Booting RS/6000 SP Node Via Manual Node Conditioning

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About This Document

The following will explain how to boot an SP node via manual node conditioning. The advantage to this as opposed to normal node conditioning (netbooting) is that you are able to use the tty connection for informational purposes that can assist in troubleshooting problems that may be occurring with the netboot. The normal node conditioning process uses the serial connection during its process, so the tty is unavailable for monitoring.

Booting an RS/6000 SP Node Via Manual Node Conditioning

1. Configure the SDR for the appropriate bootp response.

   Valid options are dependent upon the version of Parallel System Support Programs (PSSP) you are using:

   - PSSP 1.2 --> install, customize, maintenance
   - PSSP 2.1 --> install, maintenance (customize at this release requires a reboot instead of a netboot)

2. Fill in the appropriate values in the SMIT screen (sample below).

```
   # smitty node_data
------------------------------------------------------------
   Boot/Install/usr Server Information

   Start Frame                              []   #
   Start Slot                               []   #
   Node Count                               []   #

   OR

   Node List                                []

   Boot/Install Server Node Identifier      []
   Network Install Image Name               []
   Destination Hard Disk(s)                 []
   Response from Server to bootp Request <F4 to LIST>   +

   /usr Server's Hostname or IP Address     []
   Gateway to /usr Server                   []
   /usr Client Adapter Name                             +

   Run setup_server on the Control Workstation?         yes

------------------------------------------------------------
```

Select the correct node either by using the "Start Frame/Start Slot/Node Count" fields OR the "Node List" field. Use the F4 key to list and select values for "Response from Server to bootp Request". All other fields are optional. Be sure the last field is set to "yes" so the setup_server script will be run.

3. Verify that the node has the correct bootp setting by using the command "splstdata -b" on the control workstation.

   Sample output:

```
node#  hostname  hdw_enet_addr srvr     response    install_disk
    last_install_image    last_install_time   next_install_image
------------------------------------------------------------------
1 sw221          02608C2D4511    0    customize           hdisk0
    /ssp/bos.obj.july17  Tue_Sep_19_12:47:07      bos.obj.july17
3 sp223          02608C2D45DD    0         disk           hdisk0
    s/ssp/bos.obj.july6  Tue_Jul_18_16:38:54      bos.obj.july17
5 sp225          02608C2D4145    1         disk           hdisk0
    /ssp/bos.obj.july17  Fri_Aug_18_13:51:44      bos.obj.july17
7 sp227          02608C2D4BDF    0         disk           hdisk0
    /ssp/bos.obj.july17  Wed_Aug_23_12:30:21      bos.obj.july17
```

   Notice the fifth field of this output. Node 1 is set to "customize", and nodes 3, 5, and 7 are set to "disk".

4. Open the "Node Front Panel" for the selected node via spmon.

```
# spmon -g
  "SP"
    "Display Layouts"
       Select appropriate frame number and node number
          Select "Node Front Panel Layout"
             "Display Node Layout"
```

5. Power off the node (if it is powered on) with "Node Controls".
6. Put the key in "Secure" mode.
7. Power on the node with "Node Controls".
8. When the led gets to 200, put the key in "Service" mode.
9. Reset the node with "Node Controls".
10. When the led reaches 260 or 262, select "Open TTY".

    You should see a menu at this point. If the menu is not displayed, press the <enter> key.

```
-------------------------------------------------------------
MAIN MENU
1.  Select BOOT (Startup) Device
2.  Select Language for these Menus
3.  Send Test Transmission (PING)
4.  Exit Main Menu and Start System (BOOT)

Type the number for your selection, then press "ENTER"
(Use the "Backspace" key to correct errors)
-------------------------------------------------------------
```

11. Select option "1" from the MAIN MENU to get to the menu below.

    This menu will always have "Use Default Boot Boot (Startup) Device" as the initial selection. Choose the correct boot device from the menu depending upon the node you are installing. A wide node will usually use the option for "BNC" ethernet. A thin node will use the option for "built-in" ethernet.

```
-------------------------------------------------------
SELECT BOOT (STARTUP) DEVICE
Select the device to BOOT (Startup) this machine.

WARNING:  If you are using Token-Ring, selection of an
incorrect data rate can result in total disruption of the
Token-Ring network.

"==>" Shows the selected BOOT (startup) device

     1. Use Default Boot (Startup) Device
     2. Ethernet:  Slot 0/1, 15-pin connector
     3. Ethernet:  Slot 0/1, BNC connector (1-pin)
     4. Ethernet:  Slot 0/4, 15-pin connector
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88. Next Page of Select BOOT (Startup) Device Menu
99. Return to Main Menu

Type the number for your selection, then press "ENTER"
(Use the "Backspace" key to correct errors)
-------------------------------------------------------
```

You will be prompted to enter IP addresses for the client (the node to be installed), the server (the boot/install server for the node being installed), and a gateway (which you may leave empty).

12. Fill in the appropriate IP addresses and be sure to use leading zeros.

```
-------------------------------------------------------------
SET OR CHANGE NETWORK ADDRESSES
Select an address to change

Currently selected BOOT (startup) device is:
Ethernet:  Slot 0/1, BNC connector (1-pin)
Hardware address ............................. 02608C2D4BDF

1. Client address                              009.019.173.027
     (address of this machine)
2. BOOTP server address                        009.019.173.023
     (address of the remote machine you boot from)
3. Gateway address                             000.000.000.000
     (Optional, required if gateway used)

97. Return to Select BOOT (Startup) Device Menu
    (Saves addresses)
99. Return to Main Menu (Saves addresses)

Type the number for your selection, then press "ENTER"
(Use the "Backspace" key to correct errors)
-------------------------------------------------------------
```

13. Select "99" to return to the Main Screen, and then select "3" to send a test transmission ping between the client and server network interfaces.

```
-------------------------------------------------------
SEND TEST TRANSMISSION (PING)

A test to see if the machine at the origin
address can communicate, thru the network, with the
machine at the destination address.

Currently selected BOOT (startup) device is:
Ethernet:  Slot 0/1, BNC connector (1-pin)
Hardware address ........................... 02608C2D4BDF

Select an address to change or select "4" to begin the test.

1. Origin address                           009.019.173.027
2. Destination address                      009.019.173.023
3. Gateway address                          000.000.000.000
     (Optional, required if gateway used)
4. START PING TEST

99. Return to Main Menu

Type the number for your selection, then press "ENTER"
(Use the "Backspace" key to correct errors)
-------------------------------------------------------
```

14. Select "4" to start the ping test.

    If the ping test is unsuccessful, you have a network connectivity problem or have entered an invalid IP address. Do not proceed until you correct the problem and receive a successful ping test.

    A successful test will display the following:

```
-------------------------------------------------------
TEST TRANSMISSION (PING) RESULTS

SUCCESSFUL TEST.  Transmission sent and received.

97. Return to Send Test Transmission screen.
99. Return to Main Menu

Type the number for your selection, then press "ENTER"
(Use the "Backspace" key to correct errors)
-------------------------------------------------------
```

15. Select "99" to go back to the main menu and select "4" to start the System Boot.

```
-------------------------------------------------------------
STARTING SYSTEM (BOOT)
To get a NORMAL boot, turn the key on your system unit
to "NORMAL" and press "ENTER" to continue booting.

99. Return to Main Menu

Type the number for your selection, then press "ENTER"
(Use the "Backspace" key to correct errors)
-------------------------------------------------------------
```

16. At this point, put the key in "Normal" mode (via the spmon "Node Front Panel") and press <Enter> in the tty screen.

    You should see bootp packets sent and received and then tftp packets sent and received.

    When the node conditioning is complete, you should see a login prompt (for "install" and/or "customize" options) or a maintenance menu for the "maintenance" option.

12/10/96, 4FAX# 1294

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