Show Commands for the Cisco 6400 NRP

This chapter describes the **show** commands that are specific to the Cisco 6400 node route processor (NRP).

Additional commands used to configure and monitor the Cisco 6400 NRP are described in:

- Chapter 1, "Commands for the Cisco 6400 NRP"

- Cisco IOS command reference publications available on Cisco.com or on the Cisco Documentation CD-ROM.

show atm ingress

To display the unique ingress VC information of local VCs, use the **show atm ingress** EXEC command.

show atm ingress [**all** | **local-vc** *vpi*/*vci*] [**detailed**]

Syntax Description

all	List the ingress VC info of all the local VCs.
local-vc	List the ingress VC info of a specific local VC.
vpi	Virtual path interface.
vci	Virtual circuit interface.
detailed	Print out detailed information for debugging.

Defaults

No default behavior or values.

Command Modes

EXEC

Command History

Release	Modification
12.0(7) DC	This command was introduced on the Cisco 6400 NRP.
12.2(13)T	This command was integrated into Cisco IOS Release 12.2(13)T.
12.3	This command was integrated into Cisco IOS Release 12.3.

Usage Guidelines

The information displayed using this command is used to construct NAS Port ID and NAS IP attributes in RADIUS authentication requests and accounting records when the global configuration command **radius attribute nas-port format d** is entered.

Examples

The following examples show the ingress local VC info:

```
Router# show atm ingress all
Local    VCD            Ingress   Ingress
Interface  Name     VPI  VCI  Interface  VPI/VCI     IPaddr
0/0/0.101  1         2   101   5/0/1     12/1001     10.20.30.40

0/0/0.102  2         2   102   5/0/1     12/1002     10.20.30.40

0/0/0.103  3         2   103   5/0/1     12/1003     10.20.30.40

Router# show atm ingress detailed
Local    VCD            Ingress   Ingress
Interface  Name     VPI  VCI  Interface  VPI/VCI     IPaddr
0/0/0.101  1         2   101   5/0/1     12/1001     10.20.30.40
      (0x611B5374/0x611B69EC/2/0xC20)
0/0/0.102  2         2   102   5/0/1     12/1002     10.20.30.40
      (0x611B7460/0x6120AA04/2/0xC24)
0/0/0.103  3         2   103   5/0/1     12/1003     10.20.30.40
      (0x6120BFD0/0x6120C584/2/0xC20)
```

```
Router# show atm ingress local-vc 2/101
Local:Interface:ATM0/0/0.101:VCD:1, VPI/VCI:2/101
Ingress:Interface:ATM5/0/1 VPI/VCI:12/1001 IP:10.20.30.40
```

```
Router# show atm ingress local-vc 2/101 detailed
Local:Interface:ATM0/0/0.101:VCD:1, VPI/VCI:2/101
Ingress:Interface:ATM5/0/1 VPI/VCI:12/1001 IP:10.20.30.40
   :0x611B5374/0x611B69EC Code:2 Flags:0xC20
```

Table 2-1   **Show ATM Ingress** *Field Descriptions*

Field	Description
Local Interface	ATM interface or ATM subinterface (slot/subslot/port) viewed by the NRP
VCD or VCD Name	Virtual circuit descriptor
VPI	Virtual path interface
VCI	Virtual circuit interface
Ingress Interface	ATM interface (slot/subslot/port) viewed by the NSP
IP or IPaddr	IP address of the network management Ethernet port (NME) on the NSP
(*hexadecimal output*)	Diagnostic information

Related Commands

Command	Description
radius-server attribute nas-port format	Selects the NAS port format used for RADIUS accounting features.

show chassis xconn

To display the current state of the cross connect information requests from the NRP to the NSP, use the **show chassis xconn** EXEC mode command.

show chassis xconn

Syntax Description   This command has no keywords or arguments.

Defaults   No default behavior or values.

Command Modes   EXEC

Command History

Release	Modification
12.1(4)DC	This command was introduced on the Cisco 6400 NRP-2.
12.2(13)T	This command was integrated into Cisco IOS Release 12.2(13)T.
12.3	This command was integrated into Cisco IOS Release 12.3.

Examples   In the following example, there are no outstanding cross-connect requests from the NRP-2 to the NSP:

```
NRP-2> show chassis xconn
Xconn List len = 2048
 Req outstanding = 0, Req Pending = 0
 VC status
 ---------
 Outstanding_cnt = 0, Pending_cnt = 0
```

In the following example, one request is outstanding. The request is for PVC 40/50 on the NRP-2 ATM 0/0/0 interface. The request has nine more retries with a current timeout of 8000 milliseconds.

```
NRP-2# show chassis xconn
Xconn List len = 2048
 Req outstanding = 1, Req Pending = 0
 VC status
 ---------
 Outstanding VC (1002) 40/50, retry cnt = 9, timeout_period = 8000
 Outstanding_cnt = 1, Pending_cnt = 0
```

Related Commands

Command	Description
debug xconn	Displays debug NSP and NRP process cross-connect messages.

show controllers atm 0/0/0

To display information on the physical ATM interface of the Cisco 6400 NRP, use the **show controllers atm 0/0/0** privileged EXEC command.

Cisco 6400 NRP-2 or NRP-2SV

>   **show controllers atm 0/0/0**

Cisco 6400 NRP-1

>   **show controllers atm 0/0/0** [**detailed** | **scheduler** | **vc** *vpi/vci*]

Syntax Description		
	0/0/0	*slot/subslot/port* entry for the physical ATM interface of the Cisco 6400 NRP
	detailed	Output shows all available information
	scheduler	Output shows SAR scheduler information
	vc	Output shows information for the specified virtual circuit (VC)
	vpi/vci	Virtual path identifier (VPI) and virtual channel identifier (VCI) of the VC

Defaults

On the NRP-2 and NRP-2SV, the default output shows all available information on the ATM interface.

On the NRP-1, the default output shows only segmentation and reassembly (SAR) controller information.

Command Modes

Privileged EXEC

Command History

Release	Modification
11.2 GS	This command was introduced.
12.0(5)DA	This command was implemented on the Cisco 6260.
12.0(5)XE	This command was implemented on the Cisco 7200 and 7500 series routers.
12.0(5)T and 12.0(5)XK	This command was modified to support inverse multiplexing over ATM (IMA) groups on the Cisco 2600 and Cisco 3600 series routers.
12.0(7)XE1	This command was implemented on the Cisco 7100 series routers.
12.1(3)DC	This command was modified from its original version, with no display options, for the Cisco 6400 NRP-1:
	• To enable the output of cyclic redundancy check (CRC) error counts on a per-VC basis.
	• To display only SAR controller information as the default output.
	• With new options for controlling the output to include error counters on a per-VC basis.
12.1(4)DC	The command syntax was returned to its original form for the Cisco 6400 NRP-2.

Release	Modification
12.2(13)T	This command was integrated into Cisco IOS Release 12.2(13)T.
12.3	This command was integrated into Cisco IOS Release 12.3.

Examples   In the following NRP-2 example, the output shows all available SAR controller information:

NRP-2# **show controllers atm 0/0/0**

*** SE64 General Data ***

Resources:

				Thold	Thold	per-VC	
Pool	Total	Used	Free	Norm	Sys	Limit	VCs
TX-VBR	3273	1	3272	3241	3273	3273	1
TX-UBR	409	8	401	377	409		2
RX	32255	0	32255	21504	21568	3583	3
MP-hld	49152	8	49144				

Performance:

			Throttled	Throttled	Throttled	Spin
Path	Total	Queued	Total	Sys	Hi Pri	avg/max
TX	3682	8	0	0	0	0/128
RX	32255	0	0			1/128

Other:
  TX hw Links = 2   RX Free (tbl) = 32255
  VPI/VCI bits = 3/11   SAR Rev = D

*** SE64 Global Statistics ***

RX Path:
  rx_giant_discard   = 0   rx_misc_discard   = 0
  rx_pkt   = 4   rx_drop_vc_bad   = 0
  rx_drop_crc   = 0   rx_drop_runt   = 0
  rx_drop_vc_del   = 0   rx_drop_giant   = 0
  rx_drop_throttle   = 0

RX OAM Path:
  rx_oam_spin_int   = 0   rx_oam_spin_poll   = 0
  rx_oam   = 0   rx_oam_drop_buf   = 0
  rx_oam_drop_crc_10 = 0

RX General:
  rx_count   = 0   rx_pkt_spin_start = 4
  rx_pkt_spin_total = 4   rx_spin_int   = 4
  rx_spin_poll   = 0   rx_pkt_clp   = 0
  rx_pkt_ci   = 0
TX Path:
  tx_pkt_safe_start = 8   tx_pkt_fast   = 0
  tx_drop_idb_down   = 0   tx_drop_vc_down   = 0
  tx_drop_vc_del   = 0   tx_drop_1par_clone = 0
  tx_drop_2par_room = 0   tx_drop_2par_coal = 0
  tx_drop_gt2par   = 0   tx_drop_credit   = 0
  tx_drop_credit_sys = 0   tx_drop_credit_pri = 0
  tx_drop_oam_f4   = 0   tx_drop_pkt_len_0 = 0
  tx_drop_pkt_align = 0   tx_drop_pkt_mp   = 0

TX General:

```
tx_count_vbr      = 0         tx_count_ubr      = 8
tx_tbl_count_vbr  = 1         tx_tbl_count_ubr  = 17
tx_vc_limit_vbr   = 3273      tx_pkt_spin_start = 0
tx_pkt_spin_total = 0         tx_spin_int       = 0
tx_spin_poll      = 0         tx_combine        = 0
tx_2par_coal      = 0


SE64 stats interrupts:
tx_desc_wm        = 0         tx_tmp_cb_full    = 0
tx_cb_full        = 0         abr_sched_drift   = 0

SE64 error interrupts:
rx_stat_rpt_ring_ful = 0         tx_stat_rpt_ring_ful = 0
rm_cell_ring_full    = 0         rx_buf_pool1_mt      = 0
rx_buf_pool2_mt      = 0         rx_buf_pool3_mt      = 0
tx_buf_pkt_desc_mt   = 0         rx_cb_full           = 0
rx_tmp_cb_full       = 0         fail_sched_abr_vc    = 0
crm              = 0         biu_addr          = 0
rx_cam_mult_hit  = 0         tx_cam_mult_hit   = 0
rx_hec           = 0         data_parity       = 0
```

In the following NRP-1 example, the output consists only of the SAR controller information:

```
NRP-1# show controllers atm 0/0/0
Interface ATM0/0/0
Hardware is ATM-SAR
PCI registers:
 bus_no=0, device_no=4
 CFID=0xA102104C, CFCS=0x02000006, CFRV=0x02030002, CFLT=0x0000FF00
 CFBA=0x4A000000, CFIT=0x02010100


*** TI1575 SAR at address 0x3A000000 ***
Receive/Transmit Statistics
 rx_isrs:    0        rx_isr_pkts: 1       rx_isr_bufs:  0
 rx_cells_ovf: 0        tx_cells_ovf: 0        hec_errors_ovf: 0
 rx_unkn_prot: 314      rx_aal5_disc: 0        rx_pkt_ovf:   0
 unkn_prot_ovf:0        aal5_disc_ovf: 0       tx_count:      0
 rx_crc_error: 0        rx_no_buf:   0         rx_timeout:    0
 rx_abort:    0         rx_cong_cells: 0       rx_freeze:     0
 rx_no_valbuf: 0        rx_bad_vc:   0         fallback act:  0
 tx_abort:    0         tx_no_desc:  0         tx_align:      0
 tx_freeze:   0         disabled:    0         enabled:       0
 tx_clones:   0         tx_xmt_paks: 3         teardown_vc:   0
 tx_pend_count_negative: 0
 tx_forced: 0       (0)
 tx_max_queued:    6144       seg_ring_size:    32
 tx output drops:    0
 pkt_too_big:    0        tx_pak_failed:    0
 idb_down:       0        invalid_pkt_type: 0
 invalid_vcd:    0        vc_ring_full:     0
 over_max_queued:   0        slot_owned_by_chip: 0
 vc_not_in_use:     0
 invalid_addr_count:  0


PCI Statistics
 detect_parity    0    system_error    0    master_abort     0
 rx_target_abort  0    sig_target_abort 0    data_parity      0

Internal registers
 config:   0x6037     status:   0x2000040 imask:    0xC381
 ratcount: 0x800      globrat:  0x79      rxunkn:   0x10000010
 txcompsize: 0x7FF     rxcompsize: 0x1FF     txsegsize: 0x1F
```

```
   aal5discard:0x0      hecerrors: 0x0      unknprot:  0x14C
   rxcells:  0x1      txcells:  0x1B      schedsize: 0x1
   txqueue:  0x80002009(spinerr:0) txpause:  0x0      chancount: 0x5
   txcompring: 0x311A00C  rxcompring: 0x3114020

  Structures common to all VCs
   receive free buffer ring
      address: 0x3110820  buf size: 10  ring size: 63  sar_indx: 1  drv_indx: 1
   receive completion ring
      addr: 0x3114000  indx: 1
   transmit completion ring
      addr: 0x311A000  indx: 3
```

In the following NRP-1 example, the output consists of all available information:

```
NRP-1# show controllers atm 0/0/0 detailed
Interface ATM0/0/0
Hardware is ATM-SAR
PCI registers:
 bus_no=0, device_no=4
 CFID=0xA102104C, CFCS=0x02000006, CFRV=0x02030002, CFLT=0x0000FF00
 CFBA=0x4A000000, CFIT=0x02010100


 *** TI1575 SAR at address 0x3A000000 ***
 Receive/Transmit Statistics
 rx_isrs:    0      rx_isr_pkts:  1      rx_isr_bufs:  0
 rx_cells_ovf: 0      tx_cells_ovf: 0      hec_errors_ovf: 0
 rx_unkn_prot: 514      rx_aal5_disc: 0      rx_pkt_ovf:   0
 unkn_prot_ovf:0      aal5_disc_ovf: 0      tx_count:     0
 rx_crc_error: 0      rx_no_buf:   0      rx_timeout:   0
 rx_abort:   0      rx_cong_cells: 0      rx_freeze:    0
 rx_no_valbuf: 0      rx_bad_vc:   0      fallback act: 0
 tx_abort:   0      tx_no_desc:  0      tx_align:     0
 tx_freeze:  0      disabled:   0      enabled:      0
 tx_clones:  0      tx_xmt_paks: 3      teardown_vc:  0
 tx_pend_count_negative: 0
 tx_forced: 0      (0)
 tx_max_queued:    6144      seg_ring_size:   32
 tx output drops:    0
 pkt_too_big:    0      tx_pak_failed:    0
 idb_down:       0      invalid_pkt_type: 0
 invalid_vcd:    0      vc_ring_full:    0
 over_max_queued:   0      slot_owned_by_chip: 0
 vc_not_in_use:    0
 invalid_addr_count:  0

 PCI Statistics
 detect_parity    0   system_error    0    master_abort    0
 rx_target_abort  0   sig_target_abort 0    data_parity     0

 Internal registers
 config:   0x6037     status:   0x2000040  imask:    0xC381
 ratcount: 0x800      globrat:  0x79    rxunkn:    0x10000010
 txcompsize: 0x7FF     rxcompsize: 0x1FF    txsegsize: 0x1F
 aal5discard:0x0      hecerrors: 0x0      unknprot:  0x214
 rxcells:  0x1      txcells:  0x1B      schedsize: 0x1
 txqueue:  0x80002009(spinerr:0) txpause:  0x0      chancount: 0x5
 txcompring: 0x311A00C  rxcompring: 0x3114020

 Structures common to all VCs
  receive free buffer ring
     address: 0x3110820  buf size: 10  ring size: 63  sar_indx: 1  drv_indx: 1
  receive completion ring
```

```
        addr: 0x3114000  indx: 1
   transmit completion ring
        addr: 0x311A000  indx: 3

*** VC information and associated 1575 structures ***
 seg ring:  5    ringaddr: 0x311C400  ringindx:0    pendindx:0
 tx dma:  5    ctrlring: 0xC47100  pktcnt:   0
 rword10:  0x0       rword11: 0x0
 rword20:  0x0       rword21: 0x0      rword22: 0x0      rword23: 0x0
 pxmt     0    queued:  0
  VCs mapped to this ring
  vcd:    1   cellhdr: 0x1E00640  encap:    0       crcerror: 0
   rx dma: 5    config: 0x24000000 ctrlrxring: 0x80000200  timecnt: 0xC8000
   lookup: 2    channel: 5      vpivci:   0x1E0064
 seg ring:  6    ringaddr: 0x311C480  ringindx:0    pendindx:0
 tx dma:  6    ctrlring: 0xC47120  pktcnt:   0
 rword10:  0x0       rword11: 0x0
 rword20:  0x0       rword21: 0x0      rword22: 0x0      rword23: 0x0
 pxmt     0    queued:  0
  VCs mapped to this ring
  vcd:    2   cellhdr: 0x2800C80  encap:    0       crcerror: 0
   rx dma: 6    config: 0x24000000 ctrlrxring: 0x80000400  timecnt: 0xC8000
   lookup: 3    channel: 6      vpivci:   0x2800C8
 seg ring:  7    ringaddr: 0x311C500  ringindx:0    pendindx:0
 tx dma:  7    ctrlring: 0xC47140  pktcnt:   0
 rword10:  0x0       rword11: 0x0
 rword20:  0x0       rword21: 0x0      rword22: 0x0      rword23: 0x0
 pxmt     0    queued:  0
  VCs mapped to this ring
  vcd:    3   cellhdr: 0xA0     encap:    0       crcerror: 0
   rx dma: 7    config: 0x24000000 ctrlrxring: 0x80000600  timecnt: 0xC8000
   lookup: 0    channel: 7      vpivci:   0xA
 seg ring:  8    ringaddr: 0x311C580  ringindx:0    pendindx:0
 tx dma:  8    ctrlring: 0xC47160  pktcnt:   0
 rword10:  0x0       rword11: 0x0
 rword20:  0x0       rword21: 0x0      rword22: 0x0      rword23: 0x0
 pxmt     0    queued:  0
  VCs mapped to this ring
  vcd:    4   cellhdr: 0x500    encap:    0       crcerror: 0
   rx dma: 8    config: 0x24000000 ctrlrxring: 0x80000800  timecnt: 0xC8000
   lookup: 1    channel: 8      vpivci:   0x50
 seg ring:  9    ringaddr: 0x311C600  ringindx:3    pendindx:3
 tx dma:  9    ctrlring: 0xC47183  pktcnt:   0
 rword10:  0x663C0000 rword11: 0x33CE274
 rword20:  0x0       rword21: 0x33CDFC4 rword22: 0x0      rword23: 0x0
 pxmt     0    queued:  0
  VCs mapped to this ring
  vcd:    5   cellhdr: 0x3200640  encap:    0       crcerror: 0
   rx dma: 9    config: 0x24000000 ctrlrxring: 0x80000A00  timecnt: 0xC8000
   lookup: 4    channel: 9      vpivci:   0x320064

*** TI1585/1585 Scheduler at address 0x3A040000 ***
Configuration/Statistics
 line bw:   149760   min vc bw: 64    total slots: 2
 free slots: 2

1585 internal registers
 config:   0x227     status:  0x1E      imask:    0x0
 clkfreq:  0x18FCA1  revnum:   0x0       acrlow:   0x80000000
 acrok:    0x80000000

1585 connection config/status
 scheduler id 5
    type: VBR     pcr: 353207   scr: 353207   mbs: 91
```

```
      rtv: 0x100
       scheduler id 6
          type: VBR      pcr: 353207   scr: 353207   mbs: 91
      rtv: 0x100
       scheduler id 7
          type: VBR      pcr: 353207   scr: 353207   mbs: 91
      rtv: 0x100
       scheduler id 8
          type: VBR      pcr: 353207   scr: 353207   mbs: 91
      rtv: 0x100
       scheduler id 9
          type: VBR      pcr: 353207   scr: 353207   mbs: 91
      rtv: 0x100
```

In the following NRP-1 example, the output consists of only the SAR scheduler information:

```
NRP-1# show controllers atm 0/0/0 scheduler
Interface ATM0/0/0
Hardware is ATM-SAR
PCI registers:
 bus_no=0, device_no=4
 CFID=0xA102104C, CFCS=0x02000006, CFRV=0x02030002, CFLT=0x0000FF00
 CFBA=0x4A000000, CFIT=0x02010100


 *** TI1585/1585 Scheduler at address 0x3A040000 ***
 Configuration/Statistics
 line bw:   149760   min vc bw: 64    total slots: 2
 free slots: 2

 1585 internal registers
 config:    0x227     status:   0x1E      imask:    0x0
 clkfreq:   0x18FCA1  revnum:   0x0       acrlow:   0x80000000
 acrok:     0x80000000

 1585 connection config/status
  scheduler id 5
     type: VBR      pcr: 353207   scr: 353207   mbs: 91
 rtv: 0x100
  scheduler id 6
     type: VBR      pcr: 353207   scr: 353207   mbs: 91
 rtv: 0x100
  scheduler id 7
     type: VBR      pcr: 353207   scr: 353207   mbs: 91
 rtv: 0x100
  scheduler id 8
     type: VBR      pcr: 353207   scr: 353207   mbs: 91
 rtv: 0x100
  scheduler id 9
     type: VBR      pcr: 353207   scr: 353207   mbs: 91
 rtv: 0x100
```

In the following NRP-1 example, the VC output consists only of information specific to VC 1/100:

```
NRP-1# show controllers atm 0/0/0 vc 50/100
Interface ATM0/0/0
Hardware is ATM-SAR
PCI registers:
 bus_no=0, device_no=4
 CFID=0xA102104C, CFCS=0x02000006, CFRV=0x02030002, CFLT=0x0000FF00
 CFBA=0x4A000000, CFIT=0x02010100


 *** VC information and associated 1575 structures ***
```

```
seg ring:  9    ringaddr: 0x311C600  ringindx:3    pendindx:3
tx dma:  9    ctrlring: 0xC47183  pktcnt:    0
rword10:  0x663C0000  rword11: 0x33CE274
rword20:  0x0        rword21: 0x33CDFC4  rword22: 0x0      rword23: 0x0
pxmt     0    queued:  0
VCs mapped to this ring
vcd:    5    cellhdr: 0x3200640  encap:    0        crcerror: 0
 rx dma: 9    config:  0x24000000  ctrlrxring: 0x80000A00  timecnt: 0xC8000
 lookup: 4    channel: 9      vpivci:    0x320064
```

In the following NRP-1 example, the output shows cyclic redundancy check (CRC) error counters for each configured VC:

NRP-1# **show controllers atm 0/0/0 detailed | include crc**

```
rx_crc_error: 0        rx_no_buf:   0        rx_timeout:    0
vcd:    1    cellhdr: 0x1E00640  encap:    0        crcerror: 0
vcd:    2    cellhdr: 0x2800C80  encap:    0        crcerror: 0
vcd:    3    cellhdr: 0xA0      encap:    0        crcerror: 0
vcd:    4    cellhdr: 0x500     encap:    0        crcerror: 0
vcd:    5    cellhdr: 0x3200640  encap:    0        crcerror: 0
```

	Command	Description
Related Commands	**show se64** vc-stats	For the NRP-2, displays information for a specified VC.
	show atm interface	Displays ATM-specific information about an ATM interface.
	show atm pvc	Displays all ATM permanent virtual circuits (PVCs) and traffic information.
	show atm traffic	Displays current global ATM traffic information to and from all ATM networks connected to the router.
	show atm vc	Displays the ATM layer connection information about the virtual connections.
	debug se64 detail	Enables the **show controllers atm 0/00** command output to display internal ATM SAR data and register values.

show ip local pool

To display the local address pools, use the **show ip local pool** command.

show ip local pool [**group** *group-name* | [*poolname*]]

Syntax Description

group	define a group containing this pool
group-name	user-defined name for the pool group
pool-name	user-defined name for the local address pool

Defaults

If the group keyword is omitted, this command will show all local address pools.

Command Modes

Privileged EXEC

Command History

Release	Modification
11.0	This command was introduced.
12.1(5)DC	This command was modified for the Cisco 6400 NRP to accommodate groups for the IP Overlapping Address Pools feature.
12.2(13)T	This command was integrated into Cisco IOS Release 12.2(13)T.

Usage Guidelines

None

Examples

The following example displays all pools:

```
router#sh ip local pool
Pool            Begin       End       Free  In use
** pool <p1> is in group <g1>
p1              10.1.1.1    10.1.1.10    10     0
                10.1.1.21   10.1.1.30    10     0
** pool <p2> is in group <g2>
p2              10.1.1.1    10.1.1.10    10     0
lcl1            20.2.2.1    20.2.2.10    10     0
                20.2.2.21   20.2.2.30    10     0
                20.2.2.41   20.2.2.50    10     0
** pool <mypool> is in group <mygroup>
mypool          172.18.184.223  172.18.184.224   2     0
                172.18.184.218  172.18.184.222   5     0
** pool <ccc> is in group <grp-c>
ccc             172.18.184.218  172.18.184.220   3     0
** pool <bbb> is in group <grp-b>
bbb             172.18.184.218  172.18.184.220   3     0
** pool <ddd> is in group <grp-d>
ddd             172.18.184.218  172.18.184.220   3     0
** pool <pp1> is in group <grp-pp>
pp1             172.18.184.218  172.18.184.220   2     1
```

The following example shows the pools in the group named mygroup:

```
router#sh ip local pool group mygroup
 Pool            Begin      End        Free  In use
 ** pool <mypool> is in group <mygroup>
 mypool          172.18.184.223 172.18.184.224  2    0
                 172.18.184.218 172.18.184.222  5    0
```

show nrp

To display the hardware configuration of the Cisco 6400 NRP, use the **show nrp** EXEC command.

show nrp

Syntax Description

This command has no keywords or arguments.

Command Modes

EXEC

Examples

The following is sample output from the **show nrp** command:

```
Router# show nrp
Router installed in slot 2

Network IO Interrupt Throttling:
 throttle count=0, timer count=0
 active=0, configured=0
 netint usec=4000, netint mask usec=200

NRP CPU ID EEPROM:
    Hardware revision 2.12       Board revision UNKNOWN (0xAF
    Serial number    4294967295   Part number    255-65535-255
    Test history     0xFF         RMA number     255-255-255
    EEPROM format version 0
    EEPROM contents (hex):
     0x00: 00 E3 02 0C FF FF FF FF FF FF FF FF FF FF FF FF
     0x10: FF FF FF FF FF FF FF FF FF FF FF 78 FF FF FF FF
```

show redundancy

To show which slots, subslots, ports, and CPUs are defined as redundant on the Cisco 6400, use the **show redundancy** command.

show redundancy [*slot/subslot***]**

Syntax Description	*slot/subslot*	(Optional) Slot and subslot in chassis.

Command Modes   EXEC

Command History

Release	Modification
11.3(6)AA	This command was introduced.
12.2(13)T	This command was integrated into Cisco IOS Release 12.2(13)T.
12.3	This command was integrated into Cisco IOS Release 12.3.

Usage Guidelines   The output of this command shows each object in a redundant pair and indicates which object is currently the master. Chassis redundancy appears if no slot or subslot is specified. If a slot or subslot is specified, the redundancy configuration for only that slot appears.

Examples   The following is sample output from the **show redundancy** command on the NRP:

```
Router# show redundancy

Primary   NRP in slot 2, system configured non redundant

User EHSA configuration (by CLI config):
slave-console = off
keepalive    = on
config-sync modes:
standard   = on
start-up   = on
boot-var   = on
config-reg = on

NSP EHSA configuration (via pam-mbox):
redundancy       = off
preferred (slot 2) = yes

Debug EHSA Information:
NRP specific information:
Backplane resets      = 0
NSP mastership changes = 0

print_pambox_config_buff: pmb_configG values:
valid        = 1
magic        = 0xEBDDBE1 (expected 0xEBDDBE1)
nmacaddrs       = 1
```

```
run_redundant    = 0x0
preferred_master = 0x1
macaddr[0][0]    = 0010.7b79.af93
macaddr[1][0]    = 0000.0000.0000

EHSA pins:
peer present = 0
peer state   = SANTA_EHSA_SECONDARY
crash status: this-nrp=NO_CRASH(1) peer-nrp=NO_CRASH(1)

EHSA related MAC addresses:
peer bpe mac-addr = 0010.7b79.af97
my   bpe mac-addr = 0010.7b79.af93
```

Related Commands

Command	Description
show nrp	Displays the hardware configuration of the Cisco 6400 NRP.

show se64

To display detailed NRP-2 ATM SAR information, use the **show se64** EXEC command.

show se64 {**regs** | **mp_holder** | **vc-stats** *vpi vci* | **shaper** *shaper-number* | **vcd** *vcd*}

Syntax Description

regs	Displays the values of internal registers for the NRP-2 ATM SAR.
mp_holder	Displays VCs with counters of outstanding SAR driver data structures used to recover transmitted packets. These data structures are referred to as "holders" or "mp holders."
vc-stats	Displays counters and statistics for a specific VC.
vpi vci	Virtual path identifier and virtual channel identifier.
shaper	Displays details of SAR driver data structures used to enforce traffic shaping specified by a VBR-NRT VC.
shaper-number	Shaper number. Valid values are 0 to 7.
vcd	Displays details of SAR driver data structures for a specific VC descriptor (VCD).
vcd	VC descriptor number. Valid values are 0 to 16383.

Defaults

No default behavior or values.

Command Modes

EXEC

Command History

Release	Modification
12.1(4)DC	This command was introduced on the Cisco 6400 NRP-2.
12.2(13)T	This command was integrated into Cisco IOS Release 12.2(13)T.
12.3	This command was integrated into Cisco IOS Release 12.3.

Usage Guidelines

The **show se64** command is used for debugging and troubleshooting the NRP-2 ATM SAR.

The output of the **show se64 vc-stats** command is divided into five categories:

- General—Shows general statistics of the NRP-2 ATM SAR driver operation.
- RX Path—Shows statistics for the input and loss path of received packets through the NRP-2 ATM SAR driver, for the specified VC.
- RX General—Shows counters for the cells and packets received on the specified VC.
- TX Path—Shows statistics for the output and loss path of transmitted packets through the NRP-2 ATM SAR driver, for the specified VC.
- TX General—Shows counters for actions taken by the NRP-2 ATM SAR driver to successfully transmit certain packet types.

Note   The RX Path and TX Path output do not account for packets lost by the Cisco IOS.

Each shaper number can be mapped to one or more VCDs. The VCDs mapped to the selected shaper appears at the end of the **show se64 shaper** command output:

```
NRP-2# show se64 shaper 0
Shaper Number 0
pcr_kb 1000, pcr_cr 2271, pcr_count 24218
scr_kb 50, scr_cr 113, scr_count 4843600
mbs 10, mbs count 10
skip count 190, scr_inc 1023
```
→ VC on the shaper:
→ 00002

To determine the VCD number to use in the **show se64 vcd** command, use the **show atm pvc** privileged EXEC command:

```
NRP-2# show atm pvc
        VCD /                   Peak  Avg/Min Burst
Interface  Name    VPI VCI Type Encaps SC Kbps  Kbps Cells Sts
0/0/0.100  1       0  300 PVC  SNAP   UBR 10000       UP
0/0/0.200  2       0  400 PVC  SNAP   VBR 1000   50  10  UP
0/0/0.300  foobe   0  500 PVC  SNAP   UBR 599040      UP
...
```

If the VCD is displayed as a name instead of a number for the PVC of interest, use the **show atm pvc** *name* privileged EXEC command to determine the VCD number:

```
NRP-2# show atm pvc foobe
ATM0/0/0.300:VCD:3, VPI:0, VCI:500, Connection Name:foobe
UBR, PeakRate:599040
AAL5-LLC/SNAP, etype:0x0, Flags:0xC20, VCmode:0x0
...
```

Examples

```
Router# show se64 regs
*** SE64 Internal Regs ***

SAR revision D


VPI bits 3, VCI bits 11

Number of free mp holders:49152
Number of particle in the sar 32255

rx buffer base:virtual 0C000000, physical AC000000
rx buffer size (byte):66058240, number of rx buffers:32255

OAM cell ring base:virtual 0B050000, physical AB050000
OAM shadow write pointer:0, OAM read pointer:10
OAM cell ring size (byte):65536, number of entries:1024

RM cell ring base:virtual 0AFC4000, physical AAFC4000
RM cell ring size (byte):16384, number of entries:256

Rx status ring base:virtual 0B020000, physical AB020000
Rx shadow write pointer:0, Rx read pointer:1284
Rx status ring size (byte):131072, number of entries:16384
```

Tx status ring base:virtual 0AFE0000, physical AAFE0000
Tx shadow write pointer:0, Tx read pointer:707
Tx status ring size (byte):131072, number of entries:16384

SE64 internal memory and registers base:virtual 24000000, physical 84000000
SE64 registers base:virtual 2401F000, physical 8401F000
SE64 local memory base:virtual 20000000, physical 80000000

Rx VC descriptor table base:virtual 20000000, physical 80000000
Rx VC descriptor table size(byte):1048576

Tx VC descriptor table base:virtual 20100000, physical 80100000
Tx VC descriptor table size(byte):1048576

Tx link pool base:virtual 20200000, physical 80200000
Tx link pool size(byte):794624
SE64 register value:
Addr 2401F000, high 84000037, low 84000037, Rc Lg Buffer Pool Config Register 1
Addr 2401F010, high FC000009, low FC000009, Rc Lg Buffer Pool Config Register 2
Addr 2401F020, high 7FF0000C, low 7FF0000C, Rc Sm Buffer Pool Config Register
Addr 2401F040, high 00000000, low 00000000, Rc Lg Buffer Pool Depth Register
Addr 2401F060, high 00000000, low 00000000, Rc Sm Buffer Pool Depth Register
Addr 2401F100, high 00000000, low 00000000, Rc Buffer Pool Return Register
Addr 2401F180, high 00000000, low 00000000, Rc Lg Buffer Pool Region Flag Regr
Addr 2401F190, high FFFFFFFF, low FFFFFFFF, Rc Sm Buffer Pool Row Map Regr 1
Addr 2401F1A0, high FFFFFFFF, low FFFFFFFF, Rc Sm Buffer Pool Row Map Regr 2
Addr 2401F400, high 00000090, low 00000090, Receive Processor Control Register
Addr 2401F410, high 00000000, low 00000000, Rc Ext. Descriptor Table Base Regr
Addr 2401F420, high 82FC4000, low 82FC4000, Rc RM Cell Ring Register
Addr 2401F430, high 83050285, low 83050285, Rc OAM Cell Ring Register
Addr 2401F440, high 80000000, low 80000000, Rc RM Cell Ring Stop Register
Addr 2401F450, high 8006800B, low 8006800B, Rc OAM Cell Ring Stop Register
Addr 2401F800, high 001C4FA7, low 00508002, Transmit Packet-Add Register 1
Addr 2401F808, high 00000000, low 82FC9038, Transmit Packet-Add Register 2
Addr 2401F810, high 11C28F06, low 11C28F06, Transmit Buffer-Add Register
Addr 2401F900, high 0000FEFE, low 0000FEFE, Tx Buf Link Pool Region FlagRegr
Addr 2401F908, high C0000001, low C0000001, Tx Buffer Link Pool Depth Register
Addr 2401FA00, high 00000000, low 00000000, Protocol Header Register 0H
Addr 2401FA08, high 00000000, low 00000000, Protocol Header Register 0L
Addr 2401FA10, high 00000000, low 00000000, Protocol Header Register 1H
Addr 2401FA18, high 00000000, low 00000000, Protocol Header Register 1L
Addr 2401FA20, high 00000000, low 00000000, Protocol Header Register 2H
Addr 2401FA28, high 00000000, low 00000000, Protocol Header Register 2L
Addr 2401FA30, high 00000000, low 00000000, Protocol Header Register 3H
Addr 2401FA38, high 00000000, low 00000000, Protocol Header Register 3L
Addr 2401FA40, high 00000000, low 00000000, Protocol Header Register 4H
Addr 2401FA48, high 00000000, low 00000000, Protocol Header Register 4L
Addr 2401FA50, high 00000000, low 00000000, Protocol Header Register 5H
Addr 2401FA58, high 00000000, low 00000000, Protocol Header Register 5L
Addr 2401FA60, high 00000000, low 00000000, Protocol Header Register 6H
Addr 2401FA68, high 00000000, low 00000000, Protocol Header Register 6L
Addr 2401FA70, high 00000000, low 00000000, Protocol Header Register 7H
Addr 2401FA78, high 00000000, low 00000000, Protocol Header Register 7L
Addr 2401FA80, high 00000000, low 00000000, Protocol Header Register 8H
Addr 2401FA88, high 00000000, low 00000000, Protocol Header Register 8L
Addr 2401FA90, high 00000000, low 00000000, Protocol Header Register 9H
Addr 2401FA98, high 00000000, low 00000000, Protocol Header Register 9L
Addr 2401FAA0, high 00000000, low 00000000, Protocol Header Register AH
Addr 2401FAA8, high 00000000, low 00000000, Protocol Header Register AL
Addr 2401FAB0, high 00000000, low 00000000, Protocol Header Register BH
Addr 2401FAB8, high 00000000, low 00000000, Protocol Header Register BL
Addr 2401FB00, high 00000000, low 00000000, VC Base Address Register
Addr 2401FB08, high 00FFFFFF, low 00FFFFFF, FRM Cell Time Interval Register
Addr 2401FB10, high 00000000, low 00000000, CRM Interrupt Register

...
(additional register settings deleted)
...

NRP-2# **show se64 mp_holder**
Number of free mp holders:49146

vcd 1, number of holders 6

Number of mp holders in the closed VC queue:0

NRP-2# **show se64 vc-stats 4 33**
*** SE64 Statistics for VPI/VCI = 4/33 ***

General:
  rx_count   = 0   rx_limit   = 7064
  tx_count   = 0   tx_limit   = 40

RX Path:
  rx_pkt   = 209   rx_drop_giant   = 0
  rx_drop_crc   = 7   rx_drop_runt   = 0
  rx_drop_vc_del   = 0   rx_drop_throttle = 0

RX general:
  rx_pkt_clp   = 0   rx_pkt_ci   = 0
  rx_cell_count   = 319

TX Path:
  tx_pkt_safe_start = 224   tx_pkt_fast   = 27
  tx_drop_idb_down = 0   tx_drop_vc_down   = 0
  tx_drop_vc_del   = 0   tx_drop_1par_clone = 0
  tx_drop_2par_room = 0   tx_drop_2par_coal = 0
  tx_drop_gt2par   = 0   tx_drop_credit   = 0
  tx_drop_oam_f4   = 0   tx_drop_pkt_len_0 = 0
  tx_drop_pkt_align = 0   tx_drop_pkt_mp   = 0

TX General:
  tx_combine   = 0   tx_2par_coal   = 0

NRP-2# **show se64 shaper 0**
Shaper Number 0
pcr_kb 1000, pcr_cr 2271, pcr_count 24218
scr_kb 50, scr_cr 113, scr_count 4843600
mbs 10, mbs count 10
skip count 190, scr_inc 1023
VC on the shaper:
00002

If the shaper has no PVCs assigned to it, the **show se64 shaper** command shows an invalid status:

NRP-2# **show se64 shaper 3**
Shaper Number 3
Status:Invalid

NRP-2# **show se64 vcd 1**
TX
Addr 20100000, high 9BD294BF low 00000001
Addr 20100008, high 0000001C low 98000000
Addr 20100010, high 00000000 low 0006000D
Addr 20100018, high 40000000 low 00000000
Addr 20100020, high 80000000 low 000012C0
Addr 20100028, high 00000000 low 00000000
Addr 20100030, high 00000000 low 00000000
Addr 20100038, high 00000000 low 00000000

```
RX
Addr 20004B00, high C704DD7B low 21000000
Addr 20004B08, high 00000002 low BC0010B0
Addr 20004B10, high 00000000 low 00000000
Addr 20004B18, high 00000000 low 00000000
Addr 20004B20, high 80001010 low 00000000
Addr 20004B28, high 00000000 low 00000000
Addr 20004B30, high 00000000 low 00000000
Addr 20004B38, high 00000000 low 00000000
```

Related Commands	Command	Description
	show controllers atm 0/0/0	Displays global (as opposed to VC-specific) information on the physical ATM interface.

show vtemplate

To display a list of all configured virtual templates, use the **show vtemplate** privileged EXEC command.

show vtemplate

Syntax Description   This command has no arguments or keywords.

Defaults   This command has no default behavior or values.

Command Modes   Privileged EXEC

Command History

Release	Modification
12.0(7) DC	This command was introduced on the Cisco 6400 NRP.
12.2(13)T	This command was integrated into Cisco IOS Release 12.2(13)T.
12.3	This command was integrated into Cisco IOS Release 12.3.

Examples   In the following example, precloning is on for Virtual-Template 1, 250 virtual access interfaces have been precloned, and 249 virtual access interfaces are available for new L2TP sessions. Only one virtual access interface is in use by L2TP, and no virtual access interfaces were cloned during call setup.

```
Router# show vtemplate
 Virtual-Template 1, pre-cloning is on
  Pre-clone limit: 250, current number: 249
  Active vaccess number: 1

 Generic free vaccess number:0
```

Table 2-2 describes the fields shown in the example.

Table 2-2   **Show Vtemplate** *Field Descriptions*

Field	Description
virtual template name	Configured interface name of virtual template.
pre-cloning is *on/off*	Indicates whether precloning is on or off for that virtual template.
Pre-clone limit	Number of precloned virtual access interfaces.
current number	Number of currently available precloned virtual access interfaces.
Active vaccess number	Number of virtual access interfaces in use.
Generic free vaccess number	Number of virtual access interfaces that were cloned at call setup (not precloned).