

## Example: Channelized OC3 IQ Interface Configuration

**Figure 1: Channelized OC3 IQ Interface Example**

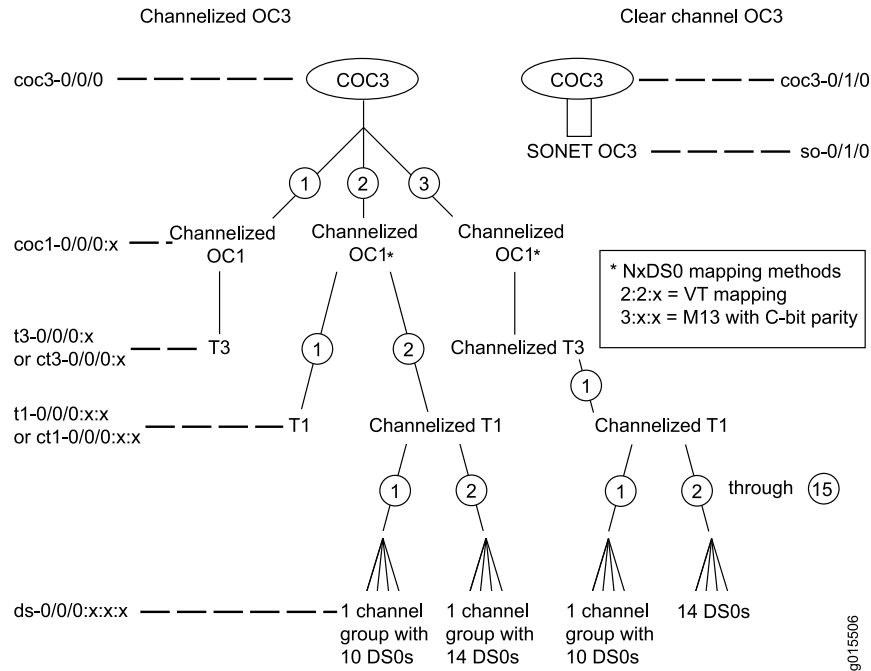


Figure 1 shows a sample channelization structure for a channelized OC3 IQ interface. Top-level partitions 1, 2, and 3 create channelized OC1 interfaces. The first channelized OC1 interface, `coc1-0/0/0:1`, is converted directly into the T3 interface `t3-0/0/0:1`. The second channelized OC1 interface, `coc1-0/0/0:2`, is partitioned into a T1 interface and a channelized T1 interface. The channelized T1 interface, `t1-0/0/0:2:2`, is then further subdivided into two NxDS0 channel groups: `ds-0/0/0:2:2:1` and `ds-0/0/0:2:2:2`.

The remaining channelized OC1 interface, `coc1-0/0/0:3`, is converted to a channelized T3 interface, then to a channelized T1 interface, and ultimately to 14 individual NxDS0 channels and a channel group containing 10 NxDS0 channels. Additionally, channelized OC3 IQ interface `coc3-0/1/0` uses the `no-partition` statement at the `[edit interface interface-name]` hierarchy level to create a clear channel SONET OC3 interface `so-0/1/0`. This example shows two NxDS0 mapping methods. Partition `2:x:x` uses VT mapping for SONET/SDH equipment, while partition `3:x:x` uses M13 mapping for North American T-carrier equipment.

This example also assumes corresponding interfaces. For example, for every sublevel T1 interface you configure on Router A, assume you have configured a matching sublevel or physical T1 interface on a neighboring router.

```
Router A [edit]
         interfaces {
           coc3-0/0/0 {
```

```

partition 1 oc-slice 1 interface-type coc1; # Creates three channelized OC1
partition 2 oc-slice 2 interface-type coc1; # interfaces: coc1-0/0/0:1 through
partition 3 oc-slice 3 interface-type coc1; # coc1-0/0/0:3.
}
coc1-0/0/0:1 {
  no-partition interface-type t3; # This converts the COC1 interface into
} # T3 interface t3-0/0/0:1.
t3-0/0/0:1 {
  no-keepalives;
  encapsulation cisco-hdlc;
  t3-options {
    fcs 32;
    feac-loop-respond;
  }
  unit 0 {
    family inet {
      address 10.21.21.2/30;
    }
  }
}
coc1-0/0/0:2 {
  partition 1 interface-type t1; # Creates the T1 interface t1-0/0/0:2:1.
  partition 2 interface-type ct1; # Creates the channelized T1 interface
} # ct1-0/0/0:2:2.
t1-0/0/0:2:1 {
  no-keepalives;
  encapsulation cisco-hdlc;
  t1-options {
    fcs 32;
  }
  unit 0 {
    family inet {
      address 10.12.12.2/30;
    }
  }
}
ct1-0/0/0:2:2 {
  partition 1 timeslots 1-10 interface-type ds; # This converts the channelized T1
  partition 2 timeslots 11-24 interface-type ds; # interface into two channel
} # groups: ds-0/0/0:2:2:1 and ds-0/0/0:2:2:2.
ds-0/0/0:2:2:1 { # This is a channel group with 10 NxDSOs bundled as one.
  no-keepalives;
  encapsulation cisco-hdlc;
  unit 0 {
    family inet {
      address 10.13.13.2/30;
    }
  }
}
ds-0/0/0:2:2:2 { # This is a channel group with 14 NxDSOs bundled as one.
  encapsulation frame-relay;
  unit 0 {
    dlci 10;
    family inet {
      address 10.14.14.2/30;
    }
  }
}

```

```

    }
}
coc1-0/0/0:3 {
    partition 1 interface-type ct3; # Creates the channelized T3 interface
}
    # ct3-0/0/0:3.
ct1-0/0/0:3:1 {
    partition 1 timeslots 1-10 interface-type ds; # Creates a channel group.
    partition 2 timeslots 11 interface-type ds; # Creates single NxDSO channels.
    partition 3 timeslots 12 interface-type ds;
    partition 4 timeslots 13 interface-type ds;
    partition 5 timeslots 14 interface-type ds;
    partition 6 timeslots 15 interface-type ds;
    partition 7 timeslots 16 interface-type ds;
    partition 8 timeslots 17 interface-type ds;
    partition 9 timeslots 18 interface-type ds;
    partition 10 timeslots 19 interface-type ds;
    partition 11 timeslots 20 interface-type ds;
    partition 12 timeslots 21 interface-type ds;
    partition 13 timeslots 22 interface-type ds;
    partition 14 timeslots 23 interface-type ds;
    partition 15 timeslots 24 interface-type ds;
}
ds-0/0/0:3:1:1 { # This is a channel group with 10 NxDSOs bundled as one.
    no-keepalives;
    encapsulation cisco-hdlc;
    unit 0 {
        family inet {
            address 10.31.31.2/30;
        }
    }
}
ds-0/0/0:3:1:2 { # ds-0/0/0:3:1:2 through :15 are single NxDSOs channels.
    encapsulation frame-relay;
    unit 0 {
        dlci 10;
        family inet {
            address 10.32.32.2/30;
        }
    }
}
}
# Assume ds-0/0/0:3:1:3 through :14 are configured here.
ds-0/0/0:3:1:15 { # ds-0/0/0:3:1:2 through :15 are single NxDSOs channels.
    encapsulation frame-relay;
    unit 0 {
        dlci 10;
        family inet {
            address 10.45.45.2/30;
        }
    }
}
}
coc3-0/1/0 {
    no-partition interface-type so; # Creates a clear channel SONET OC3 interface.
}
so-0/1/0 { # This is the clear channel SONET OC3 interface so-0/1/0.
    dce;
    encapsulation frame-relay;
}

```



of the channelized interface you want to view; then include this channelized name (for example, `ct3-0/0/0:3`) as an option with the `show interfaces` command.

The next sections provide sample `show interfaces` output for each of the major interface types configured in this example:

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- Clear Channel SONET OC3 on page 7

### Channelized OC3

```
user@host> show interfaces coc3-0/0/0
Physical interface: coc3-0/0/0, Enabled, Physical link is Up
  Interface index: 128, SNMP ifIndex: 1954
  Link-level type: Controller, Clocking: Internal, SONET mode,
  Speed: OC3, Loopback: None, Parent: None
  Device flags   : Present Running
  Interface flags: Point-To-Point SNMP-Traps 16384
  Link flags     : None
  CoS queues     : 4 supported
  Last flapped   : 2005-02-15 20:35:24 PST (22:10:54 ago)
  SONET alarms   : None
  SONET defects  : None
```

### Channelized OC1

```
user@host> show interfaces coc1-0/0/0:1
Physical interface: coc1-0/0/0:1, Enabled, Physical link is Up
  Interface index: 226, SNMP ifIndex: 1957
  Link-level type: Controller, Clocking: Internal, SONET mode, Speed: 51840kbps,
  Loopback: None,
  Parent: coc3-0/0/0 Interface index 138
  Device flags   : Present Running
  Interface flags: Point-To-Point SNMP-Traps 16384
  Link flags     : None
  CoS queues     : 4 supported
  Last flapped   : 2004-11-04 10:55:50 PST (05:38:36 ago)
  SONET alarms   : None
  SONET defects  : None
```

### T3

```
user@host> show interfaces t3-0/0/0:1
Physical interface: t3-0/0/0:1, Enabled, Physical link is Up
  Interface index: 227, SNMP ifIndex: 43
  Link-level type: Cisco-HDLC, MTU: 4474, Clocking: Internal, Speed: T3, Loopback:
  None, FCS: 16, Mode: C/Bit parity,
  Parent: coc1-0/0/0:1 Interface index 226
```

```

Device flags      : Present Running
Interface flags: Point-To-Point SNMP-Traps 16384
Link flags       : No-Keepalives
CoS queues      : 4 supported
Last flapped    : Never
Input rate      : 0 bps (0 pps)
Output rate     : 0 bps (0 pps)
Active alarms   : None
Active defects  : None
DS3 BERT configuration:
  BERT time period: 10 seconds, Elapsed: 0 seconds
  Algorithm: 2^15 - 1, 0.151, Pseudorandom (9), Induced error rate: 10e-0
Logical interface t3-0/0/0:1.0 (Index 69) (SNMP ifIndex 1960)
Flags: Point-To-Point SNMP-Traps Encapsulation: Cisco-HDLC
Protocol inet, MTU: 4470
  Flags: None
  Addresses, Flags: Is-Preferred Is-Primary
  Destination: 10.21.21.0/30, Local: 10.21.21.2, Broadcast: 10.21.21.3

```

### Channelized T3

```

user@host> show interfaces ct3-0/0/0:3
Physical interface: ct3-0/0/0:3, Enabled, Physical link is Up
  Interface index: 234, SNMP ifIndex: 2218
  Link-level type: Controller, Clocking: Internal, Speed: T3, Loopback: None,
Mode: C/Bit parity,
  Parent: coc1-0/0/0:3 Interface index 233
  Device flags      : Present Running
  Interface flags: Point-To-Point SNMP-Traps 16384
  Link flags       : None
  CoS queues      : 4 supported
  Last flapped    : Never
  Active alarms   : None
  Active defects  : None
  DS3 BERT configuration:
    BERT time period: 10 seconds, Elapsed: 0 seconds
    Algorithm: 2^15 - 1, 0.151, Pseudorandom (9), Induced error rate: 10e-0

```

### T1

```

user@host> show interfaces t1-0/0/0:2:1
Physical interface: t1-0/0/0:2:1, Enabled, Physical link is Up
  Interface index: 229, SNMP ifIndex: 2091
  Link-level type: Cisco-HDLC, MTU: 1504, Clocking: Internal, Speed: T1,
Loopback: None, FCS: 32, Framing: ESF,
  Parent: coc1-0/0/0:2 Interface index 228
  Device flags      : Present Running
  Interface flags: Point-To-Point SNMP-Traps 16384
  Link flags       : No-Keepalives
  CoS queues      : 4 supported
  Last flapped    : Never
  Input rate      : 0 bps (0 pps)
  Output rate     : 0 bps (0 pps)
  DS1  alarms     : None
  DS1  defects    : None
  SONET alarms    : None
  SONET defects   : None
Logical interface t1-0/0/0:2:1.0 (Index 70) (SNMP ifIndex 2092)
  Flags: Point-To-Point SNMP-Traps Encapsulation: Cisco-HDLC
  Protocol inet, MTU: 1500

```

Flags: None  
Addresses, Flags: Is-Preferred Is-Primary  
Destination: 10.12.12.0/30, Local: 10.12.12.2, Broadcast: 10.12.12.3

## Channelized T1

```
user@host> show interfaces ct1-0/0/0:2:2
Physical interface: ct1-0/0/0:2:2, Enabled, Physical link is Up
  Interface index: 230, SNMP ifIndex: 13985
  Link-level type: Controller, Clocking: Internal, Speed: T1, Loopback: None,
  Framing: ESF,
  Parent: coc1-0/0/0:2 Interface index 228
  Device flags   : Present Running
  Interface flags: Point-To-Point SNMP-Traps 16384
  Link flags     : None
  CoS queues    : 4 supported
  Last flapped  : Never
  DS1 alarms    : None
  DS1 defects   : None
  SONET alarms  : None
  SONET defects : None
```

## NxDSO

```
user@host> show interfaces ds-0/0/0:2:2:1
Physical interface: ds-0/0/0:2:2:1, Enabled, Physical link is Up
  Interface index: 231, SNMP ifIndex: 14016
  Link-level type: Cisco-HDLC, MTU: 1504, Clocking: Internal, Speed: 640kbps,
  Loopback: None, FCS: 16,
  Parent: ct1-0/0/0:2:2 Interface index 230
  Device flags   : Present Running
  Interface flags: Point-To-Point SNMP-Traps 16384
  Link flags     : No-Keepalives
  CoS queues    : 4 supported
  Last flapped  : Never
  Input rate    : 0 bps (0 pps)
  Output rate   : 0 bps (0 pps)
  DSO BERT configuration:
    BERT time period: 10 seconds, Elapsed: 0 seconds
    Induced Error rate: 10e-0, Algorithm: 2^15 - 1, 0.151, Pseudorandom (9)
  Logical interface ds-0/0/0:2:2:1.0 (Index 71) (SNMP ifIndex 20889)
  Flags: Point-To-Point SNMP-Traps Encapsulation: Cisco-HDLC
  Protocol inet, MTU: 1500
  Flags: None
  Addresses, Flags: Is-Preferred Is-Primary
  Destination: 10.13.13.0/30, Local: 10.13.13.2, Broadcast: 10.13.13.3
```

## Clear Channel SONET OC3

```
user@host> show interfaces so-0/1/0
Physical interface: so-0/1/0, Enabled, Physical link is Down
  Interface index: 128, SNMP ifIndex: 15684
  Link-level type: Cisco-HDLC, MTU: 4474, Clocking: Internal, SONET mode, Speed:
  OC3, Loopback: None, FCS: 16,
  Payload scrambler: Enabled
  Parent: coc3-0/1/0 Interface index 142
  Device flags   : Present Running Down
  Interface flags: Hardware-Down Point-To-Point SNMP-Traps 16384
  Link flags     : Keepalives
```

```
CoS queues      : 4 supported
Last flapped   : 2004-11-04 10:53:54 PST (05:51:04 ago)
Input rate     : 0 bps (0 pps)
Output rate    : 0 bps (0 pps)
SONET alarms   : PLM-P
SONET defects  : PLM-P
Logical interface so-0/1/0.0 (Index 67) (SNMP ifIndex 15686)
Flags: Device-Down Point-To-Point SNMP-Traps Encapsulation: Cisco-HDLC
Protocol inet, MTU: 4470
  Flags: None
  Addresses, Flags: Dest-route-down Is-Preferred Is-Primary
    Destination: 10.22.22.0/30, Local: 10.22.22.1, Broadcast: 10.22.22.3
```

- Related Topics**
- [Channelized IQ Interfaces Solutions Page](#)
  - [Roadmap for Channelized IQ Interface Configuration Examples](#)
  - [Roadmap for Configuring Channelized IQ Interfaces](#)

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