



APPENDIX **B**

Administrative and Service States

This appendix describes administrative and service states for Cisco ONS 15600 SDH cards, ports, and cross-connects. For circuit state information, see [Chapter 7, “Circuits and Tunnels.”](#) Entity states are based on the generic state model defined in Telcordia GR-1093-CORE, Issue 2 and ITU-T X.731. The following sections are included:

- [B.1 Service States, page B-1](#)
- [B.2 Administrative States, page B-2](#)
- [B.3 Service State Transitions, page B-3](#)

B.1 Service States

Service states include a Primary State (PST), a Primary State Qualifier (PSTQ), and one or more Secondary States (SST). [Table B-1](#) lists the service state PSTs and PSTQs supported by the ONS 15600 SDH.

Table B-1 *ONS 15600 SDH Service State Primary States and Primary State Qualifiers*

| Primary State, Primary State Qualifier | Definition |
|---|---|
| Unlocked-enabled | The entity is fully operational and will perform as provisioned. |
| Unlocked-disabled | The entity is not operational because of an autonomous event. |
| Locked-disabled | The entity is not operational because of an autonomous event and has also been manually removed from service. |
| Locked-enabled | The entity has been manually removed from service. |

[Table B-2](#) defines the SSTs supported by the ONS 15600 SDH.

Table B-2 ONS 15600 SDH Secondary States

| Secondary State | Definition |
|---------------------|---|
| automaticInService | The entity is delayed before transitioning to the Unlocked-enabled service state. The transition to the Unlocked-enabled state depends on the correction of conditions, or on a soak timer. Alarm reporting is suppressed, but traffic is carried. Raised fault conditions, whether or not their alarms are reported, can be retrieved on the CTC Conditions tab or by using the TL1 RTRV-COND command. |
| disabled | The entity was manually removed from service and does not provide its provisioned functions. All services are disrupted; the entity is unable to carry traffic. Note STM-N ports and connections in the disabled state continue to send an Alarm Indication Signal Line (AIS-L). |
| failed | The entity has a raised alarm or condition. |
| loopback | The entity is in loopback mode. |
| mismatchOfEquipment | An improper card is installed, a cross-connect card does not support an installed card, or an incompatible backplane is installed. For example, an installed card is not compatible with the card preprovisioning or the slot. This SST applies only to cards. |
| maintenance | The entity has been manually removed from service for a maintenance activity but still performs its provisioned functions. Alarm reporting is suppressed, but traffic is carried. Raised fault conditions, whether or not their alarms are reported, can be retrieved on the CTC Conditions tab or by using the TL1 RTRV-COND command. |
| softwareDownload | The card is involved in a software download. This SST applies only to cards. |
| unassigned | The card is not provisioned in the database. This SST applies only to cards. |
| notInstalled | The card is not physically present (that is, an empty slot). This SST applies only to cards. |

B.2 Administrative States

Administrative states are used to manage service states. Administrative states consist of a PST and an SST. [Table B-3](#) lists the administrative states supported by the ONS 15600 SDH. See [Table B-2](#) for SST definitions.



Note

A change in the administrative state of an entity does not change the service state of supporting or supported entities.

Table B-3 ONS 15600 SDH Administrative States

| Administrative State (PST,SST) | Definition |
|--------------------------------|--|
| Unlocked | Puts the entity in service. |
| Unlocked,automaticInservice | Puts the entity in automatic in-service. |

Table B-3 ONS 15600 SDH Administrative States (continued)

| Administrative State (PST,SST) | Definition |
|--------------------------------|--|
| Locked,disabled | Removes the entity from service and disables it. |
| Locked,maintenance | Removes the entity from service for maintenance. |

B.3 Service State Transitions

This section describes the transition from one service state to the next for cards, ports, and cross-connects. A service state transition is based on the action performed on the entity.



Note

When an entity is put in the Locked,maintenance administrative state, the ONS 15600 SDH suppresses all standing alarms on that entity. All alarms and events appear on the Conditions tab. You can change this behavior for the LPBKFACILITY and LPBKTERMINAL alarms. To display these alarms on the Alarms tab, set the NODE.general.ReportLoopbackConditionsOnUnlocked,MaintenancePorts to TRUE on the NE Defaults tab.

B.3.1 Card Service State Transitions

Table B-4 lists card service state transitions.

Table B-4 ONS 15600 SDH Card Service State Transitions

| Current Service State | Action | Next Service State |
|--|--|--|
| Unlocked-enabled | Change the administrative state to Locked,maintenance. | Locked-enabled,maintenance |
| | Delete the card. | Locked-disabled,unassigned |
| | Pull the card. | Unlocked-disabled,notInstalled |
| | Reset the card. | Unlocked-disabled,softwareDownload |
| | Alarm/condition is raised. | Unlocked-disabled,failed |
| Unlocked-disabled,automaticInService and mismatchOfEquipment | Pull the card. | Unlocked-disabled,automaticInService & notInstalled |
| | Delete the card. | Locked-disabled,unassigned if the card is valid Locked-disabled,mismatchOfEquipment & unassigned if the card is invalid |
| Unlocked-disabled,automaticInService & softwareDownload | Restart completed. | Unlocked-enabled |
| | Pull the card. | Unlocked-disabled,automaticInService & notInstalled |

Table B-4 ONS 15600 SDH Card Service State Transitions (continued)

| Current Service State | Action | Next Service State |
|---|--|--|
| Unlocked-disabled,automaticInService & notInstalled | Insert a valid card. | Unlocked-disabled,automaticInService & softwareDownload |
| | Insert an invalid card. | Unlocked-disabled,automaticInService & mismatchOfEquipment |
| | Delete the card. | Locked-disabled,unassigned & notInstalled |
| Unlocked-disabled,failed | Pull the card. | Unlocked-disabled,unequipped |
| | Delete the card. | Locked-disabled,unassigned |
| | Change the administrative state to Locked,maintenance. | Locked-disabled,failed & maintenance |
| | Reset the card. | Unlocked-disabled,softwareDownload |
| | Alarm/condition is cleared. | Unlocked-enabled |
| Unlocked-disabled,mismatchOfEquipment | Pull the card. | Unlocked-disabled,notInstalled |
| | Delete the card. | Locked-disabled,unassigned if the card is valid Locked-disabled,mismatchOfEquipment & unassigned if the card is invalid |
| | Change the administrative state to Locked,maintenance. | Locked-disabled,mismatchOfEquipment & maintenance |
| Unlocked-disabled,softwareDownload | Restart completed. | Unlocked-enabled |
| | Pull the card. | Unlocked-disabled,notInstalled |
| Unlocked-disabled,notInstalled | Insert a valid card. | Unlocked-disabled,softwareDownload |
| | Insert an invalid card. | Unlocked-disabled,mismatchOfEquipment |
| | Delete the card. | Locked-disabled,unassigned & notInstalled |
| | Change the administrative state to Locked,maintenance. | Locked-disabled,maintenance & notInstalled |
| Locked-disabled,failed & maintenance | Pull the card. | Locked-disabled,maintenance & notInstalled |
| | Delete the card. | Locked-disabled,unassigned |
| | Change the administrative state to Unlocked. | Unlocked-disabled,failed |
| | Reset the card. | Locked-disabled,maintenance & softwareDownload |
| | Alarm/condition is cleared. | Unlocked-enabled |

Table B-4 ONS 15600 SDH Card Service State Transitions (continued)

| Current Service State | Action | Next Service State |
|---|--|--|
| Locked-disabled,mismatchOfEquipment & maintenance | Change the administrative state to Unlocked. | Unlocked-disabled,mismatchOfEquipment |
| | Pull the card. | Locked-disabled,maintenance & notInstalled |
| | Delete the card. | Locked-disabled,unassigned if the card is valid Locked-disabled,mismatchOfEquipment & unassigned if the card is invalid |
| Locked-disabled,mismatchOfEquipment & unassigned | Pull the card. | Locked-disabled,unassigned & notInstalled |
| | Provision the card. | Unlocked-disabled,mismatchOfEquipment |
| Locked-disabled,maintenance & softwareDownload | Restart completed. | Locked-enabled,maintenance |
| | Pull the card. | Locked-disabled,maintenance & notInstalled |
| Locked-disabled,maintenance & notInstalled | Change the administrative state to Unlocked. | Unlocked-disabled,notInstalled |
| | Insert a valid card. | Locked-disabled,maintenance & softwareDownload |
| | Insert an invalid card. | Locked-disabled,mismatchOfEquipment & maintenance |
| | Delete the card. | Locked-disabled,unassigned & notInstalled |
| Locked-disabled,unassigned | Pull the card. | Locked-disabled,unassigned & notInstalled |
| | Provision an invalid card. | Unlocked-disabled,mismatchOfEquipment |
| | Provision a valid card. | Unlocked-disabled,softwareDownload |
| Locked-disabled,unassigned & notInstalled | Insert a valid card. | Unlocked-disabled,softwareDownload |
| | Insert an invalid card. | Locked-disabled,mismatchOfEquipment & unassigned |
| | Preprovision a card. | Unlocked-disabled,automaticInService & notInstalled |
| Locked-enabled,maintenance | Change the administrative state to Unlocked. | Unlocked-enabled |
| | Delete the card. | Locked-disabled,unassigned |
| | Pull the card. | Locked-disabled,maintenance & notInstalled |
| | Reset the card. | Locked-disabled,maintenance & softwareDownloadunassigned |
| | Alarm/condition is raised. | Locked-disabled,failed & maintenance |

B.3.2 Port and Cross-Connect Service State Transitions

Table B-5 lists the port and cross-connect service state transitions. Port states do not impact cross-connect states with one exception. A cross-connect in the Unlocked-disabled,automaticInService service state cannot transition autonomously into the Unlocked-enabled service state until the parent port is in the Unlocked-enabled service state.

You cannot transition a port from the Unlocked-enabled service state to the Locked-enabled,disabled state. You must first transition the port to the Locked-enabled,maintenance state. Once a port is in the Locked-enabled,maintenance state, the `NODE.general.AllowServiceAffectingPortChangeToDisabled` default setting of TRUE allows you to put a port in Locked-enabled,disabled even if the following conditions exist:

- The port is a timing source.
- The port is used for line, section, or tunneling data communication channel (DCC).
- The port supports 1+1 protection or multidirectional multiplex section-shared protection ring (MS-SPRing).
- Cross-connects are present on the port.
- Overhead connections or overhead terminations are in use (such as express orderwire, local orderwire, or user data channels [UDCs]).

To change this behavior so that you cannot put a port in Locked-enabled,disabled if any of these conditions exist, set the `NODE.general.AllowServiceAffectingPortChangeToDisabled` default setting to FALSE. For the procedure to change node defaults, refer to the “Maintain the Node” chapter in the *Cisco ONS 15600 SDH Procedure Guide*.


Note

Deleting a port or cross-connect removes the entity from the system. The deleted entity does not transition to another service state.

Table B-5 ONS 15600 SDH Port and Cross-Connect Service State Transitions

| Current Service State | Action | Next Service State |
|-----------------------|---|--|
| Unlocked-enabled | Put the port or cross-connect in the Locked,maintenance administrative state. | Locked-enabled,maintenance |
| | Put the port or cross-connect in the Unlocked,automaticInService administrative state. | Unlocked-disabled,automaticInService |
| | (Cross-connect only) Put the cross-connect in the Locked,disabled administrative state. | Locked-enabled,disabled Locked-enabled,disabled & outOfGroup for a VCAT cross-connect |

Table B-5 ONS 15600 SDH Port and Cross-Connect Service State Transitions (continued)

| Current Service State | Action | Next Service State |
|---|--|--|
| Unlocked-disabled,automaticInService | Put the port or cross-connect in the Unlocked administrative state. | Unlocked-enabled |
| | Put the port or cross-connect in the Locked,maintenance administrative state. | Locked-enabled,maintenance |
| | Put the port or cross-connect in the Locked,disabled administrative state. | Locked-enabled,disabled Locked-enabled,disabled & outOfGroup for a VCAT cross-connect |
| | Alarm/condition is raised. | Unlocked-disabled,automaticInService & failed |
| Unlocked-disabled,automaticInService & failed | Alarm/condition is cleared. | Unlocked-disabled,automaticInService |
| | Put the port or cross-connect in the Unlocked administrative state. | Unlocked-disabled,failed |
| | Put the port or cross-connect in the Locked,disabled administrative state. | Locked-enabled,disabled |
| | Put the port or cross-connect in the Locked,maintenance administrative state. | Locked-disabled,failed & maintenance |
| Unlocked-disabled,failed | Alarm/condition is cleared. | Unlocked-enabled |
| | Put the port or cross-connect in the Unlocked,automaticInService administrative state. | Unlocked-disabled,automaticInService & failed |
| | Put the port or cross-connect in the Locked,disabled administrative state. | Locked-enabled,disabled Locked-enabled,disabled & outOfGroup for a VCAT member |
| | Put the port or cross-connect in the Locked,maintenance administrative state | Locked-disabled,failed & maintenance |
| Locked-disabled,failed & loopback & maintenance | Release the loopback. | Locked-disabled,failed & maintenance |
| | Alarm/condition is cleared. | Locked-enabled,loopback & maintenance |

Table B-5 ONS 15600 SDH Port and Cross-Connect Service State Transitions (continued)

| Current Service State | Action | Next Service State |
|---------------------------------------|--|---|
| Locked-disabled,failed & maintenance | Alarm/condition is cleared. | Locked-enabled,maintenance |
| | Put the port or cross-connect in the Unlocked administrative state. | Unlocked-disabled,failed |
| | Put the port or cross-connect in the Unlocked,automaticInService administrative state. | Unlocked-disabled,automaticInService & failed |
| | Put the port or cross-connect in the Locked,disabled administrative state. | Locked-enabled,disabled |
| | Put the port or cross-connect in loopback. | Locked-disabled,failed & loopback & maintenance |
| Locked-enabled,disabled | Put the port or cross-connect in the Unlocked administrative state. | Unlocked-enabled |
| | Put the port or cross-connect in the Unlocked,automaticInService administrative state. | Unlocked-disabled,automaticInService |
| | Put the port or cross-connect in the Locked,maintenance. | Locked-enabled,maintenance |
| Locked-enabled,loopback & maintenance | Release the loopback. | Locked-enabled,maintenance |
| | Alarm/condition is raised. | Locked-disabled,failed & loopback & maintenance |
| Locked-enabled,maintenance | Put the port or cross-connect in the Unlocked administrative state. | Unlocked-enabled |
| | Put the port or cross-connect in the Unlocked,automaticInService administrative state. | Unlocked-disabled,automaticInService |
| | Put the port or cross-connect in the Locked,disabled. | Locked-enabled,disabled |
| | Put the port or cross-connect in loopback. | Locked-enabled,loopback & maintenance |
| | Alarm/condition is raised. | Locked-disabled,failed & maintenance |

B.3.3 Pluggable Equipment Service State Transitions

The service state transitions for pluggable equipment are the same as for other equipment with the exceptions listed in [Table B-6](#).

**Note**

Pluggable equipment (pluggable interface modules [PIMs] and pluggable port modules [PPMs]) will transition out of the unassigned state when inserted if the software can read the EEPROM and identify information on the pluggable equipment. If the software cannot read the pluggable equipment, the equipment is considered invalid and will not transition out of the unassigned state.

Table B-6 ONS 15600 SDH Pluggable Equipment Service State Transitions

| Current Service State | Action | Next Service State |
|---|---|---|
| Unlocked-enabled | Reset the pluggable equipment. | Unlocked-enabled |
| | Provision an unsupported service rate. | Unlocked-disabled,mismatchOfEquipment |
| | Pluggable equipment does not work with the board configuration. | |
| Unlocked-disabled,automaticInService & notInstalled | Insert valid pluggable equipment. | Unlocked-enabled |
| | Insert pluggable equipment with the incorrect rate. | Unlocked-disabled,mismatchOfEquipment |
| | Pluggable equipment does not work with the board configuration. | |
| Locked-disabled,mismatchOfEquipment | Delete unsupported service rate or modify provisioning so that the pluggable equipment is no longer a mismatch. | Unlocked-enabled |
| Locked-disabled,notInstalled | Insert valid pluggable equipment. | Unlocked-enabled |
| Locked-disabled,mismatchOfEquipment & maintenance | Delete unsupported service rate or modify provisioning so that the pluggable equipment is no longer a mismatch. | Locked-enabled,maintenance |
| Locked-disabled,maintenance & notInstalled | Insert valid pluggable equipment. | Locked-enabled,maintenance |
| Locked-disabled,unassigned | Provision valid pluggable equipment. | Unlocked-enabled |
| Locked-disabled,unassigned & notInstalled | Insert valid pluggable equipment. | Unlocked-enabled |
| | Insert pluggable equipment with the incorrect rate. | Unlocked-disabled,mismatchOfEquipment |
| | Pluggable equipment does not work with the board configuration. | |
| Locked-enabled,maintenance | Reset the pluggable equipment. | Locked-enabled,maintenance |
| | Provision an unsupported service rate. | Locked-disabled,mismatchOfEquipment & maintenance |
| | Pluggable equipment does not work with the board configuration. | |

■ B.3.3 Pluggable Equipment Service State Transitions