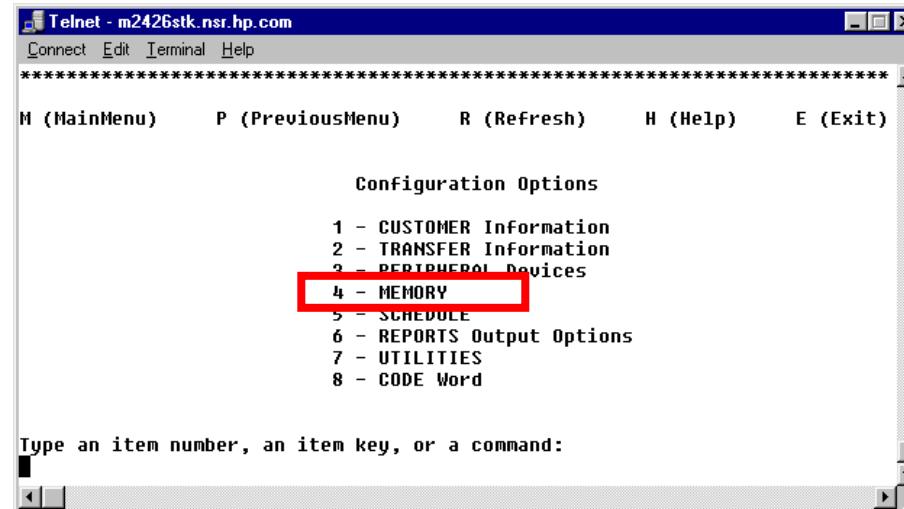
Predictive Support: Configuration Options Menu 3 – Peripheral Devices



Configure Peripheral Devices					Total PDEUs: 2
Item #	PDEV	Enabled/Disabled	Model	Serial #	
1	- 52.3.0	enabled	HPC1533A	002T354271	
2	- 52.5.0	enabled	HPC2490AM	3404A66104	
No more PDEUs to display.					
Type 0 (to swap two devices), an item number, or a command:					

Predictive Support: Configuration Options Menu

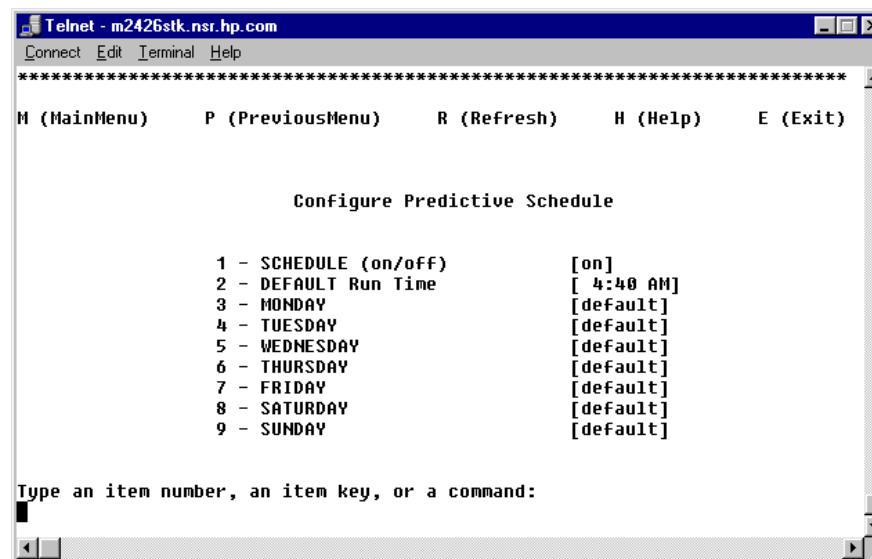
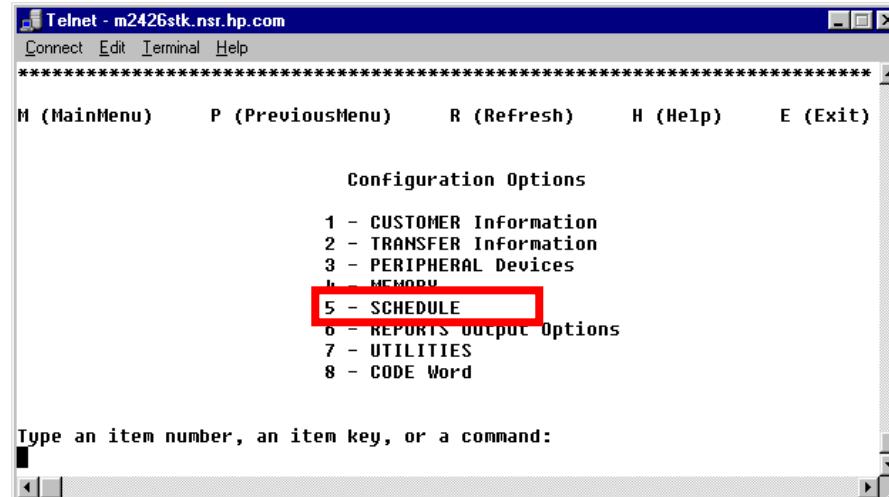
4 – Memory



Configure Memory		Total boards: 18	
	Memory Board	Enabled/ Disabled	Size
1	- BusID:ControllerSlot.ArraySlot: 0:0.	enabled	0Mb
2	- BusID:ControllerSlot.ArraySlot: 0:0.A	enabled	32Mb
3	- BusID:ControllerSlot.ArraySlot: 0:0.B	enabled	32Mb
4	- BusID:ControllerSlot.ArraySlot: 0:1.	enabled	0Mb
5	- BusID:ControllerSlot.ArraySlot: 0:1.A	enabled	32Mb
6	- BusID:ControllerSlot.ArraySlot: 0:1.B	enabled	32Mb
7	- BusID:ControllerSlot.ArraySlot: 0:2.	enabled	0Mb
8	- BusID:ControllerSlot.ArraySlot: 0:2.A	enabled	32Mb
9	- BusID:ControllerSlot.ArraySlot: 0:2.B	enabled	32Mb
10	- BusID:ControllerSlot.ArraySlot: 0:3.	enabled	0Mb
11	- BusID:ControllerSlot.ArraySlot: 0:3.A	enabled	32Mb
12	- BusID:ControllerSlot.ArraySlot: 0:3.B	enabled	32Mb
13	- BusID:ControllerSlot.ArraySlot: 0:4.	enabled	0Mb
14	- BusID:ControllerSlot.ArraySlot: 0:4.A	enabled	32Mb

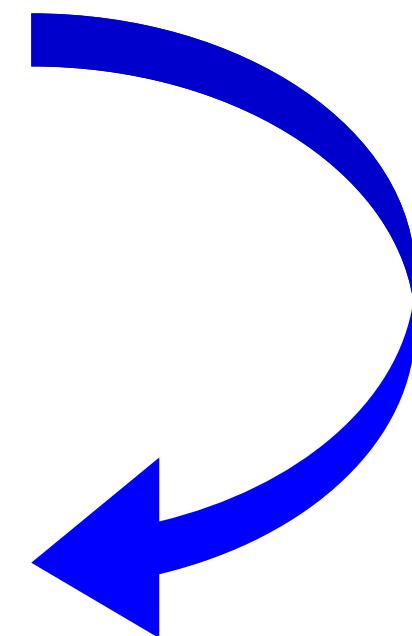
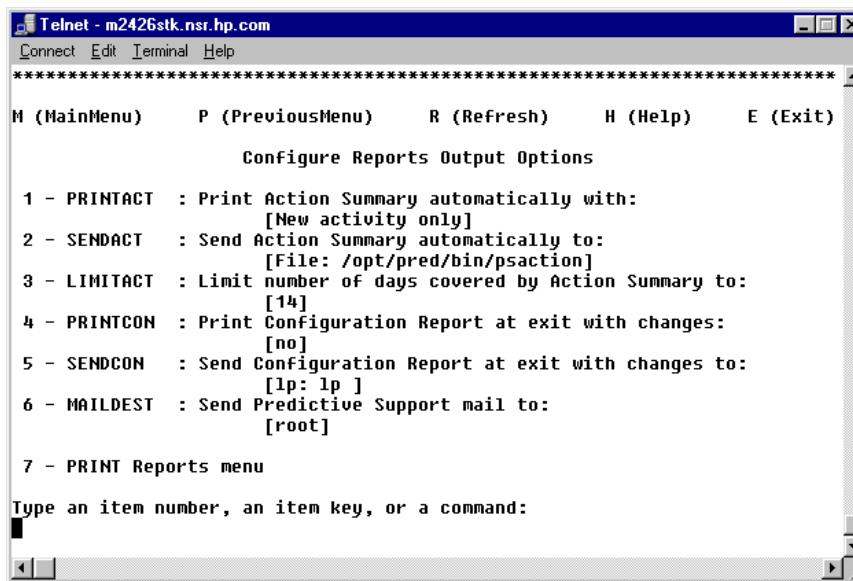
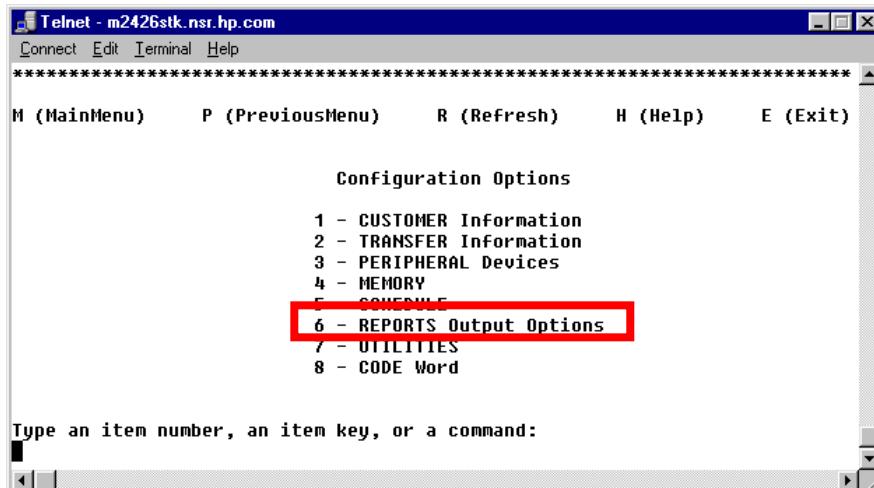
Predictive Support: Configuration Options Menu

5 – Schedule



Predictive Support: Configuration Options Menu

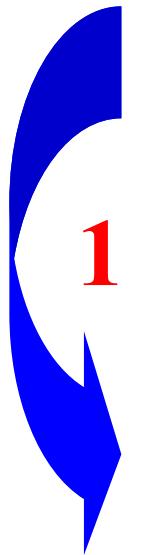
6 – Reports Output Options



Recommend changing the
SENDACT to an email address
rather than the default file

Predictive Support: Configuration Options Menu

6 – Reports Output Options Modify SENDACT & MAILDEST



```

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

Configure Reports Output Options

1 - PRINTACT : Print Action Summary automatically with:
               [New activity only]
2 - SENDACT  : Send Action Summary automatically to:
               [File: /opt/pred/bin/psaction]
3 - LIMITACT : Limit number of days covered by Action Summary to:
               [14]
4 - PRINTCON : Print Configuration Report at exit with changes:
               [no]
5 - SENDCON  : Send Configuration Report at exit with changes to:
               [lp: lp]
6 - MAILDEST : Send Predictive Support mail to:
               [root]

7 - PRINT Reports menu

Type an item number, an item key, or a command:
2
Type report destination (lp=lp command; F=File; M=Mail) or // to cancel:
M

```



```

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

Configure Reports Output Options

1 - PRINTACT : Print Action Summary automatically with:
               [New activity only]
2 - SENDACT  : Send Action Summary automatically to:
               [Mail]
3 - LIMITACT : Limit number of days covered by Action Summary to:
               [14]
4 - PRINTCON : Print Configuration Report at exit with changes:
               [no]
5 - SENDCON  : Send Configuration Report at exit with changes to:
               [lp: lp]
6 - MAILDEST : Send Predictive Support mail to:
               [root]

7 - PRINT Reports menu

Type an item number, an item key, or a command:
6
Type user name(s) for Predictive Support mail:
root skaneko

```



```

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

Configure Reports Output Options

1 - PRINTACT : Print Action Summary automatically with:
               [New activity only]
2 - SENDACT  : Send Action Summary automatically to:
               [Mail]
3 - LIMITACT : Limit number of days covered by Action Summary to:
               [14]
4 - PRINTCON : Print Configuration Report at exit with changes:
               [no]
5 - SENDCON  : Send Configuration Report at exit with changes to:
               [lp: lp]
6 - MAILDEST : Send Predictive Support mail to:
               [root]

7 - PRINT Reports menu

Type an item number, an item key, or a command:

```



```

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

Configure Reports Output Options

1 - PRINTACT : Print Action Summary automatically with:
               [New activity only]
2 - SENDACT  : Send Action Summary automatically to:
               [Mail]
3 - LIMITACT : Limit number of days covered by Action Summary to:
               [14]
4 - PRINTCON : Print Configuration Report at exit with changes:
               [no]
5 - SENDCON  : Send Configuration Report at exit with changes to:
               [lp: lp]
6 - MAILDEST : Send Predictive Support mail to:
               [root skaneko]

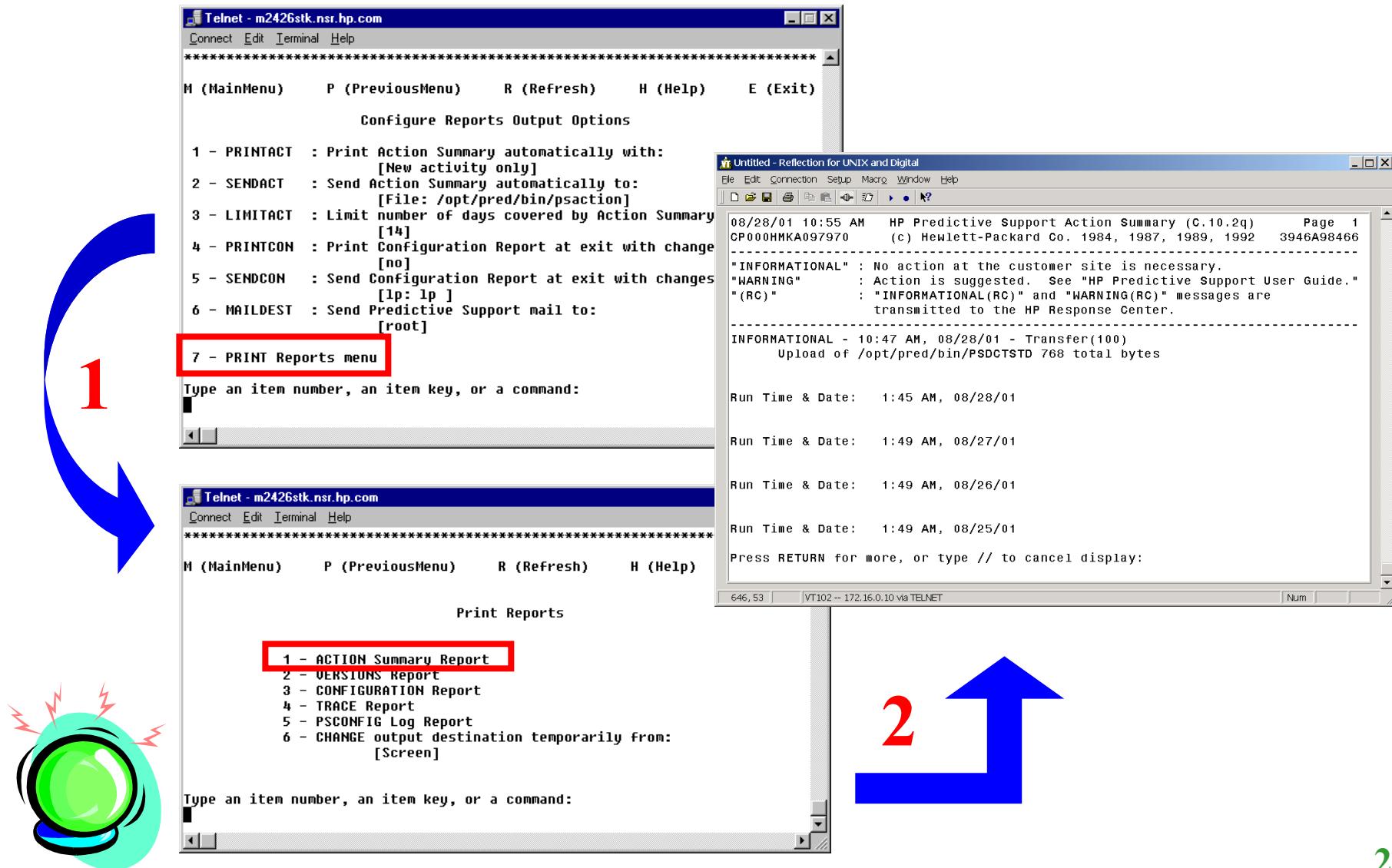
7 - PRINT Reports menu

Type an item number, an item key, or a command:

```

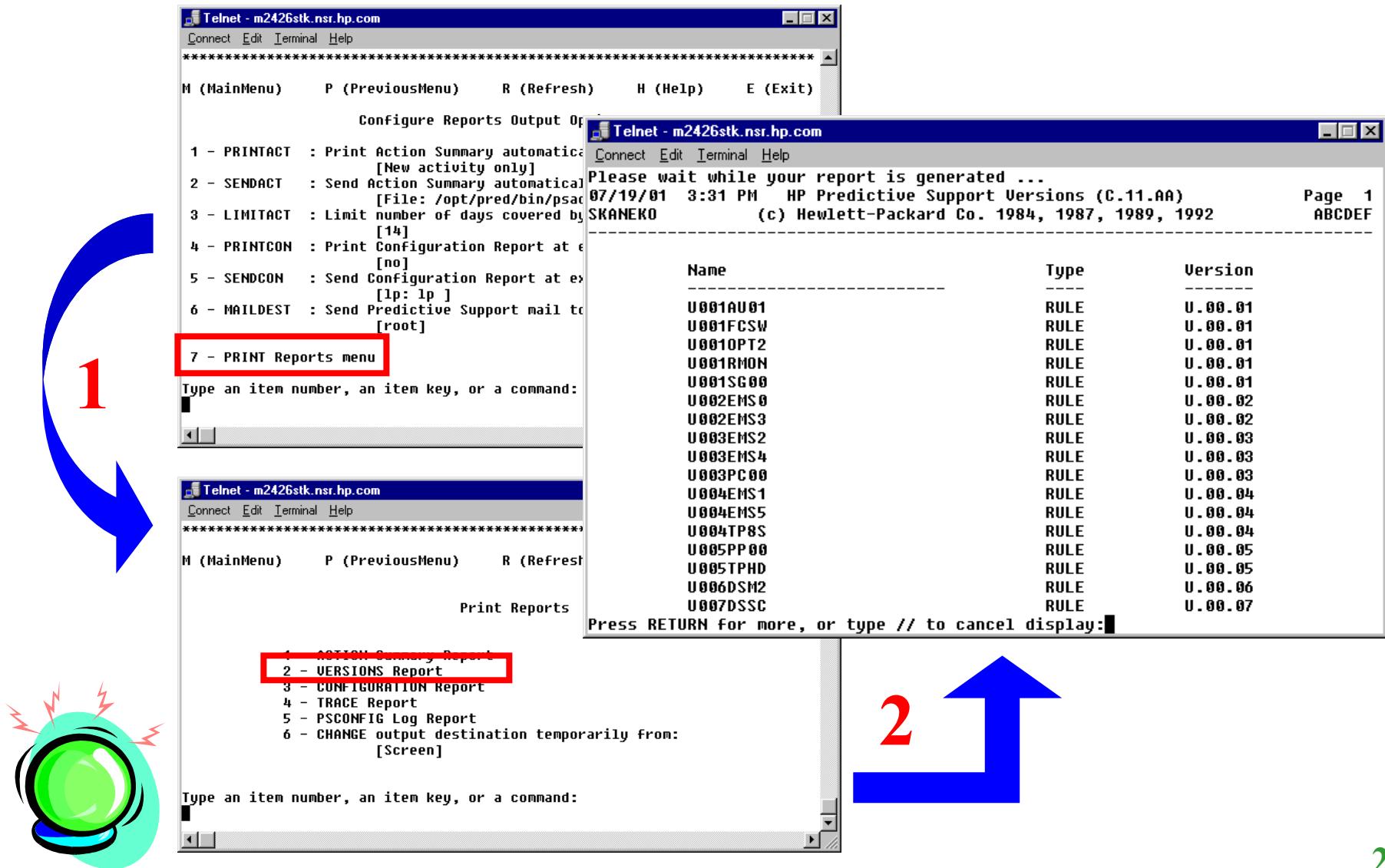
Predictive Support: Configuration Options Menu

6 – Reports Output Options 7 - PRINT Reports menu



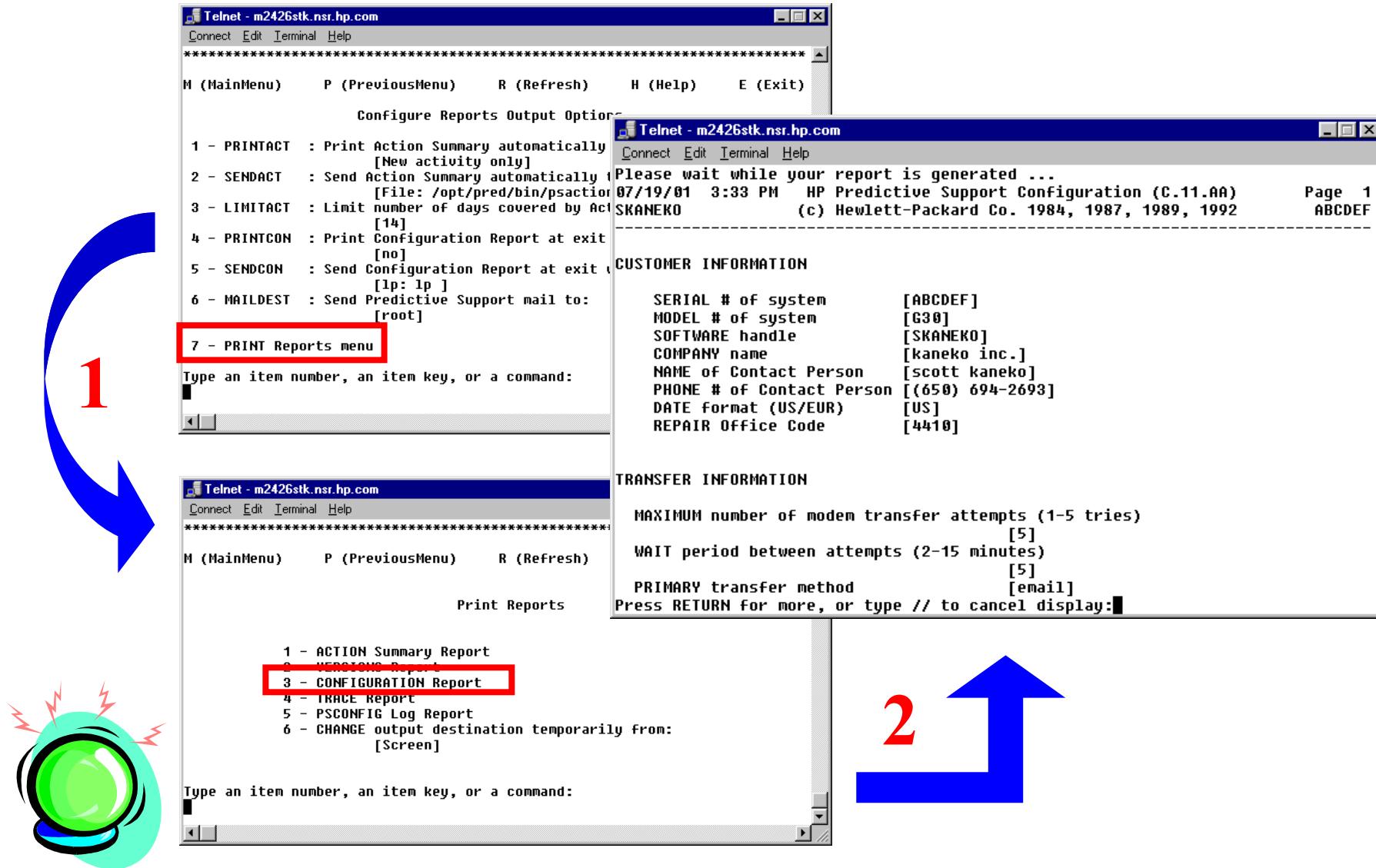
Predictive Support: Configuration Options Menu

6 – Reports Output Options 7 - PRINT Reports menu



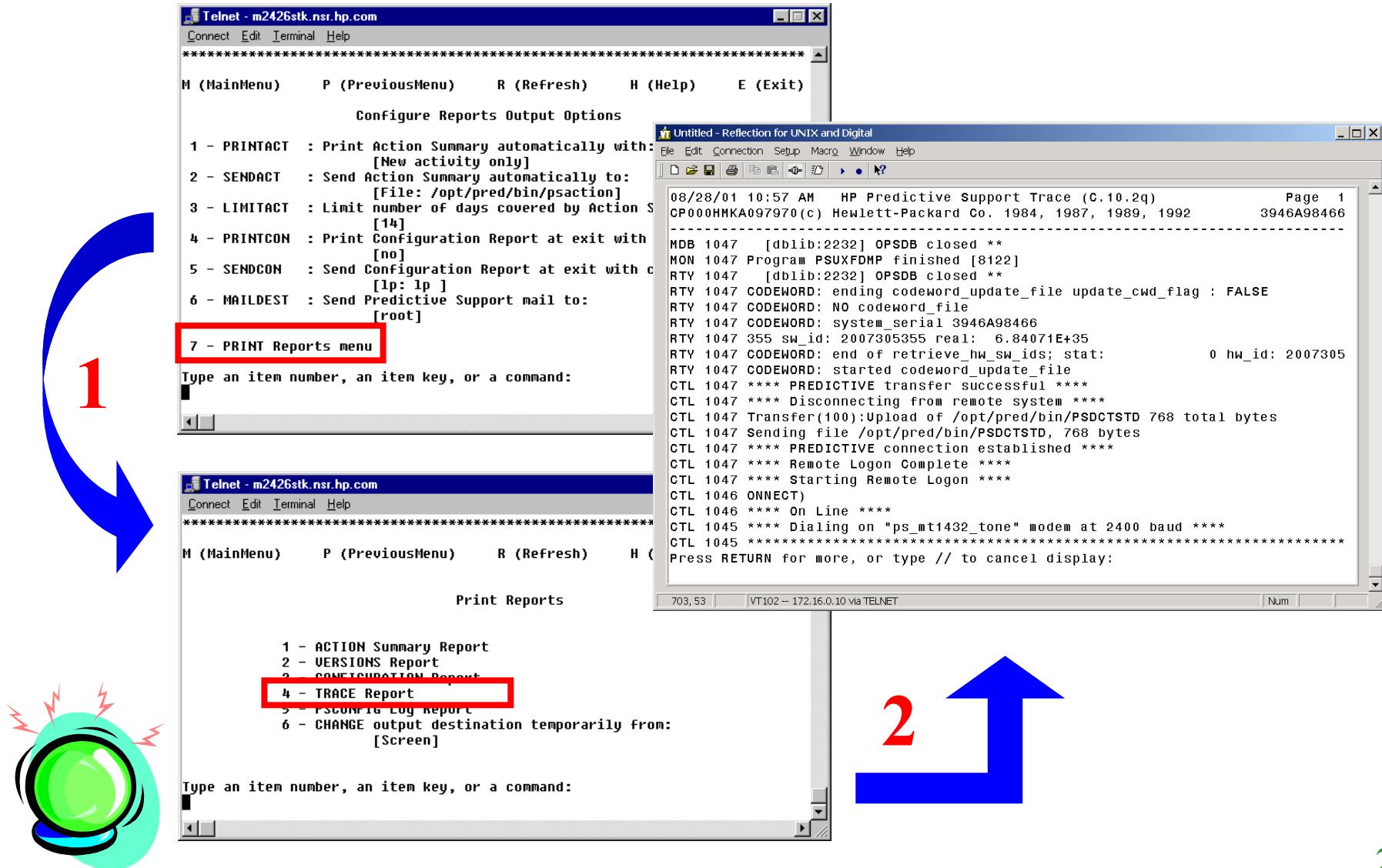
Predictive Support: Configuration Options Menu

6 – Reports Output Options 7 - PRINT Reports menu



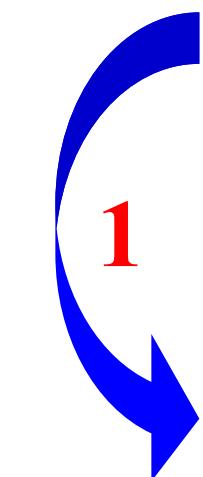
Predictive Support: Configuration Options Menu

6 – Reports Output Options 7 - PRINT Reports menu



Predictive Support: Configuration Options Menu

6 – Reports Output Options 7 - PRINT Reports menu



Telnet - m2426stk.nsr.hp.com

Connect Edit Terminal Help

M (MainMenu) P (PreviousMenu) R (Refresh) H (Help) E (Exit)

Configure Reports Output Options

1 - PRINTACT : Print Action Summary automatically with:
[New activity only]
2 - SENDACT : Send Action Summary automatically to:
[File: /opt/pred/bin/psaction]
3 - LIMITACT : Limit number of days covered by Action Sum
[14]
4 - PRINTCON : Print Configuration Report at exit with ch
[no]
5 - SENDCON : Send Configuration Report at exit with cha
[Ip: Ip]
6 - MAILDEST : Send Predictive Support mail to:
[root]
7 - PRINT Reports menu

Type an item number, an item key, or a command:

Telnet - m2426stk.nsr.hp.com

Connect Edit Terminal Help

Please wait while your report is generated ...
07/19/01 1:43 PM HP Predictive Support PSCONFIG Log (C.11.AA) Page 1
SKANEKO (c) Hewlett-Packard Co. 1984, 1987, 1989, 1992 ABCDEF

Psc 1342 "N ps run status:8:0"
Psc 1342 Received the following reply from psmond:
Psc 1342 "R request Predictive run status"
Psc 1342 Sending psmond the following request:
Psc 1312 "N no current run"
Psc 1312 Received the following reply from psmond:
Psc 1312 "N stop Predictive"
Psc 1312 Sending psmond the following request:
Psc 1312 "N ps run status:8:0"
Psc 1312 Received the following reply from psmond:
Psc 1312 "R request Predictive run status"
Psc 1312 Sending psmond the following request:
Psc 1312 [dblib:2243] locked M-PERIPH-CONFIG; data set
Psc 1312 AUTOCFG: This is mem_default memory
Psc 1312 AUTOCFG: mem_subsys_type is --> 0<--
Psc 1312 AUTOCFG: This is mem_default memory
Psc 1312 AUTOCFG: mem_subsys_type is --> 0<--
Psc 1312 AUTOCFG: This is mem_default memory
Psc 1312 AUTOCFG: mem_subsys_type is --> 0<--
Psc 1312 AUTOCFG: This is mem_default memory
Press RETURN for more, or type // to cancel display:

Telnet - m2426stk.nsr.hp.com

Connect Edit Terminal Help

M (MainMenu) P (PreviousMenu) R (Refresh) H (Help)

Print Reports

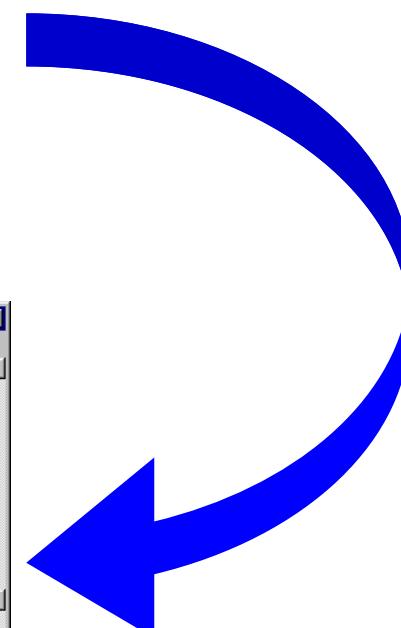
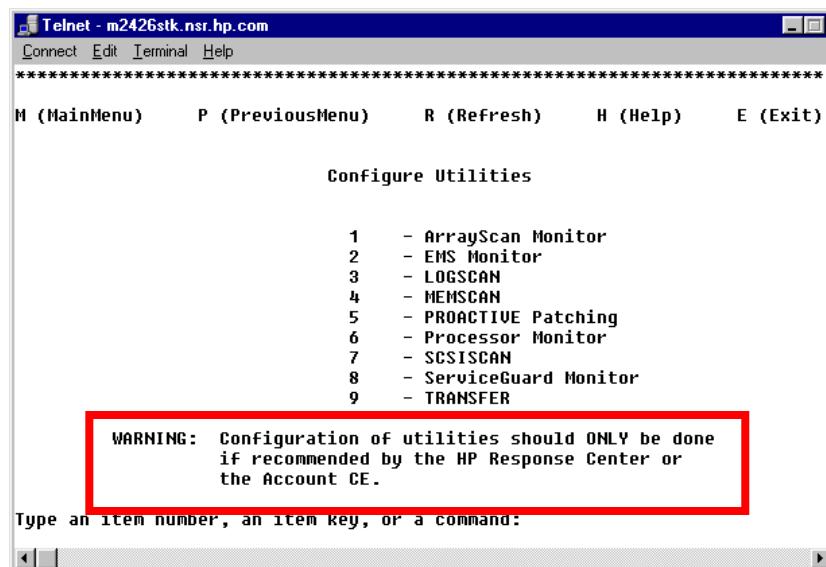
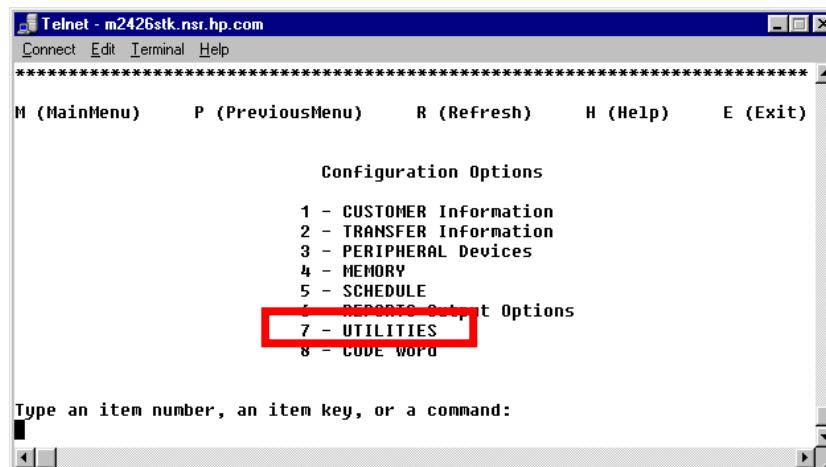
1 - ACTION Summary Report
2 - VERSIONS Report
3 - CONFIGURATION Report
4 - TRACE Report
5 - PSCONFIG Log Report
6 - CHANGE output destination temporarily from:
[Screen]

Type an item number, an item key, or a command:



Predictive Support: Configuration Options Menu

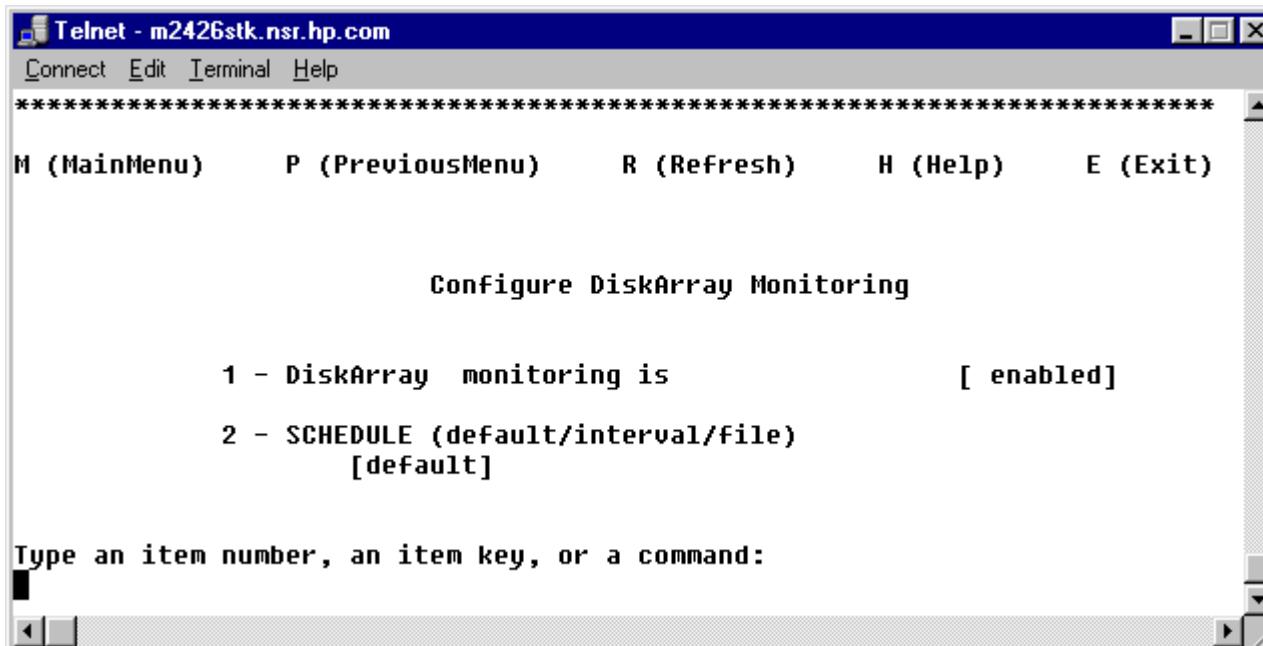
7 - Utilities



Predictive Support: Configuration Options Menu

7 – Utilities 1 - ArrayScan Monitor

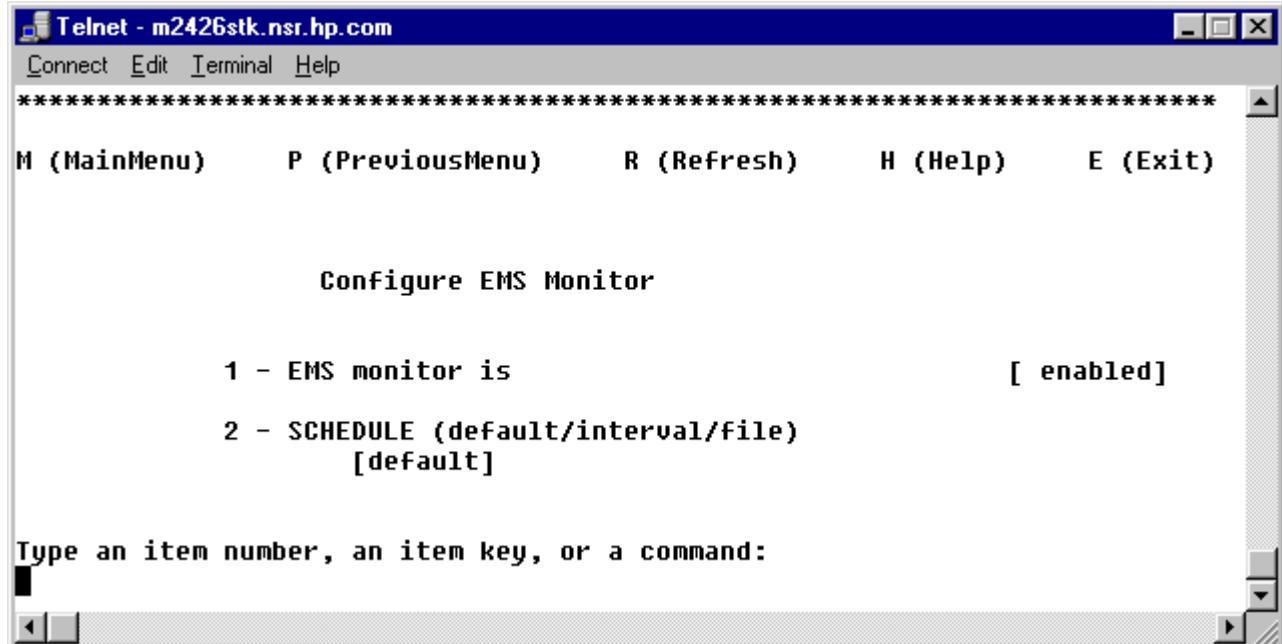
- Monitors AutoRAID disks
- Monitors failures



Predictive Support: Configuration Options Menu

7 – Utilities 2 - EMS Monitor

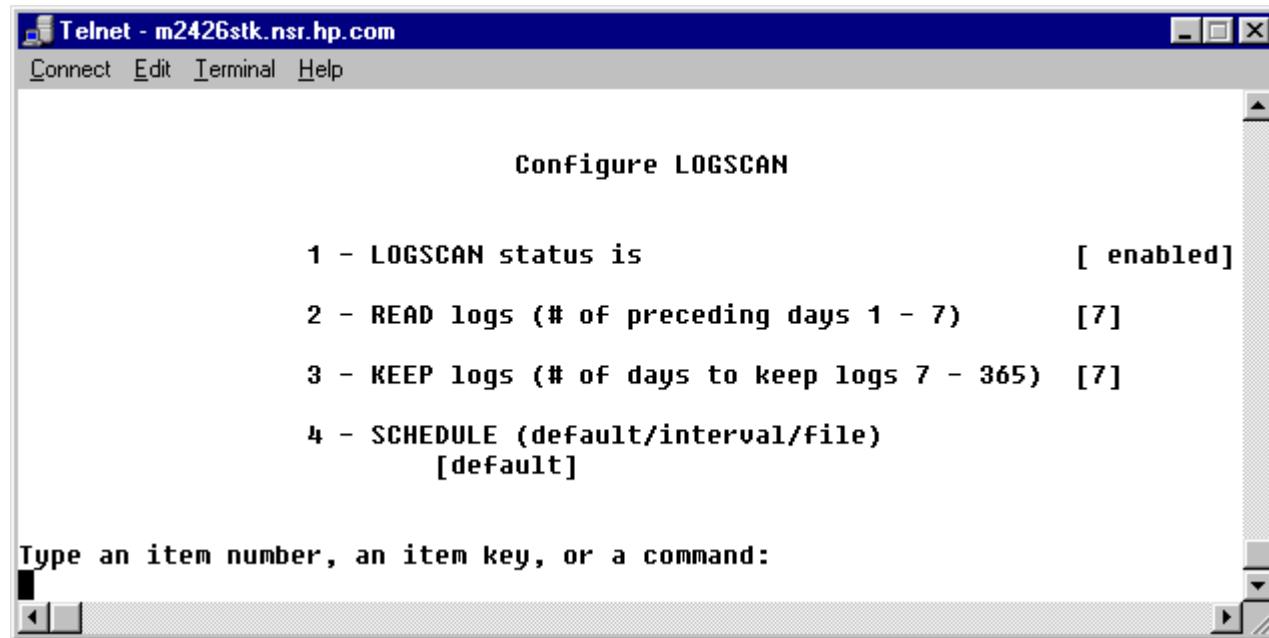
- Reads EMS Logs and transmits extracted events to the Response Center for processing
`/var/opt/pred/emslog`
- Monitors Nike disks & Fibre Channel Devices
- Requires a script for immediate notification of EMS events



Predictive Support: Configuration Options Menu

7 – Utilities 3 - LOGSCAN

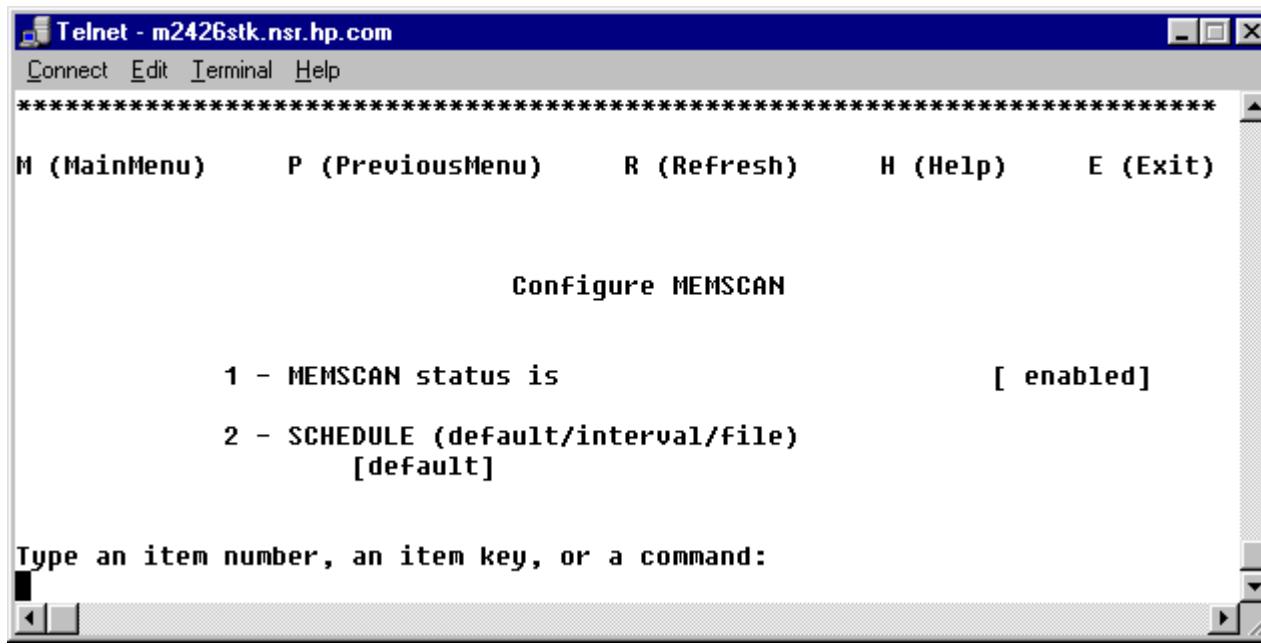
- Examines log records from the system log files involving disk drives and tape drives that cannot be directly interrogated for failure information



Predictive Support: Configuration Options Menu

7 – Utilities 4 - MEMSCAN

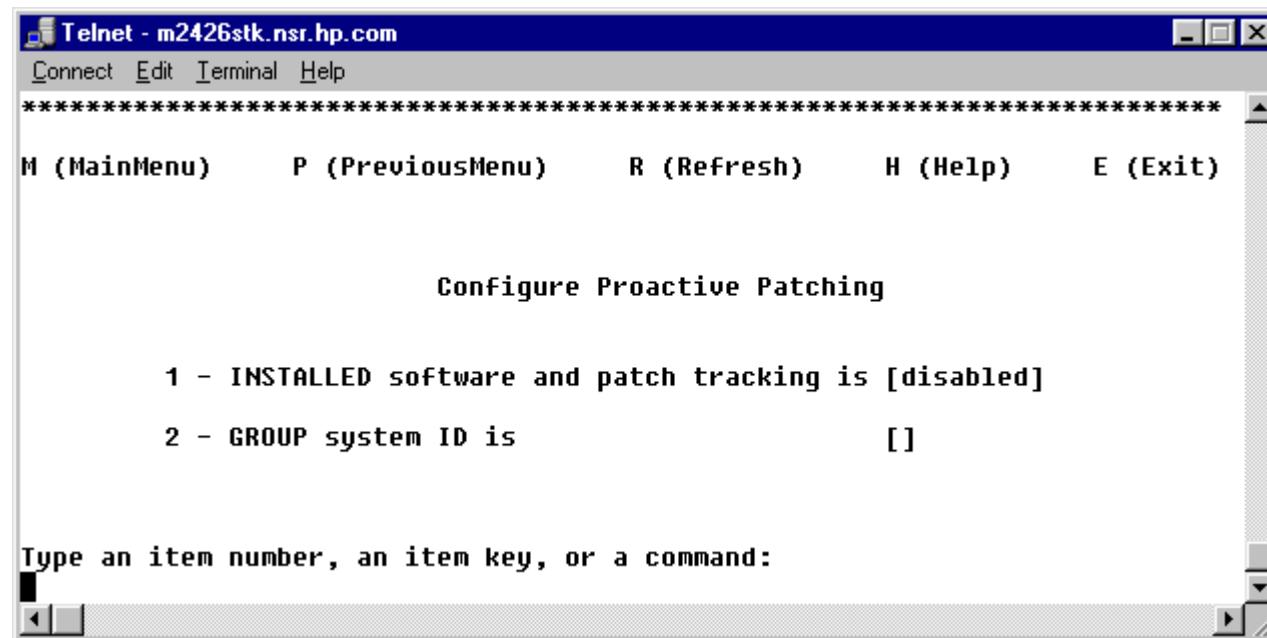
- Examines memory log records to find out how much memory is on the system
- Reports event data on memory boards such as chip, single-bit, multi-bit and controller errors
- Cannot check third party memory boards



Predictive Support: Configuration Options Menu

7 – Utilities 5 - PROACTIVE Patching

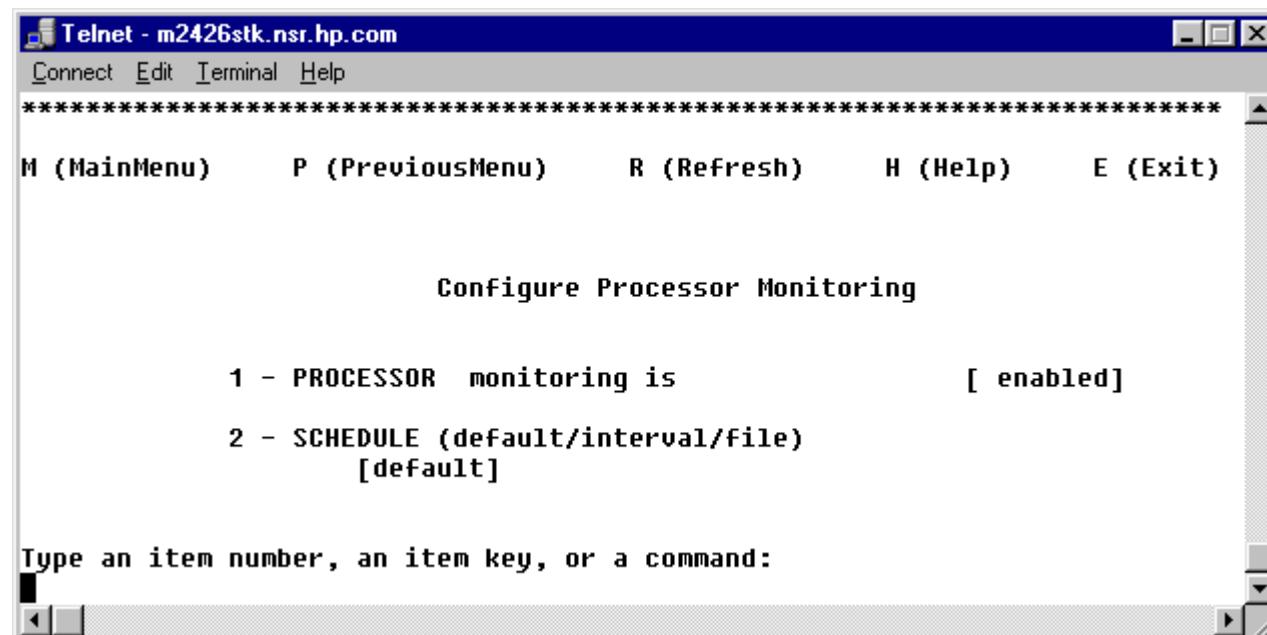
- Installed HP-UX software products
- HP-UX patches
- Ability to create a list of HP-UX patches that might be needed



Predictive Support: Configuration Options Menu

7 – Utilities 6 - Processor Monitor

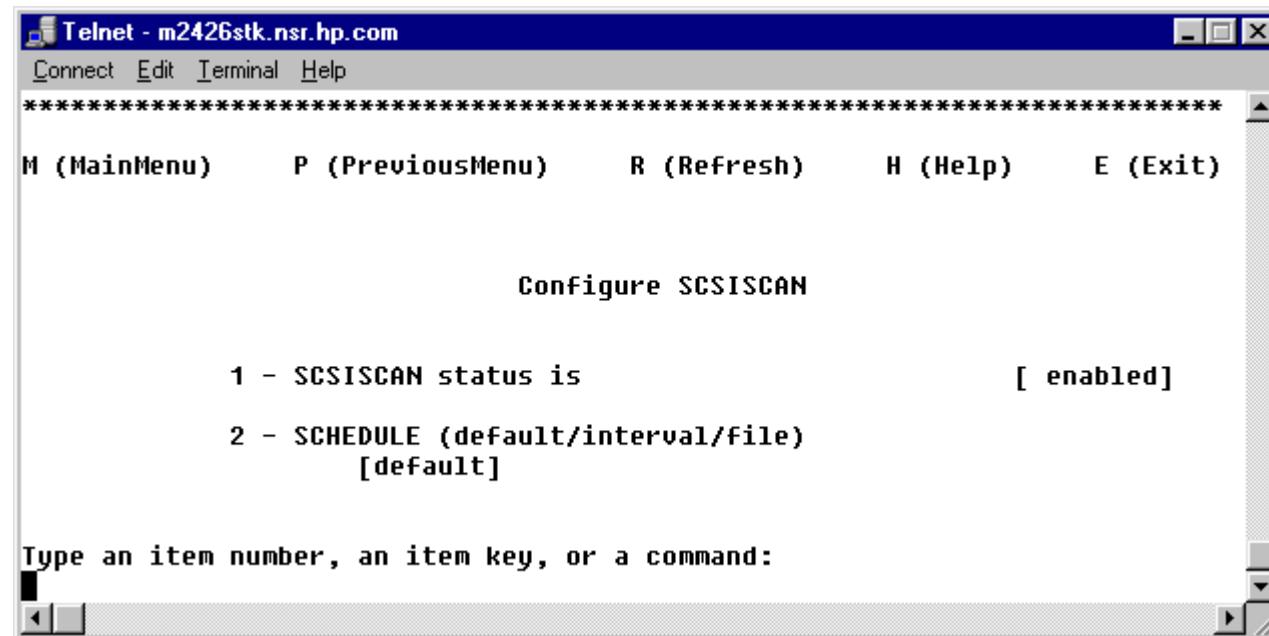
- Number of active processors
- System PDC firmware revision
- High Priority Machine Check (HPMC) log entries



Predictive Support: Configuration Options Menu

7 – Utilities 7 - SCSISCAN

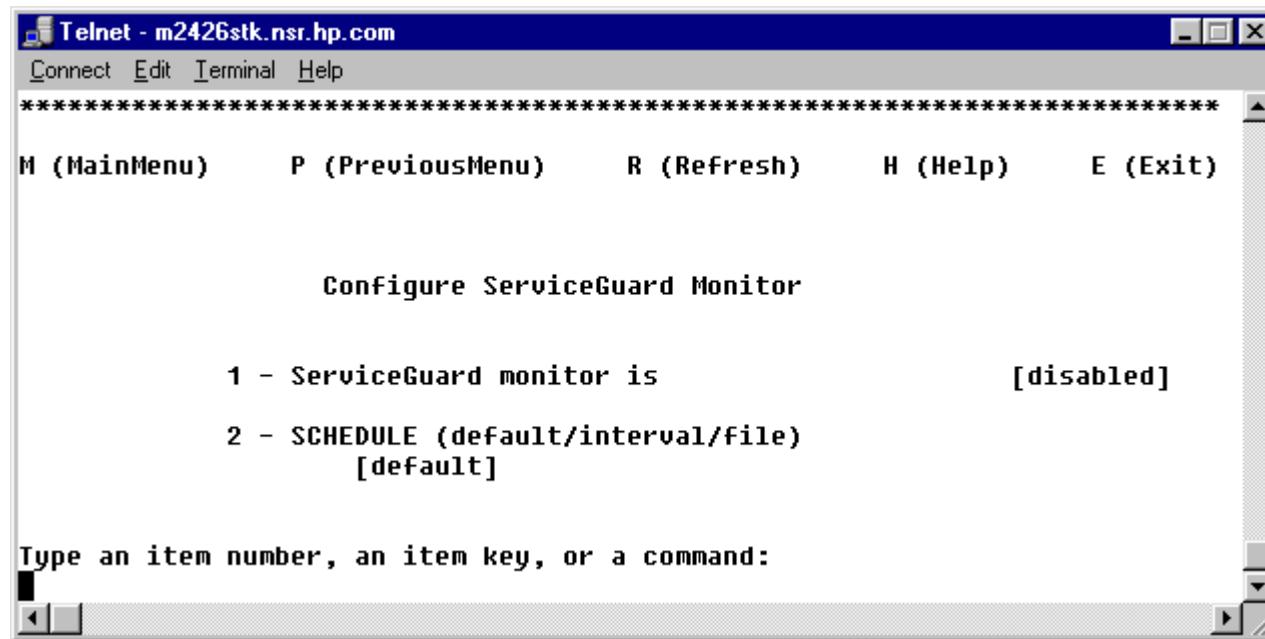
- **SCSI Disk Drives**



Predictive Support: Configuration Options Menu

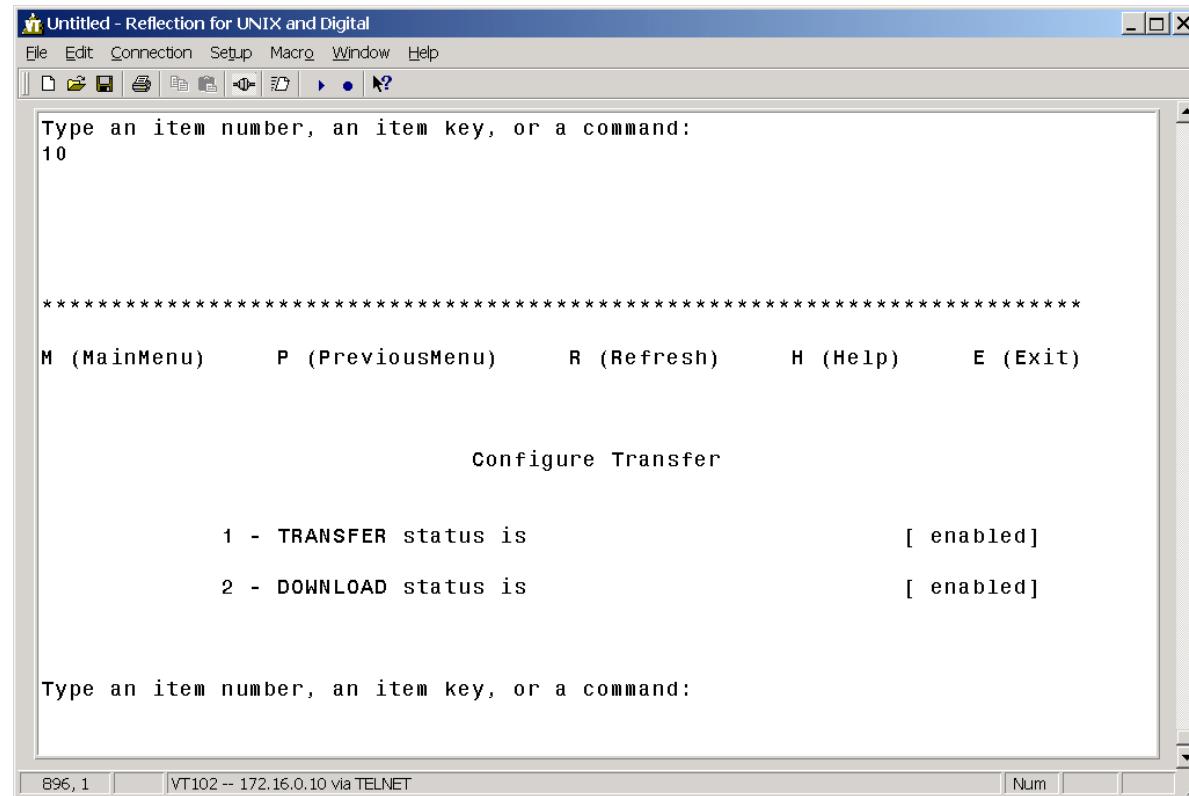
7 – Utilities 8 - ServiceGuard Monitor

- System Processors
- System Memory
- LAN Media and Adapters
- System Processes
- Application Processes



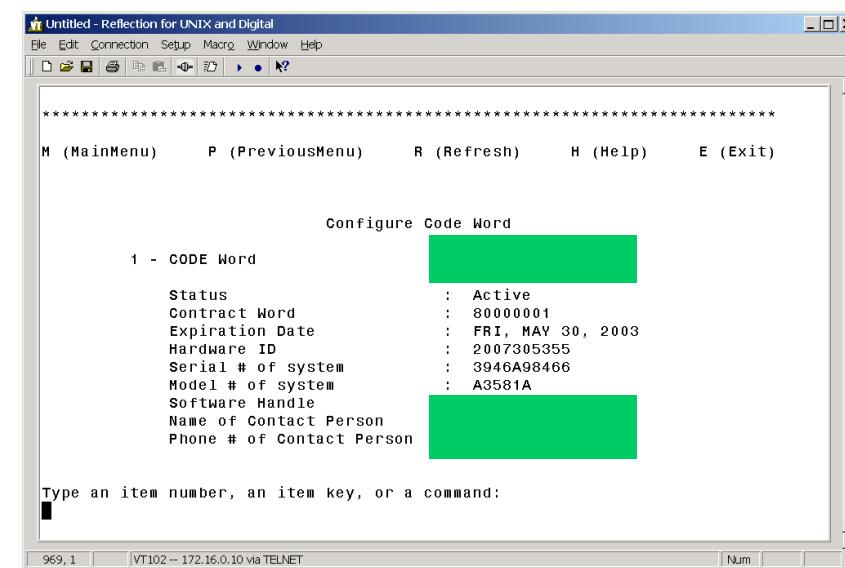
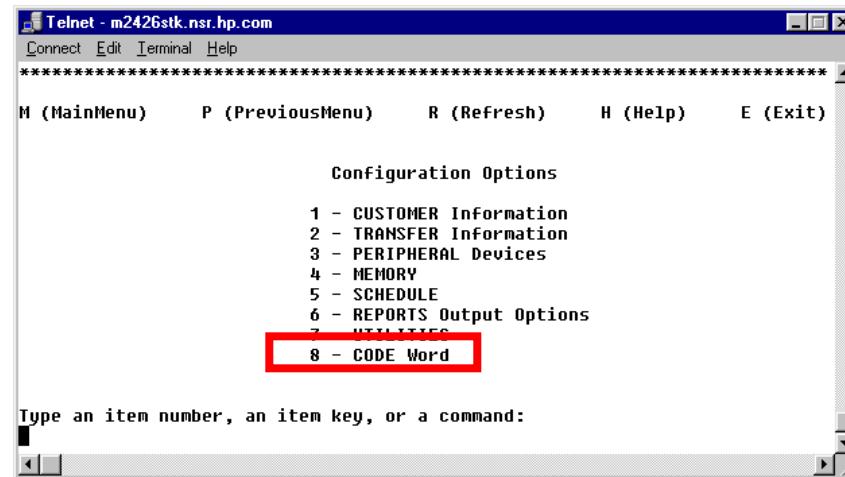
Predictive Support: Configuration Options Menu

7 – Utilities 9 - TRANSFER

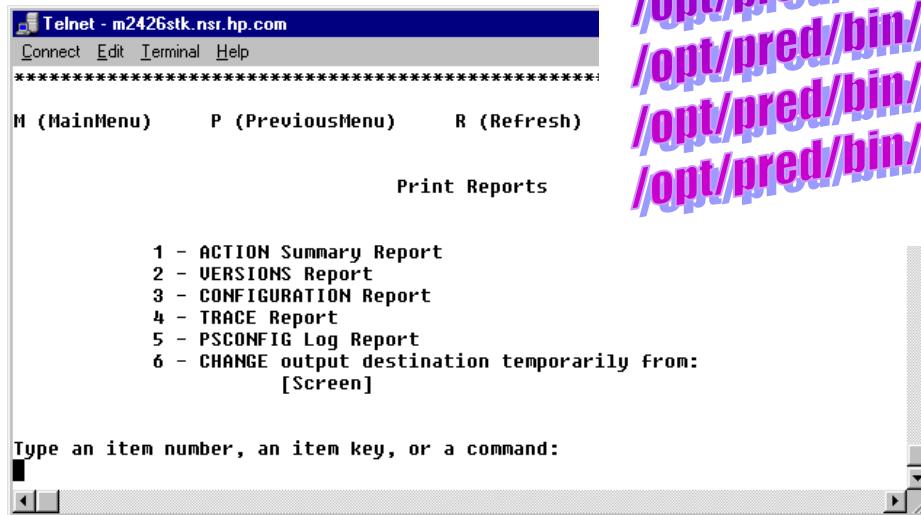
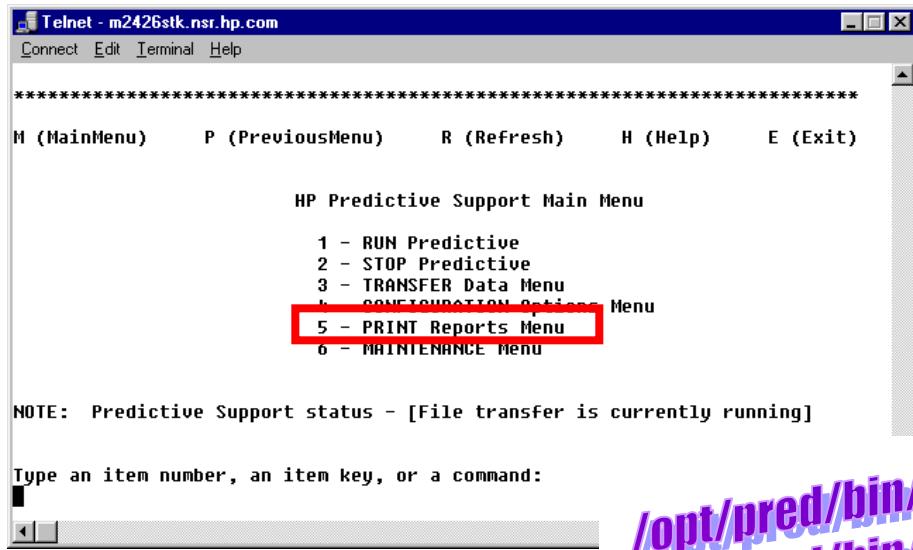


Predictive Support: Configuration Options Menu

8 – CODE Word

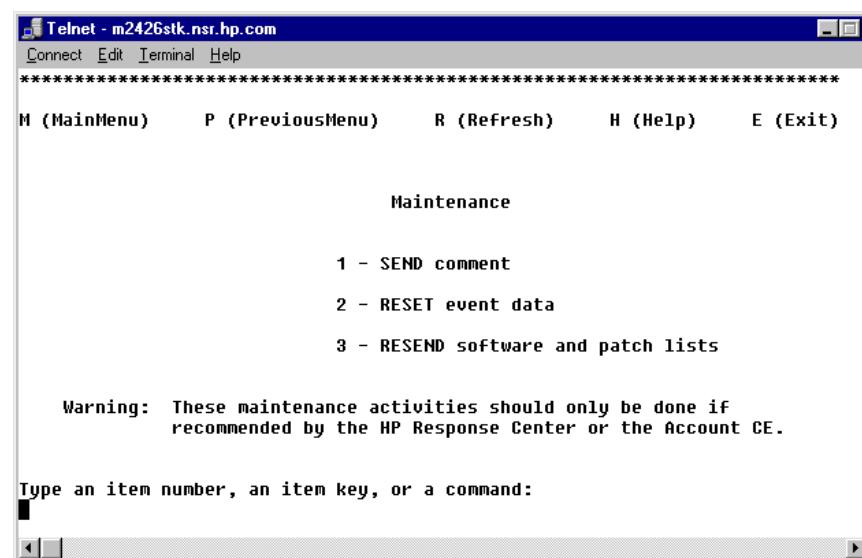
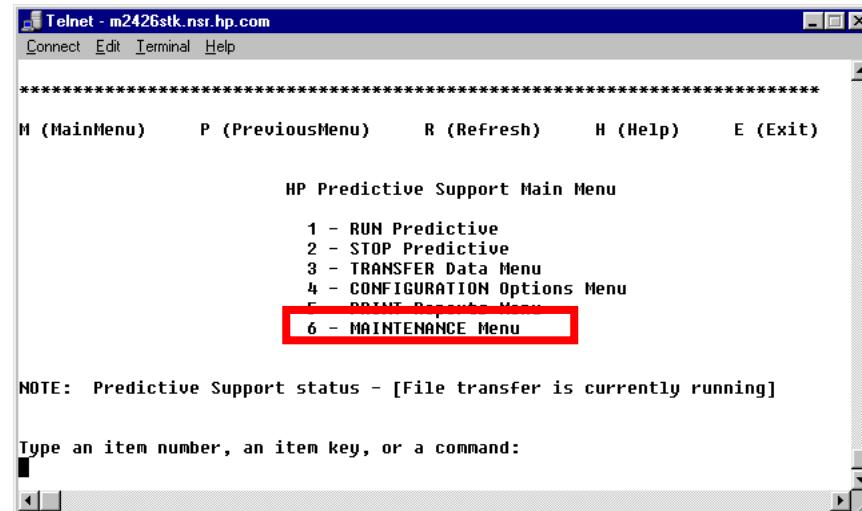


Predictive Support: PRINT Reports Menu



/opt/pred/bin/psconfig print action
/opt/pred/bin/psconfig print versions
/opt/pred/bin/psconfig print configuration
/opt/pred/bin/psconfig print trace
/opt/pred/bin/psconfig print pscon

Predictive Support: Maintenance Menu



Predictive HP-UX 11.i Implementation

The screenshot shows a Microsoft Internet Explorer window with the title bar "Software Depot - hp predictive support/ux - Microsoft Internet Explorer provided by Hewlett-Packard". The address bar contains the URL "pot_parser.cgi/cgi/displayProductInfo.pl?productNumber=H2571A". The page itself is titled "hp predictive support/ux" and features a sidebar with the "software depot" menu. The main content area is titled "product details & specifications" and includes sections for "overview" and "This release of Predictive/UX is for HP-UX Version 11.i. It is specially built for the June 2001 version of the OnlineDiag bundle. However it is safe to install this version on the following: base(12/00) 11.i OnlineDiag or March 2001 11.i OnlineDiag."



[http://www.software.hp.com/cgi-bin/swdepot_parser.cgi/
cgi/displayProductInfo.pl?productNumber=H2571A](http://www.software.hp.com/cgi-bin/swdepot_parser.cgi/cgi/displayProductInfo.pl?productNumber=H2571A)

Predictive EMS Integration

8-8-2001 EMS Predictive Integration - Notepad

```

File Edit Search Help
Configuring Predictive response time to EMS Events

We have received a number of requests for Predictive to respond more quickly to events
logged by the Event Monitoring System (EMS). Predictive normally runs once per day,
and each individual scanner, including EMSSCAN, can be configured to run at intervals
of say 15 minutes. Here is a script which may be used to kick off a Predictive run
within 60 seconds of the occurrence a new EMS User Event. The script must be run
as user root, and must run continuously as a background process.

#!/usr/bin/sh
# Script written by Simon Hanmer
# For Martin Coule, Predictive Support
# April 2000

file=/etc/opt/resmon/log/api.log
new_text=/tmp/apiolog1$$
old_text=/tmp/apiolog2$$

set `wc -l $file`
file_size=$1

>$old_text

while true
do
    set `wc -l $file`
    if [ $1 != $file_size ]
    then
        new_line=`expr $file_size + 1`
        sed -n "$new_line,$1 p" $file | grep -v "User event occurred at " > $new_text
        cmp -s $old_text $new_text 2>&1
        if [ $? -ne 0 ]
        then
            # Predictive kick off will be OK unless it would
            # interrupt a Predictive transfer in progress
            # If transfer in progress, do not update file_size
            ps -ef |grep PSUXFDMP |grep -v grep >/dev/null 2>&1
            if [ $? -eq 1 ]
            then
                echo "Predictive run called by apiscript.sh"
                /opt/pred/bin/psconfig run
                mv $new_text $old_text
                echo ...
            fi
        else
            echo ...
        fi
    fi
    sleep 60
done

```

To have the above script started automatically whenever the system reboots, modify the predictive startup script in file /sbin/init.d/predictive as follows:

At the end of the 'start' case, find the following two lines (at about line 81):

```

fi # start predictive
;;

```

Insert the following lines before the above two lines:

```

# Start apiscript to monitor EMS events and kick off Predictive
# If apiscript already running, do not invoke another
ps -ef |grep apiscript | grep -v grep >/dev/null 2>&1
if [ $? -eq 1 ] ; then
    /opt/pred/bin/apiscript &
fi

```

This modification assumes that you have copied the script to the file apiscript in the /opt/pred/bin directory and that it is executable. Note that the echo statements in the apiscript are useful only for debugging, and can be deleted.

8-8-2001 EMS Predictive Integration - Notepad

```

File Edit Search Help
if [ $? -ne 0 ]
then
    # Predictive kick off will be OK unless it would
    # interrupt a Predictive transfer in progress
    # If transfer in progress, do not update file_size
    ps -ef |grep PSUXFDMP |grep -v grep >/dev/null 2>&1
    if [ $? -eq 1 ]
    then
        echo "Predictive run called by apiscript.sh"
        /opt/pred/bin/psconfig run
        mv $new_text $old_text
        echo ...
    fi
else
    echo ...
fi
fi
sleep 60
done

```



Instant Support Enterprise Edition ISEE

- **Enables HP Remote Support Over The Internet**
- **Real-Time Hardware Event Monitoring**
- **Web-based User Interface**
- **Replaces Modem Transport With State Of The Art Internet Connectivity**
- **Two Different Configurations**
 - **Small Enterprise Configuration**
 - **Data Center Configuration**

