

Hot Swap Software Commands

Certain FRUs in the Netra ct server are hot-swappable (see “Hot-Swappable FRUs” on page 1-4). Hot swap, a key feature of the PICMG standard, means that a CompactPCI card that meets the PICMG standard can be reliably inserted into or extracted from a powered and operating CompactPCI platform without affecting the other functions of the platform. The standard also defines state transitions for the hardware and software connection processes that allow the card to be connected and configured.

The Netra ct server allows for two models of hot swap:

- Basic hot swap
- Full hot swap

The models can be explained by first defining two terms:

- Hardware connection process—the electrical connection (and disconnection) of an I/O board.
- Software connection process—the software management by the operating system of the board (allocating/releasing resources, attaching/detaching device drivers, etc).

In the *basic* hot swap model, the hardware connection process can be performed automatically by the hardware, while the software connection process requires operator assistance.

In the *full* hot swap model, both the hardware and the software connection process are performed automatically.

The Netra ct server uses the `cfgadm` utility to support hot swapping and requires user intervention for hardware connection in the basic hot swap mode.

5.1 Using the `cfgadm` Utility

You can perform the following hot swap procedures using the `cfgadm` utility:

- Deactivate and activate hot-swappable FRUs
- Enable and disable *full* hot swap for I/O slots in a server
- Enable and disable *basic* hot swap for I/O slots in a server

5.1.1 Logging In to the Netra ct Server

In order to use the `cfgadm` utility, you must be able to log in to the server either remotely, where you would log in to the Netra ct server as root through another server on the network, or directly, where you would connect a terminal console directly to your Netra ct server.

For more information on connecting a terminal console to your system, refer to Appendix B.

5.1.2 Running the `cfgadm` Utility

For all `cfgadm` commands, you must know the attachment point ID for the I/O slot that you will be working on. To list the attachment point IDs for the I/O slots in a server, log into the server and, as root, enter the following command:

```
# cfgadm pci
```

For a Netra ct 800 server, you should get feedback similar to the following:

Ap_Id	Type	Receptacle	Occupant	Condition
pci_pci0:cpci_slot2	unknown	empty	unconfigured	unknown
pci_pci0:cpci_slot3	stpcipci/fhs	connected	configured	ok
pci_pci0:cpci_slot4	stpcipci/fhs	connected	configured	ok
pci_pci0:cpci_slot5	unknown	empty	unconfigured	unknown
pci_pci0:cpci_slot6	unknown	empty	unconfigured	unknown
pci_pci0:cpci_slot7	unknown	empty	unconfigured	unknown
pci_pci0:cpci_slot8	stpcipci/fhs	connected	configured	ok

For a Netra ct 400 server, you should get feedback similar to the following:

Ap_Id	Type	Receptacle	Occupant	Condition
pci_pci0:cpci_slot1	unknown	empty	unconfigured	unknown
pci_pci0:cpci_slot2	stpcipci/fhs	connected	configured	ok
pci_pci0:cpci_slot4	stpcipci/fhs	connected	configured	ok
pci_pci0:cpci_slot5	unknown	empty	unconfigured	unknown

The attachment point ID is shown in the first column of the readout; for example, the attachment point ID for I/O slot 2 in a Netra ct 800 server would be `pci_pci0:cpci_slot2`.

Note – If you get an error message after entering the `cfgadm pci` command, it may mean that you did not install the `envmd` software from the Supplement for Solaris Operating Environment for Sun Computer Systems CD when you installed the Solaris operating environment onto your Netra ct server. Follow the instructions in the *Netra ct Server Installation Guide* to install the `envmd` software onto your Netra ct server, then return here.

To view the online help for `cfgadm`, as root, enter:

```
# cfgadm -h pci
```

You should get the following feedback:

```
PCI hotplug specific commands:
-c [connect|disconnect|configure|unconfigure|insert|remove] ap_id [ap_id...]
-x enable_slot ap_id [ap_id...]
-x disable_slot ap_id [ap_id...]
-x enable_autoconfig ap_id [ap_id...]
-x disable_autoconfig ap_id [ap_id...]
-x led[=[fault|power|active|attn],mode=[on|off|blink]] ap_id [ap_id...]
```

You can also view the man page for the `cfgadm` utility by entering `man cfgadm` at the prompt.

5.1.2.1 Deactivating and Activating a Hot Swappable FRU

The Netra ct servers are set to basic hot swap by default. This means that if an I/O card becomes faulty and needs replacing, you must manually deactivate the I/O slot using the `cfgadm` utility before you can remove the card, and then manually reactivate the I/O slot after replacing the card.

To deactivate an I/O card, as root, enter:

```
# cfgadm -c unconfigure ap_id
```

where *ap_id* is the attachment point ID. For example, to deactivate an I/O card in slot 4, as root, enter:

```
# cfgadm -c unconfigure pci_pci0:cpci_slot4
```

To activate an I/O card, as root, enter:

```
# cfgadm -c configure ap_id
```

where *ap_id* is the attachment point ID.

5.1.2.2 Enabling Full Hot Swap on I/O Slots

You can use `cfgadm` to enable full hot swap on an I/O slot in a server. Enabling full hot swap on an I/O slot means that you do not have to manually deactivate or activate the I/O card when replacing it in the server; those processes are handled automatically by the system.

To enable full hot swap for an I/O slot in a Netra ct server, as root, enter:

```
# cfgadm -x enable_autoconfig ap_id
```

where *ap_id* is the attachment point ID in the server that you want to have full hot swap enabled on. For example, to enable full hot swap for I/O slot 4, as root, you could enter the following:

```
# cfgadm -x enable_autoconfig pci_pci0:cpci_slot4
```

Note – Whenever you reboot or power your server on and off, the hot swap states revert back to the default basic hot swap state for all I/O slots. You must manually reset the I/O slots to full hot swap after rebooting or powering your server on and off.

Note – If you are enabling full hot swap on an I/O slot that holds an alarm card or alarm rear transition card, you must also verify that you have the `envmond` software installed and running in order for full hot swap to work on the card.

5.1.2.3 Enabling Basic Hot Swap on I/O Slots

If you've enabled full hot swap on an I/O slot in your Netra ct server, you can disable full hot swap, bringing the I/O slot back to the basic hot swap state. To disable full hot swap on an I/O slot, bringing it back to its original basic hot swap state, as root, enter:

```
# cfgadm -x disable_autoconfig ap_id
```

5.1.2.4 Determining the Current Hot Swap State

To determine the current hot swap state for the I/O slots in your server, as root, enter:

```
# prtconf -v
```

The following screens give two example outputs:

TABLE 5-1 Example Output for Basic Hot Swap Systems

```
...
sysctrl, instance #0
  Driver properties:
    name <hotswap-mode> length <5>
      value 'basic'
    name <slot5-autoconfig> length <8>
      value 'disabled'
    name <slot4-autoconfig> length <8>
      value 'disabled'
    name <slot2-autoconfig> length <8>
      value 'disabled'
    name <slot1-autoconfig> length <8>
      value 'disabled'
```

TABLE 5-2 Example Output for Full Hot Swap Systems

```
...
sysctrl, instance #0
  Driver properties:
    name <hotswap-mode> length <5>
      value 'full'
    name <slot5-autoconfig> length <8>
      value 'enabled'
    name <slot4-autoconfig> length <8>
      value 'enabled'
    name <slot2-autoconfig> length <8>
      value 'enabled'
    name <slot1-autoconfig> length <9>
      value 'disabled'
```

- If you see value 'basic' underneath the <hotswap-mode> line (see TABLE 5-1), then *all* of the I/O slots in the Netra ct server have been set to *basic* hot swap. You should see value 'disabled' for every I/O slot in the system in this situation.
- If you see value 'full' underneath the <hotswap-mode> line (see TABLE 5-2), then *at least one* of the I/O slots in the Netra ct server has been set to *full* hot swap. You must look at the entries for individual I/O slots to determine if they have been set to basic or full hot swap mode in this situation:
 - If you see value 'enabled' underneath a <slot#-autoconfig> line, then that slot is set to *full* hot swap. For example, in TABLE 5-2, I/O slots 5, 4, and 2 are all set to full hot swap.

- If you see value 'disabled' underneath a <slot#-autoconfig> line, then that slot is set to *basic* hot swap. For example, in TABLE 5-2, I/O slot 1 is set to basic hot swap.

