Card, MDA, and Port Command Reference

Command Hierarchies

Card and MDA Configuration Commands

Hardware Commands

Card Commands

config
— [**no**] **card** *slot-number*
    — **capability** {**sr** | **ess**} [**now**]
    — **card-type** *card-type*
    — **no card-type**
    — [**no**] **fail-on-error**
    — [**no**] **named-pool-mode**

MCM Commands

— [**no**] **mcm** *mcm-slot*
    — **mcm-type** *mcm-type*
    — **no mcm-type**
    — [**no**] **shutdown**

MDA Commands

— [**no**] **card** *slot-number*
    — [**no**] **mda** *mda-slot*
        — **access**
            — **egress**
                — [**no**] **pool** [*name*]
                    — **amber-alarm-threshold** *percentage*
                    — **no amber-alarm-threshold**
                    — **red-alarm-threshold** *percentage*
                    — **no red-alarm-threshold**
                    — **resv-cbs** *percent-or-default* **amber-alarm-action step** *percent* **max** [1..100]
                    — **resv-cbs** *percent-or-default*
                    — **no resv-cbs**
                    — **slope-policy** *name*
                    — **no slope-policy**
             — **ingress**
                — [**no**] **pool** [*name*]
                    — **amber-alarm-threshold** *percentage*
                    — **no amber-alarm-threshold**
                    — **red-alarm-threshold** *percentage*
                    — **no red-alarm-threshold**
                    — **resv-cbs** *percent-or-default* **amber-alarm-action step** *percent* **max** [1..100]
                    — **resv-cbs** *percent-or-default*
                    — **no resv-cbs**
                    — **slope-policy** *name*
                    — **no slope-policy**
         — **clock-mode adaptive**
        — **clock-mode differential** [**timestamp-freq** {**19440** | **77760** | **103680**}]
        — **egress**
        — **hi-bw-mcast-src** [**alarm**] [**group** *group-id*]
        — **no hi-bw-mcast-src**
        — **egress-xpl**
            — **threshold** *threshold*
            — **window** *window*
        — [**no**] **fail-on-error**

— **ingress**
  — **mcast-path-management**
    — **ancillary-override**
      — **path-limit** *megabits-per-second*
      — **no path-limit**
    — **bandwidth-policy** *policy-name*
    — **no bandwidth-policy**
    — **primary-override**
      — **path-limit** *megabits-per-second*
      — **no path-limit**
    — **secondary-override**
      — **path-limit** *megabits-per-second*
      — **no path-limit**
    — [**no**] **shutdown**
  — **scheduler-policy** *hsmda-scheduler-policy-name*
  — **no scheduler-policy**
— **ingress-xpl**
  — **threshold** *threshold*
  — **window** *window*
— **mda-type** *mda-type*
— **no mda-type**
— **named-pool-mode**
  — **egress**
    — **named-pool-policy** *policy-name*
    — **no named-pool-policy**
  — **ingress**
    — **named-pool-policy** *policy-name*
    — **no named-pool-policy**
— **network**
  — **egress**
    — [**no**] **pool** [*name*]
      — **amber-alarm-threshold** *percentage*
      — **no amber-alarm-threshold**
      — **red-alarm-threshold** *percentage*
      — **no red-alarm-threshold**
      — **resv-cbs** *percent-or-default* **amber-alarm-action step** *percent* **max** [1..100]
      — **resv-cbs** *percent-or-default*
      — **no resv-cbs**
      — **slope-policy** *name*
      — **no slope-policy**
  — **ingress**
    — [**no**] **pool** [*name*]
      — **amber-alarm-threshold** *percentage*
      — **no amber-alarm-threshold**
      — **red-alarm-threshold** *percentage*
      — **no red-alarm-threshold**
      — **resv-cbs** *percent-or-default* **amber-alarm-action step** *percent* **max** [1..100]
      — **resv-cbs** *percent-or-default*
      — **no resv-cbs**
      — **slope-policy** *name*
      — **no slope-policy**
  — **queue-policy** *name*
  — **no queue-policy**

— [**no**] **shutdown**
— [**no**] **sync-e**
— [**no**] **shutdown**
— [**no**] **named-pool-mode** [**now**]

Virtual Scheduler Commands

— [**no**] **card** *slot-number*
  — **virtual-scheduler-adjustment**
    — **rate-calc-min-int** [**fast-queue** *percent-of-default*] [**slow-queue** *percent-of-default*]
    — **no rate-calc-min-int**
    — **sched-run-min-int** *percent-of-default*
    — **no sched-run-min-int**
    — **task-scheduling-int** *percent-of-default*
    — **no task-scheduling-int**
    — **slow-queue-thresh** *kilobits-per-second*
    — **no slow-queue-thresh**

Forwarding Plane (FP) Commands

config
   — **card**
      — **fp** [*fp-number*]
         — **dist-cpu-protection** *policy-name*
         — **no dist-cpu-protection**
         — **egress**
            — **wred-queue-control**
               — **buffer-allocation min** *percentage* **max** *percentage*
               — **no buffer-allocation**
               — **resv-cbs min** *percentage* **max** *percentage*
               — **no resv-cbs**
               — [**no**] **shutdown**
               — **slope-policy** *slope-policy-name*
               — **no slope-policy**
         — **hi-bw-mcast-src** [**alarm**] [**group** *group-id*] [**default-paths-only**]
         — **no hi-bw-mcast-src**
         — **ingress**
            — **access**
               — **queue-group** *queue-group-name* **instance** *instance-id* [**create**]
                   — **accounting-policy** *policy-name*
                   — **no accounting-policy**
                   — [**no**] **collect-stats**
                   — **description** *long-description-string*
                   — **no description**
                   — **policer-control-policy** *policy-name*
                   — **no policer-control-policy**
                     — **max-rate** {**rate** | **max**}
                     — **priority-mbs-thresholds**
                        — **min-thresh-separation** size [**bytes** | **kilo-bytes**]
                        — [**no**] **priority** **level**
                        — **mbs-contribution** [**bytes** | **kilobytes**]
                   — [**no**] **policer-override**
                   — **policer** *policer-id* [**create**]
                   — **no policer** *policer-id*
                   — **stat-mode** {**no-stats** | **minimal** | **offered-profile-no-cir** | **offered-priority-no-cir** | **offered-limited-profile-cir** | **offered-profile-cir** | **offered-priority-cir|offered-total-cir** | **offered-profile-capped-cir** | **offered-limited-capped-cir**}
                   — **no stat-mode**
                   — **rate** {**max** | *kilobits-per-second*} [**cir** {**max** | *kilo-bits-per-second*}]
                   — **no rate**
                   — **mbs** {*size* [**bytes** | **kilobytes**] | **default**}
                   — **no mbs**
                   — **cbs** {*size* [**bytes** | **kilobytes**] | **default**}
                   — **no cbs**
                   — **packet-byte-offset** {**add** *bytes* | **subtract** *bytes*}
                   — **no packet-byte-offset**
             — **ingress-buffer-allocation** *hundredths-of-a-percent*
             — **no ingress-buffer-allocation**

— **mcast-path-management**
    — **bandwidth-policy** *policy-name*
    — **no** **bandwidth-policy**
    — [**no**] **shutdown**
— **network**
    — **queue-group** *queue-group-name* **instance** *instance-id*
    — **no** **queue-group**
        — **accounting-policy** *acct-policy-id*
        — **no** **accounting-policy**
        — [**no**] **collect-stats**
        — **description** *description-string*
        — **no** **description**
        — **policer-control-policy** *policy-name*
        — **no** **policer-control-policy**
            — **priority-mbs-thresholds**
                — **min-thresh-separation** *size* [**bytes** | **kilo-bytes**]
                — [**no**] **priority** **level**
                — **mbs-contribution** *size* [**bytes** | **kilobytes**]
        — [**no**] **policer-override**
        — **policer** *policer-id* [**create**]
        — **no** **policer** *policer-id*
        — **stat-mode** {**no-stats** | **minimal** | **offered-profile-no-cir** | **offered-priority-no-cir** | **offered-limited-profile-cir** | **offered-profile-cir** | **offered-priority-cir**|**offered-total-cir** | **offered-profile-capped-cir** | **offered-limited-capped-cir**}
        — **no** **stat-mode**
        — **rate** {**max** | *kilobits-per-second*} [**cir** {**max** | *kilo-bits-per-second*}]
        — **no** **rate**
        — **mbs** {*size* [**bytes** | **kilobytes**] | **default**}
        — **no** **mbs**
        — **cbs** {*size* [**bytes** | **kilobytes**] | **default**}
        — **no** **cbs**
        — **packet-byte-offset**{**add** *bytes* | **subtract** *bytes*}
        — **packet-byte-offset**
— [**no**] **stable-pool-sizing**
— **mda**
  — **ingress**
    — **mcast-path-management**
        — **ancillary-override**
            — **path-limit** *megabits-per-second*
            — **no** **path-limit**
        — **bandwidth-policy** *policy-name*
        — **no** **bandwidth-policy**
        — **primary-override**
            — **path-limit** *megabits-per-second*
            — **no** **path-limit**
        — **secondary-override**
            — **path-limit** *megabits-per-second*
            — **no** **path-limit**
        — [**no**] **shutdown**

tools
— **dump**
— **mcast-path-mgr**
— **cpm**

Port Configuration Commands

config
— **port** {*port-id* | *bundle-id* | *bpgrp-id* | *aps-id*}
— **no port** {*bundle-id* | *bpgrp-id* | *aps-id*}
— **access**
— **egress**
— [**no**] **pool** [*name*]
— **amber-alarm-threshold** *percentage*
— **no amber-alarm-threshold**
— **red-alarm-threshold** *percentage*
— **no red-alarm-threshold**
— **resv-cbs** *percent-or-default* **amber-alarm-action step** *percent* **max** [1..100]
— **resv-cbs** *percent-or-default*
— **no resv-cbs**
— **slope-policy** *name*
— **no slope-policy**
— **ingress**
— [**no**] **pool** [*name*]
— **amber-alarm-threshold** *percentage*
— **no amber-alarm-threshold**
— **red-alarm-threshold** *percentage*
— **no red-alarm-threshold**
— **resv-cbs** *percent-or-default* **amber-alarm-action step** *percent* **max** [1..100]
— **resv-cbs** *percent-or-default*
— **no resv-cbs**
— **slope-policy** *name*
— **no slope-policy**
— [**no**] **ddm-events**
— **description** *long-description-string*
— **no description**
— **dwdm**
— **amplifier**
— **report-alarms** [**ild**] [**tmp**] [**mth**] [**mtl**] [**los**] [**lop**] [**com**]
— **channel** *channel*
— **coherent**
— **channel** *channel*
— **cpr-window-size** *window-size*
— **dispersion** *dispersion*
— **mode** {**automatic**|**manual**}
— **report-alarms** [**modflt**] [**mod**] [**netrx**] [**nettx**] [**hosttx**]
— **rx-los-thresh** *threshold*
— **sweep start** *dispersion-start* **end** *dispersion-end*
— **target-power** *power*
— [**no**] **rxdtv-adjust**
— **tdcm**
— **channel**
— **dispersion** *dispersion*
— **mode** {**automatic** | **manual**}
— **report-alarms** [**nrdy**] [**mth**] [**mtl**] [**unlck**] [**tlim**] [**einv**] [**com**]
— **sweep start** *dispersion-start* **end** *dispersion-end*
— **wavetracker**

— **encode** *wave-key* **key2** *wave-key*
— **no** **encode**
— [**no**] **power-control**
    — **target-power** d*Bm*
    — [**no**] **report-alarm** [**encode-fail**] [**encode-degrade**] [**power-fail**] [**power-degrade**] [**power-high**] [**power-low**]
— **xgig** {**lan** | **wan**}
— **hybrid-buffer-allocation**
  — **ing-weight** **access** *access-weight* **network** *network-weight*
  — **no** **ing-weight**
  — **egr-weight** **access** *access-weight* **network** *network-weight*
  — **no** **egr-weight**
— **modify-buffer-allocation-rate**
  — **ing-percentage-of-rate** *rate-percentage*
  — **no** **ing-percentage-of-rate**
  — **egr-percentage-of-rate** *rate-percentage*
  — **no** **egr-percentage-of-rate**
— **named-pool-mode**
  — **egress**
    — **named-pool-policy** *policy-name*
    — **no** **named-pool-policy**
  — **ingress**
    — **named-pool-policy** *policy-name*
    — **no** **named-pool-policy**
— **network**
  — **egress**
    — [**no**] **pool** [*name*]
      — **amber-alarm-threshold** *percentage*
      — **no** **amber-alarm-threshold**
      — **red-alarm-threshold** *percentage*
      — **no** **red-alarm-threshold**
      — **resv-cbs** *percent-or-default* **amber-alarm-action step** *percent* **max** [1..100]
      — **resv-cbs** *percent-or-default*
      — **no** **resv-cbs**
      — **slope-policy** *name*
      — **no** **slope-policy**
— [**no**] **otu**
  — [**no**] **async-mapping**
  — **fec** {**enhanced** | **g709**}
  — **no** **fec**
  — **otu2-lan-data-rate** {**11.049** | **11.0957**}
  — **pm-tti**
    — **expected** **auto-generated**
    — **expected** **bytes** *byte* [*byte*...(up to 64 max)]
    — **expected** **string** *identifier*
    — **expected** **use-rx**
    — **mismatch-reaction** {**squelch-rx**}
    — **no** **mismatch-reaction**
    — **tx** **auto-generated**
    — **tx** **bytes** *bytes* [*bytes*...(up to 64 max)]
    — **tx** **string** *identifier*
    — **no** **tx**
  — **psi-payload**
    — **expected** **bytes** *byte*

— **expected auto**
— **mismatch-reaction** {**squelch-rx**}
— **no** **mismatch-reaction**
— **tx** *byte*
— **tx auto**
— [**no**] **psi-tti**
— **expected auto-generated**
— **expected bytes** *byte* [*byte*...(up to 64 max)]
— **expected string** *identifier*
— **expected use-rx**
— **mismatch-reaction** {**squelch-rx**}
— **no** **mismatch-reaction**
— **tx auto-generated**
— **tx bytes** *bytes* [*bytes*...(up to 64 max)]
— **tx string** *identifier*
— **no tx**
— [**no**] **report-alarms** [**loc**] [**los**] [**lof**] [lom] [**otu-ais**] [**otu-ber-sf**] [**otu-ber-sd**] [**otu-bdi**] [**otu-tim**] [**otu-iae**] [**otu-biae**] [**fec-sf**] [**fec-sd**] [**fec-fail**] [**fec-uncorr**] [**odu-ais**] [**odu-oci**] [**odu-lck**] [**odu-bdi**] [**odu-tim**] [**opu-tim**] [**opu-plm**]
— **sf-sd-method** {**bip8** | **fec**}
— **sf-threshold** *threshold*
— **sd-threshold** *threshold*
— **sm-tti**
— **expected auto-generated**
— **expected bytes** *byte* [*byte*...(up to 64 max)]
— **expected string** *identifier*
— **expected use-rx**
— **mismatch-reaction** {**squelch-rx**}
— **no** **mismatch-reaction**
— **tx** {**auto-generated** | **string** *identifier* | **bytes** *byte1* [*byte2*...(up to 64 bytes)]}
— **no tx**
— [**no**] **shutdown**

Port APS Commands

config
— [**no**] **port** *{aps-id}*
— **aps**
— **advertise-interval** *advertise-interval*
— **no advertise-interval**
— **hold-time** *hold-time*
— **no hold-time**
— **hold-time-aps** [**lsignal-failure** *sf-time*][**lsignal-degrade** *sd-time*]
— **no hold-time-aps**
— **no mode-annexb**
— **neighbor** *ip-address*
— **no neighbor**
— **protect-circuit** *port-id*
— **no protect-circuit**
— **rdi-alarms** [**suppress** | **circuit**]
— **revert-time** *minutes*
— **no revert-time**
— **switching-mode** {**bi-directional** | **uni-directional** | **uni-1plus1**}
— **working-circuit** *port-id* [**number** *number*]
— **no working-circuit**
— **wtr-annexb** *minute*

Ethernet Commands

```
config
     — [no] port {port-id}
              — ethernet
                       — access
                                — egress
                                         — queue-group queue-group-name [instance instance-id]
                                         — no queue-group queue-group-name
                                                  — accounting-policy acct-policy-id
                                                  — no accounting-policy
                                                  — [no] agg-rate
                                                           — [no] limit-unused-bandwidth
                                                           — [no] queue-frame-based-accounting
                                                           — rate {max | rate}
                                                           — no rate
                                                  — [no] collect-stats
                                                  — description description-string
                                                  — no description
                                                  — queue-overrides
                                                           — queue queue-id [create]
                                                           — no queue queue-id
                                                                    — parent [[weight weight] [cir-weight cir-
                                                                      weight]]
                                                                    — no parent
                                                                    — adaptation-rule [pir {max | min | closest}]
                                                                      [cir {max | min | closest}]
                                                                    — no adaptation-rule
                                                                    — burst-limit {default | size [byte | kilo-
                                                                      byte]}
                                                                    — no burst-limit
                                                                    — cbs size-in-kbytes
                                                                    — no cbs
                                                                    — high-prio-only percent
                                                                    — no high-prio-only
                                                                    — mbs size-in-kbytes
                                                                    — no mbs
                                                                    — monitor-depth
                                                                    — [no] monitor-depth
                                                                    — rate pir-rate [cir cir-rate]
                                                                    — no rate
                                         — scheduler-policy scheduler-policy-name
                                         — no scheduler-policy
                                — scheduler-policy
                                — policer-control-policy
                                — no policer-control-policy
                                — vport name [create]
                                — no vport name
                                         — agg-rate agg-rate
                                         — [no] agg-rate
                                                  — rate {max | rate}
                                                  — no rate
                                                  — [no] limit-unused-bandwidth
                                         — description description-string
                                         — no description
```

— [**no**] **egress-rate-modify**
— **host-match dest** *description-string* [**create**]
— **no host-match** *destination-string*
— **mon-port-sch**
— **no mon-port-sch**
— **port-scheduler-policy** *port-scheduler-policy-name*
— **no port-scheduler-policy**
— **ingress**
— **queue-group** *queue-group-name* [**create**]
— **no queue-group** *queue-group-name*
— **accounting-policy** *acct-policy-id*
— **no accounting-policy**
— [**no**] **collect-stats**
— **description** *description-string*
— **no description**
— **queue-overrides**
— **queue** *queue-id* [**create**]
— **no queue** *queue-id*
— **adaptation-rule** [**pir** {**max** | **min** | **closest**}]
[**cir** {**max** | **min** | **closest**}]
— **no adaptation-rule**
— **burst-limit** {**default** | **size** [**byte** | **kilo-byte**]}
— **no burst-limit**
— **cbs** *size-in-kbytes*
— **no cbs**
— **high-prio-only** *percent*
— **no high-prio-only**
— **mbs** *size-in-kbytes*
— **no mbs**
— **monitor-depth**
— [**no**] **monitor-depth**
— **rate** *pir-rate* [**cir** *cir-rate*]
— **no rate**
— **scheduler-policy** *scheduler-policy-name*
— **no scheduler-policy**
— **autonegotiate** [**limited**]
— **no autonegotiate**
— [**no**] **collect-stats**
— **crc-monitor**
— **sd-threshold** *threshold* [**multiplier** *multiplier*]
— **no sd-threshold**
— **sf-threshold** *threshold* [**multiplier** *multiplier*]
— **no sf-threshold**
— **window-size** *seconds*
— **no window-size**
— **dot1q-etype** *0x0600..0xffff*
— **no dot1q-etype**
— **dot1x**
— **max-auth-req** *max-auth-request*
— **port-control** {**auto** | **force-auth** | **force-unauth**}
— **quiet-period** *seconds*
— **radius-plcy** *name*
— **no radius-plcy**
— **re-auth-period** *seconds*

— **no re-auth-period**
— [**no**] **re-authentication**
— **server-timeout** *seconds*
— **no server-timeout**
— **supplicant-timeout** *seconds*
— **no supplicant-timeout**
— **transmit-period** *seconds*
— **no transmit-period**
— **tunneling**
— **no tunneling**
— [**no**] **down-on-internal-error**
— **down-when-looped**
— **keep-alive** *timer*
— **no keep-alive**
— **retry-timeout** *timer*
— **no retry-timeout**
— [**no**] **shutdown**
— [**no**] **use-broadcast-address**
— **duplex** {**full** | **half**}
— **efm-oam**
— [**no**] **accept-remote-loopback**
— **discovery**
— **advertise-capability**
— **link-monitoring**
— [**no**] **link-monitoring**
— [**no**] **grace-tx-enable**
— **hold-time** *time-value*
— **no hold-time**
— [**no**] **ignore-efm-state**
— **link-monitoring**
— **errored-frame**
— [**no**] **event-notification**
— **sd-threshold** *errored-frames*
— **no sd-threshold**
— **sf-threshold** *errored-frames*
— [**no**] **shutdown**
— **window** *deciseconds*
— **errored-frame-period**
— [**no**] **event-notification**
— **sd-threshold** *errored-frames*
— **no sd-threshold**
— **sf-threshold** *errored-frames*
— [**no**] **shutdown**
— **window** *packets*
— **errored-frame-seconds**
— [**no**] **event-notification**
— **sd-threshold** *errored-seconds*
— **no sd-threshold**
— **sf-threshold** *errored-seconds*
— [**no**] **shutdown**
— **window** *deciseconds*
— **errored-symbols**
— [**no**] **event-notification**
— **sd-threshold** *errored-symbols*
— **no sd-threshold**

— **sf-threshold** *errored-symbols*
— [**no**] **shutdown**
— **window** *deciseconds*
— **local-sf-action**
— **event-notification-burst** *packets*
— **info-notification**
— [**no**] **dying-gasp**
— [**no**] **critical-event**
— **local-port-action** {**log-only** | **out-of-service**}
— [**no**] **shutdown**
— **mode** {**active** | **passive**}
— **peer-rdi-rx**
— **critical-event** **local-port-action** {**log-only** | **out-of-service**}
— **dying-gasp** **local-port-action** {**log-only** | **out-of-service**}
— **event-notification** **local-port-action** {**log-only** | **out-of-service**}
— **link-fault** **local-port-action** {**log-only** |**out-of-service**}
— [**no**] **shutdown**
— [**no**] **transmit-interval** *interval* [**multiplier** *multiplier*]
— [**no**] **tunneling**
— **egress**
— [**no**] **exp-secondary-shaper**
— **rate** {**max** | *kilobits-per-second*}
— **no rate**
— **class** *class-number* **rate** {*kilobits-per-second* | **max**} [**monitor-threshold** *size-in-kilobytes*]
— **no class**
— **low-burst-max-class** *class*
— **no low-burst-max-class**
— **egress-rate** *sub-rate*
— **no egress-rate**
— [**no**] **egress-scheduler-override**
— **level** *priority-level* **rate** *pir-rate* [**cir** *cir-rate*]
— **no level** *priority-level*
— **max-rate** *rate*
— **no max-rate**
— **egress-scheduler-policy** *port-scheduler-policy-name*
— **no egress-scheduler-policy**
— **elmi**
— **mode** {**none**|**uni-n**}
— **n393** [2..10]
— **no n393**
— **t391** [5..30]
— **no t391**
— **t392** [5..30]
— **no t392**
— **encap-type**
— **encap-type** {**dot1q** | **null** | **qinq**}
— **no encap-type**
— **eth-cfm**
— [**no**] **mep** *mep-id* **domain** *md-index* **association** *ma-index* [**vlan** *vlan-id*]
— [**no**] **ais-enable**
— **client-meg-level** [*level* [*level* ...]]
— **no client-meg-level**
— **interval** {1|60}

— no **interval**
  — **priority** *priority-value*
  — no **priority**
— [**no**] **ccm-enable**
— **ccm-ltm-priority** *priority*
— no **ccm-ltm-priority**
— **ccm-padding-size** *ccm-padding*
— no **ccm-padding-size**
— **ccm-tlv-ignore** [**port-status**] [**interface-status**]
— no **ccm-tlv-ignore**
— **collect-lmm-stats**
— no **collect-lmm-stats**
— **description** *description-string*
— no **description**
— [**no**] **eth-test-enable**
  — **bit-error-threshold** *bit-errors*
  — **test-pattern** {**all-zeros**|**all-ones**} [**crc-enable**]
  — no **test-pattern**
— [**no**] **facility-fault**
— **low-priority-defect** {**allDef**|**macRemErrXcon**|**remErrX-con**|**errXcon**|**xcon**|**noXcon**}
— **mac-address** *mac-address*
— no **mac-address**
— **one-way-delay-threshold** *seconds*
— [**no**] **shutdown**
— **hold-time** {[**up** *hold-time* **up**] [**down** *hold-time* **down**] [**seconds**| **centiseconds**]}
— no **hold-time**
— [**no**] **hsmda-scheduler-overrides**
  — **group** *group-id* **rate** *rate*
  — no **group** *group-id*
  — **max-rate** *rate*
  — no **max-rate**
  — **scheduling-class** *class* **rate** *rate*
  — **scheduling-class** *class* **weight** *weight-in-group*
  — no **scheduling-class** *class*
— **ingress-rate** *ingress-rate*
— no **ingress-rate**
— [**no**] **lacp-tunnel**
— **lldp**
  — **dest-mac** {**nearest-bridge** | **nearest-non-tpmr** | **nearest-customer**}
    — **admin-status** {**rx** | **tx** | **tx-rx** | **disabled**}
    — [**no**] **notification**
    — **portid-subtype** {**tx-if-alias** | **tx-if-name** | **tx-local**}
    — [**no**] **tunnel-nearest-bridge**
    — **tx-mgmt-address** [**system**] [**system-ipv6**]
    — no **tx-mgmt-address**
    — **tx-tlvs** [**port-desc**] [**sys-name**] [**sys-desc**] [**sys-cap**]
    — no **tx-tlvs**
— **load-balancing-algorithm** *option*
— no **load-balancing-algorithm**
— **mac** *ieee-address*
— no **mac**
— **mode** {**access** | **network** | **hybrid**}
— no **mode**
— **mtu** *mtu-bytes*

— **no mtu**
— **network**
  — **accounting-policy** *policy-id*
  — **no accounting-policy**
  — [**no**] **collect-stats**
  — **egress**
    — **queue-group** *queue-group-name* [**instance** *instance id*] [**create**]
    — **no queue-group** *queue-group-name*
      — **accounting-policy** *acct-policy-id*
      — **no accounting-policy**
      — **agg-rate** *kilobits-per-second* [**queue-frame-based-accounting**]
      — **no agg-rate**
        — **rate** {**max** | **rate**}
        — **no rate**
          — [**no**] **limit-unused-bandwidth**
      — [**no**] **collect-stats**
      — **description** *description-string*
      — **no description**
      — **host-match** **dest** *destination-string* [**create**]
      — **no host-match** **dest** *destination-string*
      — **queue-overrides**
        — **queue** *queue-id* [**create**]
        — **no queue** *queue-id*
          — **adaptation-rule** [**pir** {**max** | **min** | **closest**}] [**cir** {**max** | **min** | **closest**}]
          — **no adaptation-rule**
          — **burst-limit**
          — [**no**] **burst-limit**
          — **cbs** *size-in-kbytes*
          — **no cbs**
          — **high-prio-only** *percent*
          — **no high-prio-only**
          — **mbs** *size-in-kbytes*
          — **no mbs**
          — [**no**] **monitor-depth**
          — **rate** *pir-rate* [**cir** *cir-rate*]
          — **no rate**
      — **scheduler-policy** *scheduler-policy-name*
      — **no scheduler-policy**
      — **policer-control-policy** *policy-name*
    — **queue-policy** *name*
    — **no queue-policy**
— **pbb-etype** [**0x0600..0xffff**]
— **no pbb-etype**
— **qinq-etype** *0x0600..0xffff*
— **no qinq-etype**
— [**no**] **report-alarm** [**signal-fail**] [**remote**] [**local**] [**no-frame-lock**]
— [**no**] **sflow**
— [**no**] **single-fiber**
— **speed** {**10** | **100** | **1000**}
— **ssm**
  — [**no**] **shutdown**
  — **code-type** {**sonet** | **sdh**}

— **no** code-type
— [**no**] tx-dus
— symbol-monitor
  — sd-threshold **threshold** [**multiplier** *multiplier*]
  — **no** sd-threshold
  — sf-threshold **threshold** [**multiplier** *multiplier*]
  — **no** sf-threshold
  — [**no**] shutdown
  — window-size *seconds*
  — **no** window-size
— xgig {**lan** | **wan**}

Interface Group Handler Commands

config
— [**no**] interface-group-handler *group-id*
  — [**no**] member *portid*
  — threshold *min*
  — **no** threshold

Multilink Bundle Commands

config
— [**no**] **port** {*bundle-id*}
— **multilink-bundle**
— **fragment-threshold** *fragment-threshold*
— **fragment-threshold** **unlimited**
— **no** **fragment-threshold**
— **ima**
— **atm**
— **cell-format** *cell-format*
— **min-vp-vpi** *value*
— **link-delay** {**activate** | **deactivate**} *milli-seconds*
— **no** **link-delay** {**activate** | **deactivate**}
— **max-bandwidth** *number-links*
— **no** **max-bandwidth**
— **test-pattern-procedure**
— [**no**] **shutdown**
— **test-link** *port-id*
— **no** **test-link**
— **test-pattern** *pattern*
— **no** **test-pattern**
— **version** *IMA-version*
— **no** **version**
— [**no**] **interleave-fragments**
— [**no**] **member** *port-id*
— **minimum-links** *minimum-links*
— **no** **minimum-links**
— **mlfr**
— **ack-timeout** *seconds*
— **no** **ack-timeout**
— **egress**
— **qos-profile** *profile-id*
— **no** **qos-profile**
— **frame-relay**
— **lmi-type** {**ansi** | **itu** | **none** | **rev1**}
— **mode** {**dce** | **dte** | **bidir**}
— **n391dte** *intervals*
— **n392dce** *threshold*
— **n392dte** *threshold*
— **n393dce** *count*
— **n393dte** *count*
— **t391dte** *keepalive*
— **t392dce** *keepalive*
— **hello-timeout** *seconds*
— **no** **hello-timeout**
— [**no**] **identifier** *bundle-id-string*
— **ingress**
— **qos-profile** *profile-id*
— **no** **qos-profile**
— **retry-limit** *integer*
— **no** **retry-limit**
— **mlppp**
— **egress**
— **qos-profile** *profile-id*

— **no qos-profile**
— **endpoint-discriminator** **class** {**ip-address** | **global-mac-address**} [**dis-criminator-id** *discriminator-id*]
— **no endpoint-discriminator**
— **ingress**
— **qos-profile** *profile-id*
— **no qos-profile**
— [**no**] **magic-number**
— **multiclass** *count*
— **no multiclass**
— [**no**] **stateless-aps-switchover**
— **mrru** *mrru*
— **no mrru**
— [**no**] **protect-bundle**
— **red-differential-delay** *red-diff-delay* [**down**]
— **no red-differential-delay**
— [**no**] **short-sequence**
— [**no**] **working-bundle**
— **yellow-differential-delay** *yellow-diff-delay*
— **no yellow-differential-delay**

SONET-SDH Commands

config
— [**no**] **port** {*port-id*}
  — **sonet-sdh**
    — **clock-source** {**loop-timed** | **node-timed**}
    — **framing** {**sonet** | **sdh**}
    — **group** *sonet-sdh-index* **payload** {**tu3** | **vt2** | **vt15**}
    — **hold-time** *hold-time* {[**up** *hold-time up*] [**down** *hold-time down*]}
    — **no hold-time**
    — **loopback** {**line** | **internal**}
    — **no loopback**
    — [**no**] **path** [*sonet-sdh-index*]
      — **access**
        — **egress**
          — **vport** *name* [**create**]
          — **no vport** *name*
            — **agg-rate** *agg-rate*
            — [**no**] **agg-rate**
              — **rate** {**max** | **rate**}
              — **no rate**
              — [**no**] **limit-unused-bandwidth**
              — [**no**] **queue-frame-based-accounting**
            — **description** *description-string*
            — **no description**
            — [**no**] **egress-rate-modify**
            — **host-match dest** *description-string* [**create**]
            — **no host-match** *destination-string*
            — **port-scheduler-policy** *port-scheduler-policy-name*
            — **no port-scheduler-policy**
        — **atm**
          — **cell-format** *cell-format*
          — **ilmi** [*vpi/vci*]
          — **no ilmi**
            — **egress**
              — **traffic-desc** *traffic-desc-profile-id*
              — **no traffic-desc**
            — **ingress**
              — **traffic-desc** *traffic-desc-profile-id*
              — **no traffic-desc**
            — **keep-alive** [**poll-frequency** *seconds*] [**poll-count** *value*] [**test-frequency** *seconds*]
            — **no keep-alive**
            — **protocol** *protocol-type*
            — **no protocol**
            — [**no**] **shutdown**
          — **min-vp-vpi** *value*
        — **cisco-hdlc**
          — **down-count** *down-count*
          — **no down-count**
          — **keepalive** *time-interval*
          — **no keepalive**
          — **up-count** *up-count*
          — **no up-count**

— **crc** {**16** | **32**}
— **description** *description*
— no **description**
— [**no**] **egress-scheduler-override**
   — **level** *priority-level* **rate** *pir-rate* [**cir** *cir-rate*]
   — no **level** *priority-level*
   — **max-rate** *rate*
   — no **max-rate**
— **egress-scheduler-policy** *port-scheduler-policy-name*
— no **egress-scheduler-policy**
— **encap-type** {**atm** | **bcp-null** | **bcp-dot1q** | **ipcp** | **ppp-auto** | **frame-relay** | **wan-mirror** | **cisco-hdlc**}
— **frame-relay**
   — [**no**] **frf-12**
      — **egress**
         — **qos-profile** *profile-id*
         — no **qos-profile**
      — **fragment-threshold** *threshold*
      — no **fragment-threshold**
   — **lmi-type** {**ansi** | **itu** | **none** | **rev1**}
   — **mode** {**dce** | **dte** | **bidir**}
   — **n391dte** *intervals*
   — no **n391dte**
   — **n392dce** *threshold*
   — no **n392dce**
   — **n392dte** *threshold*
   — no **n392dte**
   — **n393dce** *count*
   — no **n393dce**
   — **n393dte** *count*
   — no **n393dte**
   — **t391dte** *keepalive*
   — no **t391dte**
   — **t392dce** *keepalive*
   — no **t392dce**
— **mac** *ieee-address*
— no **mac**
— **mode** {**access** | **network** | **hybrid**}
— **mtu** *mtu*
— no **mtu**
— **network**
   — **accounting-policy** *policy-id*
   — no **accounting-policy**
   — [**no**] **collect-stats**
   — **queue-policy** *name*
   — no **queue-policy**
— **payload** {**sts3** | **tug3** | **ds3** | **e3** | **vt2** | **vt15** | **ds1** | **e1**}
— **ppp**
   — **keepalive** *time-interval* [**dropcount** *drop-count*]
   — no **keepalive**
— [**no**] **report-alarm** [**pais**] [**plop**] [**prdi**] [**pplm**] [**prei**] [**puneq**] [**plcd**]
— [**no**] **scramble**
— [**no**] **shutdown**
— **signal-label** *value*
— no **signal-label**

—   **trace-string** [*trace-string*]
—   no **trace-string**
— [**no**] **report-alarm** [**loc**] [**lais**] [**lrdi**] [**ss1f**] [**lb2er-sd**] [**lb2er-sf**] [**slof**][**slos**] [**lrei**]
— [**no**] **reset-port-on-path-down**
— **section-trace** {**increment-z0** | **byte** *value* | **string** *string*}
— [**no**] **single-fiber**
— **speed** {**oc3** | **oc12**}
— no **speed**
— [**no**] **suppress-lo-alarm**
— **threshold** {**ber-sd** | **ber-sf**} **rate** *threshhold-rate*
— no **threshold** {**ber-sd** | **ber-sf**}
— [**no**] **tx-dus**

TDM Commands

config
— [**no**] **port** {*port-id*}
    — **tdm**
        — **buildout** {**long** | **short**}
        — [**no**] **ds1** *ds1-id*
            — **bert** {**2e3** | **2e9** | **2e11** | **2e15** | **2e20** | **2e20q** | **2e23** | **ones** | **zeros** | **alternating**} **duration** *duration*
            — **no bert**
            — **bit-error-insertion** *rate*
            — **no bit-error-insertion**
            — [**no**] **channel-group** *channel-group*
                — **atm**
                    — **cell-format** *cell-format*
                    — **min-vp-vpi** *value*
                — **cisco-hdlc**
                    — **down-count** *down-count*
                    — **no down-count**
                    — **keepalive** *time-interval*
                    — **no keepalive**
                    — **up-count** *up-count*
                    — **no up-count**
            — **crc** {**16** | **32**}
            — [**no**] **description** *description-string*
            — [**no**] **egress-scheduler-override**
                — **level** *priority-level* **rate** *pir-rate* [**cir** *cir-rate*]
                — **no level** *priority-level*
                — **max-rate** *rate*
                — **no max-rate**
            — **egress-scheduler-policy** *port-scheduler-policy-name*
            — [**no**] **encap-type** {**atm** | **bcp-null** | **bcp-dot1q** | **ipcp** | **ppp-auto** | **frame-relay** | **wan-mirror** | **cisco-hdlc** | **cem**}
            — **frame-relay**
                — [**no**] **frf-12**
                  — **egress**
                    — **qos-profile** *profile-id*
                    — **no qos-profile**
                  — **fragment-threshold** *threshold*
                  — **no fragment-threshold**
                — [**no**] **identifier** *frf16-link-id-string*
                — **lmi-type** {**ansi** | **itu** | **none** | **rev1**}
                — **mode** {**dce** | **dte** | **bidir**}
                — **n391dte** *intervals*
                — **no n391dte**
                — **n392dce** *threshold*
                — **no n392dce**
                — **n392dte** *threshold*
                — **no n392dte**
                — **n393dce** *count*
                — **no n393dce**
                — **n393dte** *count*
                — **no n393dte**

— **t391dte** *keepalive*
— no **t391dte**
— **t392dce** *keepalive*
— no **t392dce**
— **idle-cycle-flag** {**flags** | **ones**}
— no **idle-cycle-flag**
— **idle-payload-fill** {**all-ones**}
— **idle-payload-fill pattern** *pattern*
— no **idle-payload-fill**
— **idle-signal-fill** {**all-ones**}
— **idle-signal-fill pattern** *pattern*
— no **idle-signal-fill**
— **load-balancing-algorithm** *option*
— no **load-balancing-algorithm**
— **mac** *ieee-address*
— no **mac**
— [**no**] **mode** {**access** | **network**}
— **mtu** *mtu-bytes*
— no **mtu**
— **network**
  — **accounting-policy** *policy-id*
  — no **accounting-policy**
  — [**no**] **collect-stats**
  — **queue-policy** *name*
  — no **queue-policy**
— **ppp**
  — [**no**] **ber-sf-link-down**
  — **compress** {**acfc** [**pfc**] | **pfc** [**acfc**]}
  — no **compress**
  — **keepalive** *time-period* [**dropcount** *drop count*]
  — no **keepalive**
— [**no**] **scramble**
— [**no**] **shutdown**
— **speed** {**56** | **64**}
— **timeslots** *timeslots*
— no **timeslots**
— **clock-source** {**loop-timed** | **node-timed** | **adaptive** | **differential**}
— **framing (DS-1)** {**esf** | **sf** | **ds1-unframed**}
— **insert-single-bit-error**
— [**no**] **invert-data**
— **loopback** {**line** | **internal** | **fdl-ansi** | **fdl-bellcore** | **payload-ansi** | **inband-ansi** | **inband-bellcore**}
— no **loopback**
— [**no**] **remote-loop-respond**
— [**no**] **report-alarm** [**ais**] [**los**] [**oof**] [**rai**] [**looped**]
— [**no**] **shutdown**
— **signal-mode** {**cas**}
— no **signal-mode**
— **threshold** {**ber-sd** | **ber-sf**} **rate** {**1** | **5** | **10** | **50** | **100**}
— no **threshold** {**ber-sd** | **ber-sf**}
— **hold-time** hold-time {[**up** hold-time **up**] [**down** *hold-time* **down**]}
— no **hold-time**
— **lbo** [**0dB** | **-7.5dB** | **-15.0dB** | **-22.5dB**]
— **length** {**133** | **266** | **399** | **533** | **655**}

DS3 Commands

— [**no**] **ds3** [*sonet-sdh-index*]
    — **atm**
        — **cell-format** *cell-format*
        — **mapping** *mapping*
        — **min-vp-vpi** *value*
    — **bert** {**2e3** | **2e9** | **2e11** | **2e15** | **2e20** | **2e20q** | **2e23** | **ones** | **zeros** | **alternating**} **duration** *duration*
    — **no bert**
    — **bit-error-insertion** *rate*
    — **no bit-error-insertion**
    — **channelized** {**ds1** | **e1**}
    — **no channelized**
    — **cisco-hdlc**
        — **down-count** *down-count*
        — **no down-count**
        — **keepalive** *time-interval*
        — **no keepalive**
        — **up-count** *up-count*
        — **no up-count**
    — **clock-source** {**loop-timed** | **node-timed**}
    — **crc** {**16** | **32**}
    — **description** *description-string*
    — **no description**
    — [**no**] **egress-scheduler-override**
        — **level** *priority-level* **rate** *pir-rate* [**cir** *cir-rate*]
        — **no level** *priority-level*
        — **max-rate** *rate*
        — **no max-rate**
    — **egress-scheduler-policy** *port-scheduler-policy-name*
    — **no egress-scheduler-policy**
    — **encap-type** {**atm** | **bcp-null** | **bcp-dot1q** | **ipcp** | **ppp-auto** | **frame-relay** | **wan-mirror** | **cisco-hdlc** | **cem**}
    — [**no**] **feac-loop-respond**
    — **frame-relay**
        — [**no**] **frf-12**
            — **egress**
                — **qos-profile** *profile-id*
                — **no qos-profile**
            — **fragment-threshold** *threshold*
            — **no fragment-threshold**
        — **lmi-type** {**ansi** | **itu** | **none** | **rev1**}
        — **mode** {**dce** | **dte** | **bidir**}
        — **n391dte** *intervals*
        — **no n391dte**
        — **n392dce** *threshold*
        — **no n392dce**
        — **n392dte** *threshold*
        — **no n392dte**
        — **n393dce** *count*
        — **no n393dce**
        — **n393dte** *count*
        — **no n393dte**
        — **t391dte** *keepalive*

— no **t391dte**
— **t392dce** *keepalive*
— no **t392dce**
— **framing (DS3)** {**c-bit** | **m23**}
— **idle-cycle-flag** {**flags** | **ones**}
— **load-balancing-algorithm** *option*
— no **load-balancing-algorithm**
— **loopback** {**line** | **internal** | **remote**}
— no **loopback**
— **mac** *ieee-address*
— no **mac**
— **mdl** {**eic** | **lic** | **fic** | **unit** | **pfi** | **port** | **gen**} *mdl-string*
— no **mdl** [**eic** | **lic** | **fic** | **unit** | **pfi** | **port** | **gen**]
— **mdl-transmit** {**path** | **idle-signal** | **test-signal**}
— no **mdl-transmit** [**path** | **idle-signal** | **test-signal**]
— **mode** {**access** | **network**}
— **mtu** *mtu-bytes*
— no **mtu**
— **network**
　　— **accounting-policy** *policy-id*
　　— no **accounting-policy**
　　— [**no**] **collect-stats**
　　— **queue-policy** *name*
　　— no **queue-policy**
— **ppp**
　　— **keepalive** *time-period* [**dropcount** *drop-count*]
　　— no **keepalive**
— [**no**] **report-alarm** [**ais**] [**los**] [**oof**] [**rai**] [**looped**]
— [**no**] **scramble**
— [**no**] **shutdown**
— **subrate** {**digital-link** | **larscom**} *rate-step*
— no **subrate**

E1 Commands

— [**no**] **e1** [*e1-id*]
— **bert** {**2e3** | **2e9** | **2e11** | **2e15** | **2e20** | **2e20q** | **2e23** | **ones** | **zeros** | **alternating**} **duration** *duration*
— no **bert**
— **bit-error-insertion** *rate*
— no **bit-error-insertion**
— [**no**] **channel-group** *channel-group-id*
　　— **atm**
　　　— **cell-format** *cell-format*
　　　— **min-vp-vpi** *value*
　　— **cisco-hdlc**
　　　— **down-count** *down-count*
　　　— no **down-count**
　　　— **keepalive** *time-interval*
　　　— no **keepalive**
　　　— **up-count** *up-count*
　　　— no **up-count**
　　— **crc** {**16** | **32**}
　　— **description** *description-string*
　　— no **description**
　　— [**no**] **egress-scheduler-override**

— **level** *priority-level* **rate** *pir-rate* [**cir** *cir-rate*]
— **no** **level** *priority-level*
— **max-rate** *rate*
— **no** **max-rate**
— **egress-scheduler-policy** *port-scheduler-policy-name*
— [**no**] **encap-type** {**atm** | **bcp-null** | **bcp-dot1q** | **ipcp** | **ppp-auto** | **frame-relay** | **wan-mirror** | **cisco-hdlc** | **cem**}
— **frame-relay**
— [**no**] **frf-12**
— **egress**
— **qos-profile** *profile-id*
— **no** **qos-profile**
— **fragment-threshold** *threshold*
— **no** **fragment-threshold**
— [**no**] **identifier** *frf16-link-id-string*
— **lmi-type** {**ansi** | **itu** | **none** | **rev1**}
— **mode** {**dce** | **dte** | **bidir**}
— **n391dte** *intervals*
— **no** **n391dte**
— **n392dce** *threshold*
— **no** **n392dce**
— **n392dte** *threshold*
— **no** **n392dte**
— **n393dce** *count*
— **no** **n393dce**
— **n393dte** *count*
— **no** **n393dte**
— **t391dte** *keepalive*
— **no** **t391dte**
— **t392dce** *keepalive*
— **no** **t392dce**
— **idle-cycle-flag** {**flags** | **ones**}
— **idle-payload-fill** {**all-ones**}
— **idle-payload-fill** **pattern** *pattern*
— **no** **idle-payload-fill**
— **idle-signal-fill** {**all-ones**}
— **idle-signal-fill** **pattern** *pattern*
— **no** **idle-signal-fill**
— **load-balancing-algorithm** *option*
— **no** **load-balancing-algorithm**
— **mac** *ieee-address*
— **no** **mac**
— [**no**] **mode** {**access** | **network**}
— **mtu** *mtu-bytes*
— **no** **mtu**
— **network**
— **accounting-policy** *policy-id*
— **no** **accounting-policy**
— [**no**] **collect-stats**
— **queue-policy** *name*
— **no** **queue-policy**
— **ppp**
— [**no**] **ber-sf-link-down**
— **keepalive** *time-period* [**dropcount** *drop count*]
— **no** **keepalive**

— [**no**] **scramble**
— [**no**] **shutdown**
— **speed** {**56** | **64**}
— **timeslots** *timeslots*
— **no timeslots**
— **clock-source** {**loop-timed** | **node-timed** | **adaptive** | **differential**}
— **framing (E-1)** {**no-crc-g704** | **g704** | **e1-unframed**}
— **insert-single-bit-error**
— [**no**] **invert-data**
— **loopback** {**line** | **internal**}
— **no loopback**
— [**no**] **report-alarm** [**ais**] [**los**] [**oof**] [**rai**] [**looped**]
— [**no**] **shutdown**
— **signal-mode** {**cas**}
— **no signal-mode** {**cas**}
— **threshold** {**ber-sd** | **ber-sf**} **rate** {**1** | **5** | **10** | **50** | **100**}
— **no threshold** {**ber-sd** | **ber-sf**}

E3 Commands

— [**no**] **e3** [*sonet-sdh-index*]
— **atm**
— **cell-format** *cell-format*
— **min-vp-vpi** *value*
— **bert** {**2e3** | **2e9** | **2e11** | **2e15** | **2e20** | **2e20q** | **2e23** | **ones** | **zeros** | **alternating**} **duration** *duration*
— **no bert**
— **bit-error-insertion** *rate*
— **no bit-error-insertion**
— **cisco-hdlc**
— **down-count** *down-count*
— **no down-count**
— **keepalive** *time-interval*
— **no keepalive**
— **up-count** *up-count*
— **no up-count**
— **clock-source** {**loop-timed** | **node-timed**}
— **crc** {**16** | **32**}
— **description** *description-string*
— **no description**
— [**no**] **egress-scheduler-override**
— **level** *priority-level* **rate** *pir-rate* [**cir** *cir-rate*]
— **no level** *priority-level*
— **max-rate** *rate*
— **no max-rate**
— **egress-scheduler-policy** *port-scheduler-policy-name*
— **encap-type** {**atm** | **bcp-null** | **bcp-dot1q** | **ipcp** | **ppp-auto** | **frame-relay** | **wan-mirror** | **cisco-hdlc** | **cem**}
— [**no**] **feac-loop-respond**
— **frame-relay**
— [**no**] **frf-12**
— **egress**
— **qos-profile** *profile-id*
— **no qos-profile**
— **fragment-threshold** *threshold*
— **no fragment-threshold**

> - **lmi-type** {**ansi** | **itu** | **none** | **rev1**}
> - **mode** {**dce** | **dte** | **bidir**}
> - **n391dte** *intervals*
> - **no n391dte**
> - **n392dce** *threshold*
> - **no n392dce**
> - **n392dte** *threshold*
> - **no n392dte**
> - **n393dce** *count*
> - **no n393dce**
> - **n393dte** *count*
> - **no n393dte**
> - **t391dte** *keepalive*
> - **no t391dte**
> - **t392dce** *keepalive*
> - **no t392dce**

- **framing (E-3)** {**g751** | g832}
- **idle-cycle-flag** {**flags** | **ones**}
- no **idle-cycle-flag**
- **load-balancing-algorithm** *option*
- no **load-balancing-algorithm**
- **loopback** {**line** | **internal** | **remote**}
- no **loopback**
- **mac** *ieee-address*
- no **mac**
- **mdl** {**eic** | **lic** | **fic** | **unit** | **pfi** | **port** | **gen**} *mdl-string*
- no **mdl** [**eic** | **lic** | **fic** | **unit** | **pfi** | **port** | **gen**]
- **mdl-transmit** {**path** | **idle-signal** | **test-signal**}
- no **mdl-transmit** [**path** | **idle-signal** | **test-signal**]
- **mode** {**access** | **network**}
- **mtu** *mtu-bytes*
- no **mtu**
- **network**
  > - **accounting-policy** *policy-id*
  > - no **accounting-policy**
  > - [**no**] **collect-stats**
  > - **queue-policy** *name*
  > - no **queue-policy**
- **ppp**
  > - **keepalive** *time-period* [**dropcount** *drop-count*]
  > - no **keepalive**
- [**no**] **report-alarm** [**ais**] [**los**] [**oof**] [**rai**] [**looped**]
- [**no**] **scramble**
- [**no**] **shutdown**

LAG Commands

config
— **lag** [*lag-id*]
— [**no**] **lag** [*lag-id*]
 — **access**
  — **adapt-qos** {**link** | **port-fair** | **distribute** [**include-egr-hash-cfg**]}
  — [**no**] **per-fp-egr-queuing**
  — [**no**] **per-fp-ing-queuing**
  — [**no**] **per-fp-sap-instance**
 — **bfd**
  — **disable-soft-reset-extension**
  — **family** {**ipv4** | **ipv6**}
   — [**no**] **bfd-on-distributing-only**
   — **local-ip-address** *ip-address*
   — **no local-ip-address**
   — **max-admin-down-time** [*interval* | **infinite**]
   — **no max-admin-down-time**
   — **max-setup-time** [*interval* | **infinite**]
   — **no max-setup-time**
   — **multiplier** *multiplier*
   — **no multiplier**
   — **receive-interval** *interval*
   — **no receive-interval**
   — **remote-ip-address** *ip-address*
   — **no remote-ip-address**
   — **transmit-interval** *interval*
   — **no transmit-interval**
   — **shutdown**
   — **no shutdown**
 — **description** *long-description-string*
 — **no description**
 — [**no**] **dynamic-cost**
 — **encap-type** {**dot1q** | **null** | **qinq**}
 — **no encap-type**
 — **eth-cfm**
  — [**no**] **mep** *mep-id* **domain** *md-index* **association** *ma-index* [**vlan** *vlan-id*]
   — [**no**] **ais-enable**
    — **client-meg-level** [*level* [*level* ...]]
    — **no client-meg-level**
    — **interval** {1|60}
    — **no interval**
    — **priority** *priority-value*
    — **no priority**
   — [**no**] **ccm-enable**
   — **ccm-ltm-priority** *priority*
   — **no ccm-ltm-priority**
   — **ccm-padding-size** *ccm-padding*
   — **no ccm-padding-size**
   — **ccm-tlv-ignore** [**port-status**] [**interface-status**]
   — **no ccm-tlv-ignore**
   — **ccm-tlv-ignore** [**port-status**] [**interface-status**]
   — **no ccm-tlv-ignore**
   — **collect-lmm-stats**
   — **no collect-lmm-stats**

      — **description** *description-string*
      — **no description**
      — [**no**] **eth-test-enable**
         — **bit-error-threshold** *bit-errors*
         — **test-pattern** {**all-zeros**|**all-ones**} [**crc-enable**]
         — **no test-pattern**
      — [**no**] **facility-fault**
      — **low-priority-defect** {**allDef**|**macRemErrXcon**|**remErrXcon**|**errX-con**|**xcon**|**noXcon**}
      — **mac-address** *mac-address*
      — **no mac-address**
      — **one-way-delay-threshold** *seconds*
      — [**no**] **shutdown**
— **hold-time** **down** *hold-down-time*
— **no hold-time**
— **lacp** [*mode*] [**administrative-key** *admin-key*] [**system-id** *system-id*][**system-priority** *priority*]
— **lacp-mux-control** {**coupled** | **independent**}
— **no lacp-mux-control**
— **lacp-xmit-interval** {**slow** | **fast**}
— **no lacp-xmit-interval**
— [**no**] **lacp-xmit-stdby**
— **link-map-profile** *lag-link-map-profile-id* [**create**]
— **no link-map-profile** *lag-link-map-profile-id*
      — **description** *description-string*
      — **no description**
      — **failure-mode** [**discard** | **per-link-hash**]
      — **no failure-mode**
      — **link** *port-id* {**primary**|**secondary**}
      — **no link**
— **mac** *ieee-address*
— **no mac**
— **mode** {**access** | **network**| **hybrid**}
— **no mode**
— **per-link-hash**
— **per-link-hash** **weighted**
— **per-link-hash** **weighted auto-rebalance**
— **no per-link-hash**
— **port** *port-id* [*port-id* ...up to 64 total] [**priority** *priority*] [**sub-group** *sub-group-id*]
— **no port** *port-id* [*port-id* ...up to 64 total]
— **port-threshold** *value* [**action** {**dynamic-cost** | **down**}]
— **no port-threshold**
— **port-type** {**standard** | **hsmda**}
— **no port-type**
— **port-weight-speed** {1 | 10}
— **no port-weight-speed**
— **selection-criteria** {**highest-count** | **highest-weight** | **best-port**} [**slave-to-partner**] [**sub-group-hold-time** *hold-time*]
— **no selection-criteria**
— [**no**] **shutdown**
— **standby-signalling** {**lacp** | **power-off**}
— **no standby-signalling**
— **weight-threshold** *value* **action** [{**dynamic-cost** | **down**}]
— **no weight-threshold**

Ethernet Tunnel Commands

config
— **eth-tunnel** *tunnel-id*
— **no eth-tunnel**
    — **ccm-hold-time** {**down** *down-timeout* | **up** *up-timeout*}
    — **no ccm-hold-time**
    — **description** *long-description-string*
    — **no description**
    — **ethernet**
        — **encap-type** {**dot1q|qinq**}
        — **no encap-type**
        — [**no**] **mac** *ieee-address*
    — **hold-time**
        — **member down** *time*
        — **no member**
    — **lag-emulation**
        — **access**
            — **adapt-qos** {**distribute** | **link** | **port-fair**}
            — **no adapt-qos**
            — [**no**] **per-fp-ing-queuing**
        — **path-threshold** *num-paths*
        — **nopath-threshold**
— [**no**] **path** *path-index*
    — **description** *description-string*
    — **no description**
    — **control-tag** *vlan-id*
    — **no control-tag**
    — **eth-cfm**
        — [**no**] **mep** *mep-id* **domain** *md-index* **association** *ma-index*
            — [**no**] **ccm-enable**
            — **ccm-ltm-priority** *priority*
            — **no ccm-ltm-priority**
            — [**no**] **eth-test-enable**
                — **test-pattern** {**all zeros** | **all-ones**} [**crc-enable**]
                — **no test-pattern**
            — **low-priority-defect** {**allDef** | **macRemErrXcon** | **remErrX-con** | **errXcon** | **xcon** | **noXcon**}
            — **mac-address** *mac-address*
            — **no mac-address**
            — [**no**] **control-mep**
            — [**no**] **shutdown**
    — **member** *port-id*
    — **no member**
    — **precedence** {**primary** | **secondary**}
    — **no precedence**
    — [**no**] **shutdown**
— **protection-type** {**g8031-1to1** | **loadsharing**}
— **revert-time** *time*
— **no revert-time**
— [**no**] **shutdown**

Multi-Chassis Redundancy Commands

```
config
    — redundancy
        — bgp-multi-homing
            — boot-timer seconds
            — no boot-timer
            — site-activation-timer seconds
            — no site-activation-timer
            — site-min-down-timer min-down-time
            — no site-min-down-timer
        — multi-chassis
            — [no] peer ip-address
                — authentication-key [authentication-key | hash-key] [hash | hash2]
                — no authentication-key
                — description description-string
                — no description
                — [no] mc-endpoint
                    — [no] bfd-enable
                    — boot-timer interval
                    — no boot-timer
                    — hold-on-neighbor-failure multiplier
                    — no hold-on-neighbor-failure
                    — keep-alive-interval interval
                    — no keep-alive-interval
                    — [no] passive-mode
                    — [no] shutdown
                    — system-priority value
                    — no system-priority
                — [no] mc-lag
                    — hold-on-neighbor-failure multiplier
                    — no hold-on-neighbor-failure
                    — keep-alive-interval interval
                    — no keep-alive-interval
                    — lag lag-id lacp-key admin-key system-id system-id [remote-
                      lag remote-lag-id] system-priority system-priority source-
                      bmac-lsb use-lacp-key
                    — lag lag-id lacp-key admin-key system-id system-id [remote-
                      lag remote-lag-id] system-priority system-priority source-
                      bmac-lsb MAC-Lsb
                    — lag lag-id lacp-key admin-key system-id system-id [remote-
                      lag remote-lag-id] system-priority system-priority
                    — lag lag-id [remote-lag remote-lag-id]
                    — no lag lag-id
                    — [no] shutdown
                — mc-ring
                    — ring sync-tag [create]
                    — no ring sync-tag
                        — in-band-control-path
                            — dst-ip ip-address
                            — no dst-ip
                            — interface ip-int-name
                            — no interface
                            — service-id service-id
                            — no service-id
```

— [**no**] **path-b**
    — [**no**] **range** *vlan-range*
— [**no**] **path-excl**
    — [**no**] **range** *vlan-range*
— **ring-node** *ring-node-name* [**create**]
— **no ring-node** *ring-node-name*
    — **connectivity-verify**
        — **dst-ip** *ip-address*
        — **no dst-ip**
        — **interval** *interval*
        — **no interval**
        — **service-id** *service-id*
        — **no service-id**
        — [**no**] **shutdown**
        — **src-ip** *ip-address*
        — **no src-ip**
        — **src-mac** *ieee-address*
        — **no src-mac**
        — **vlan** [*vlan-encap*]
        — **no vlan**
    — [**no**] **shutdown**
— [**no**] **shutdown**
— **source-address** *ip-address*
— **no source-address**
— [**no**] **sync**
    — [**no**] **igmp**
    — [**no**] **igmp-snooping**
    — [**no**] **mc-ring**
    — [**no**] **mld**
    — [**no**] **mld-snooping**
    — **port** [*port-id* | *lag-id*] [**sync-tag** *sync-tag*]
    — **no port** [*port-id* | *lag-id*]
        — **range** *encap-range* [**sync-tag** *sync-tag*]
        — **no range** *encap-range*
    — [**no**] **shutdown**
    — [**no**] **srrp**
    — [**no**] **sub-mgmt**

Show Commands

show
— **aps** [**port** *port-id*] [**group** *group-name*] [**detail**]
— **chassis** [**environment**] [**power-supply**]
— **card state**
— **card** [*slot-number*]
— **card** [*slot-number*] **detail**
— **card** *slot-number* fp [1..2] **ingress** *queue-group* **mode** {**access|network**}
— **card** *slot-number* [**detail**] **fp** [1..2] **ingress queue-group** *queue-group-name* **instance** [1..65535] **mode** {**access|network**} [**statistics**]
— **cflowd**
— **elmi**
    — **evc** [*port-id* [**vlan** *vlan-id*]]
    — **uni** [*port-id*]
— **eth-tunnel**
— **interface-group-handler** [*igh-id*]
— **mcm** *slot* [*/mcm*] [**detail**]
— **mda** *slot* [*/mda*] [**detail**]
— **pools** *mda-id*[*/port*] [*access-app* [*pool-name* | **service** *service-id* | **queue-group** *queue-group-name*]]
— **pools** *mda-id*[*/port*] [**network-app** [*pool-name* | **queue-group** *queue-group-name*]]
— **pools** *mda-id*[*/port*] [**direction** [*pool-name*|**service** *service-id* | **queue-group** *queue-group-name*]]
— **lag** [*lag-id*] [**detail**] [**statistics**]
— **lag** [*lag-id*] **description**
— **lag** [*lag-id*] **port**
— **lag** *lag-id* **associations**
— **lag** *lag-id* **bfd**
— **lag** *lag-id* [**detail**] **eth-cfm** [**tunnel** *tunnel-id*]
— **lag** *lag-id* **associations per-link-hash interface** [**class** {**1** | **2** | **3**}]
— **lag** *lag-id* **associations link-map-profile** [*link-map-profile*] **interface**
— **lag** *lag-id* **lacp-partner**
— **lag** *lag-id* **detail lacp-partner**
— **lag** *lag-id* **link-map-profile** *link-map-profile*
— **lag** *lag-id* **associations per-link-hash sap**
— **lag** *lag-id* **associations link-map-profile** [*link-map-profile*] **sap**
— **lag** [*lag-id*] [**detail**] [**statistics**] [**eth-cfm tunnel** *tunnel-id*]
— **lag** *lag-id* **associations**
— **lag** *lag-id* **per-link-hash** [**class** {**1** | **2** | **3**}] [**class** {**1** | **2** | **3**}]
— **lag** *lag-id* **per-link-hash port** *port-id*
— **megapools** *slot-number*
— **megapools** *slot-number* **fp** *forwarding-plane* [**service-id** *service-id*] [**queue-group** *queue-group-name*] [**ingress** | **egress**]
— **multilink-bundle** [*bundle-id* | *bpgrp-id* | *slot/mda* | **type** {**mlppp** | **ima-grp** | **mlfr** }][**detail**]
— **multilink-bundle** [*bundle-id* | *bpgrp-id* | *slot/mda*] [**ppp** | **ima** | **mlfr**]
— **multilink-bundle** [*bundle-id* | *bpgrp-id*] **relations**
— **multilink-bundle** *bundle-id* **mlfr** [**frame-relay** [**detail**]]
    — **ima**
      — **atm** [**detail**]
        — **connections**
        — **port-connection** [**detail**]
        — **pvc** [**detail**]
        — **pvp** [*vpi*] [**detail**]
        — **pvt** [*vpi.vci*] [**detail**]
    — **ppp** [**multiclass**]
    — **relations**

— **port** *port-id* [**count**] [**detail**]
— **port** *port-id* **description**
— **port** *port-id* **associations**
— **port** *port-id* **atm**
— **port** *port-id* **atm connections**
— **port** *port-id* **atm cp**
— **port** *port-id* **atm ilmi**
— **port** *port-id* **atm interface-connections**
— **port** *port-id* **atm pvc** [*vpi*[/*vci*]] [**detail**]
— **port** *port-id* **atm pvp** [*vpi*] [**detail**]
— **port** *port-id* **atm pvt** [*vpi-range*] [**detail**]
— **port** *port-id* **cisco-hdlc** [**detail**]
— **port** *port-id* **mlfr-link**[**detail**]
— **port** *port-id* **frame-relay** [**detail**]
— **port** *port-id* **otu** [**detail**]
— **port** *port-id* **ppp** [**detail**]
— **port** *port-id* **queue-group** [**ingress|egress**] [**queue-group-name**] [**access|network**] [{**statistic|associations**}]
— **port** *port-id* **queue-group** *qgrp-id* [**instance** *instance-id*] **queue-depth** [**queue** *queue-id*] [**ingress|egress**] [**access|network**]
— **port** *port-id* **dot1x** [**detail**]
— **port** *port-id* **ethernet** [[**efm-oam** [*event-logs* {**failure|degraded**} {**active|cleared**}] | **detailed**]
    — **dot1x** [**detail**]
    — **lldp** [**nearest-bridge** | **nearest-non-tpmr** | **nearest-customer**] [**remote-info**] [**detail**]
    — **port aps** [**detail**]
— **port cem**
— **port** *port-id* **ima-link**
— **port** *port-id* **ima-link**
— **port** *port-id* **monitor-threshold**
— **port** *port-id* **vport** *vport-name* **monitor-threshold**
— **port-tree** *port-id*
— **redundancy**
    — **multi-chassis all**
    — **multi-chassis mc-lag**
    — **multi-chassis sync**
        — **mc-lag peer** *ip-address* [**lag** *lag-id*]
        — **mc-lag** [**peer** *ip-address* [**lag** *lag-id*]] **statistics**
        — **mc-ring peer** *ip-address* **statistics**
        — **mc-ring peer** *ip-address* [**ring** *sync-tag* [**detail** | **statistics**]]
        — **mc-ring peer** *ip-address* **ring** *sync-tag* **ring-node** [*ring-node-name* [**detail** | **statistics**]]
        — **mc-ring global-statistics**
— **system**
    — **lldp** [**neighbor**] *neighbor*
    — **switch-fabric high-bandwidth-multicast**

Monitor Commands

For more information about monitor commands, refer to the OS Basic System Configuration Guide for command usage and CLI syntax.

monitor

— **card** *slot-number* **fp** *fp-number* **ingress** {**access** | **network**} **queue-group** *queue-group-name* **instance**
instance-id [**absolute**] [**interval** *seconds*] [**repeat** *repeat*] **policer** *policer-id*
— **port** *port-id* [*port-id*...(up to 5 max)] [**interval** *seconds*] [**repeat** *repeat*] [**absolute** | **rate**] [**multiclass**]
— **queue-group** *queue-group-name* **egress** *access* **egress-queue** *egress-queue-id* [**interval** *seconds*]
[**repeat** *repeat*] [**absolute** | **rate**]
— **queue-group** *queue-group-name* **ingress** *access* **ingress-queue** *ingress-queue-id* [**interval** *seconds*]
[**repeat** *repeat*] [**absolute** | **rate**]
— **queue-group** *queue-group-name* **egress** *network* **instance** *instance-id* [**policer** *policer-id*] [**egress-
queue** *egress-queue-id*] [**interval** *seconds*] [**repeat** *repeat*] [**absolute** | **rate**]
— **port atm** [**interval** *seconds*] [**repeat** *repeat*] [**absolute** | **rate**]

Clear Commands

clear
— **card** *slot-number* **soft** [**hard-reset-unsupported-mdas**]
— **card** *slot-number* **fp** [1..2] **ingress mode** {**access|network**} **queue-group** *group-name* **instance**
instance **statistics**
— **card** *slot-number* [**soft**]
— **lag** *lag-id* **statistics**
— **mda** *mda-id* [**statistics**]
— **port** *port-id* **statistics**
— **port** *port-id* **statistics**
— **port** *port-id* **atm pvc** [*vpi[/vci]*] **statistics**
— **port** *port-id* **atm pvp** [*vpi*] **statistics**
— **port** *port-id* **atm pvt** [*vpi1.vpi2*] **statistics**
— **port** *port-id* **atm ilmi statistics**
— **port** *port-id* **atm interface-connection statistics**
— **port** *port-id* **ethernet efm-oam events** *local|remote*
— **port** *port-id* **queue-group** *qgrp-id* [**instance** *instance-id*] **queue-depth** [**queue** *queue-id*]
{**ingress|egress**} [**access|network**]
— **port** *port-id* **queue-group** *queue-group-name* [**access** | **network**] {**ingress** | **egress**} [**access|network**]
[{**statistics|associations**}]
— **queue-group** *queue-group-name* **egress** *access* **egress-queue** *egress-queue-id* [**interval** *seconds*]
[**repeat** *repeat*] [**absolute** | **rate**]
— **queue-group** *queue-group-name* **ingress** *access* **ingress-queue** *ingress-queue-id* [**interval** *seconds*]
[**repeat** *repeat*] [**absolute** | **rate**]
— **queue-group** *queue-group-name* **egress** *network* **instance** *instance-id* [**policer** *policer-id*] [**egress-
queue** *egress-queue-id*] [**interval** *seconds*] [**repeat** *repeat*] [**absolute** | **rate**]

Debug Commands

debug
— **atm**
— **cisco-hdlc** *port-id*
— **frame-relay**
— **lmi** [*port-id*]
— [**no**] **frf16** *port-id*
— **lag** [**lag-id** *lag-id* **port** *port-id*] [**all**]
— **lag** [**lag-id** *lag-id* **port** *port-id*] [**sm**] [**pkt**] [**cfg**] [**red**] [**iom-upd**] [**port-state**] [**timers**] [**sel-logic**] [**mc**]
[**mc-pkt**]
— **no lag** [**lag-id** *lag-id*]

— [**no**] **ppp** *port-id*

Tools Commands

tools
— **dump**
    — **aps** *aps-id* [**clear**]
    — **aps mc-aps-signaling** [**clear**]
    — **aps mc-aps-ppp** [**clear**]
    — **eth-tunnel** *tunnel-index* [**clear**]
    — **frame-relay** *port-id*
    — **lag lag-id lag-id**
    — **map-to-phy-port** {**ccag** *ccag-id* | **lag** *lag-id* | **eth-tunnel** *tunnel-index*} {**isid** *isid* [**end-isid** *isid*] | **service** *service-id* | *svc-name* [**end-service** *service-id* | *svc-name*]} [**summary**]
    — **lag** *port-id*
    — **redundancy**
        — **multi-chassis**
            — **mc-ring**
            — **srrp-sync-data** [**instance** *instance-id*] [**peer** *ip-address*]
            — **sync-database** [**peer** *ip-address*] [**port** *port-id* | *lag-id*] [**sync-tag** *sync-tag*] [**application** {**dhcps** | **igmp**| **igmp-snooping** | **mc-ring** | **srrp** | **sub-mgmt** | **mld-snooping**}] [**detail**] [**type** {**alarm-deleted** | **local-deleted**}]

tools
— **perform**
    — **aps**
        — **clear** *aps-id* {**protect** | **working**}
        — **exercise** *aps-id* {**protect** | **working**}
        — **force** *aps-id* {**protect** | **working**}
        — **lockout** *aps-id*
        — **request** *aps-id* {**protect** | **working**}
    — **eth-ring**
        — **clear** *ring-id*
        — **This command clears a physical port that is acting as the working circuit for this APS group. force** *ring-id* **path** {**a** | **b**}
        — **manual** *ring-id* **path** {**a** | **b**}
    — **ima**
        — **reset** *bundle-id*
    — **lag**
        — **clear-force all-mc**
        — **clear-force lag-id** *lag-id* [**sub-group** *sub-group-id*]
        — **clear-force peer-mc** *ip-address*
        — **force all-mc** {**active**|**standby**}
        — **force lag-id** *lag-id* [**sub-group** *sub-group-id*] {**active**|**standby**}
        — **force peer-mc** *peer-ip-address* {**active**|**standby**}
        — **load-balance lag-id** *lag-id* [**class** {**1**|**2**|**3**}]