Troubleshooting

This appendix lists system messages. It also describes problems you might encounter using Cisco MetroPlanner and their possible solutions. This chapter contains the following sections:

C.1 System Messages

Table C-1 displays a list of MetroPlanner system messages and severities.

Table C-1 Error Messages

Area	Severity	Error Message
General	Unfeasible	Hybrid layout not feasible for <SiteX> - Resulting NE Site Type Configuration xxxx (e.g. AUTO [Full OADM])
General	Unfeasible	Number of Add/Drop nodes exceeded the maximum (16) allowed in the network.
General	Unfeasible	Metro-Access is not supported in case of “Design only using ROADM and AD-4c units in Add/Drop sites”.
Traffic Mapping	Unfeasible	Two protected services assigned to the same wavelength. <ServiceX>, <ServiceY>
Traffic Mapping	Unfeasible	Can't route service with hitless: "+ service name
Traffic Mapping	Unfeasible	Can't route service <ServiceX> through HUB node defined in site <SiteX>
Traffic Mapping	Unfeasible	Network not feasible. All solutions exceeds system capacity of 32 wavelengths.
Traffic Mapping	Unfeasible	Maximum wavelength re-usage reached for channels with wavelength <lambda>
Traffic Mapping	Unfeasible	Overlapped services assigned to the same wavelength. <ServiceX> <ServiceY>

Table C-1 Error Messages (continued)

Area	Severity	Error Message
Traffic Mapping	Unfeasible	Can't find alternate route for service <ServiceX> due to multiple HUB nodes along the path
Traffic Mapping	Unfeasible	Full-OADM and Hub NE Site Type configurations are not supported in case of “Design only using ROADM and AD-4c units in Add/Drop sites”.
Metro Core, Metro Access	Unfeasible	Unfeasible Network Design. In-line attenuator option is set No but some sites require usage of In-line attenuators.
Traffic Mapping, Metro Core, Metro Access	Unfeasible	Unsupported network design
Metro Access	Unfeasible	Network not feasible: - Exceeded maximum amount of chromatic dispersion for at least one of the network connections
Metro Access	Unfeasible	Network not feasible: - Available amplification is not sufficient for the power budget requirements
Metro Access	Unfeasible	Network not feasible: - No valid solutions found, with at maximum 5 amplifiers per sub-network
Metro Access	Unfeasible	Network not feasible: - In Access Network only one amplifier can be placed in in-line sites
Metro Access	Unfeasible	Network not feasible: - Exceeded 120 km
Metro Core	Unfeasible	Network requires custom design due to mixed fibers traversed by Service <ServiceX>
General	Error	Number of OSC nodes exceeded the maximum (20) allowed in the network.
General	Error	No service required on the section of the network between <SiteX> and <SiteY>. Please remove the section of the network or define service(s) to have a correct BoM.
Metro Core	Error	Some channels are experiencing PMD problem
Metro Core	Error	Dispersion compensation over limit. [+ suggestion] Failed suggestions: - Try to unfreeze Site X - Try to unlock PRE - System needs custom design due to fibre before <SiteX>
Metro Core	Error	<East/West> PRE/BST amplifier in <SiteX> is working with a gain over <x> dB.
Metro Core	Error	Failed check on add/drop sites [+ suggestion] Failed suggestions: - Try to unlock PRE in Site X - Try to Unfreeze Site X - Free PRE position in Site X

Table C-1 Error Messages (continued)

Area	Severity	Error Message
Metro Core	Error	Failed check on linear dispersion [+ suggestion]
Metro Core	Error	Failed check on booster chains [+ suggestion]
Metro Core	Error	Failed check on only booster sites [+ suggestion]
Metro Core	Error	PRE/BST amplifier in <SiteX> <East/West> is set to work in output power control mode
Metro Core, Metro Access	Error	Span between site <SiteX> and <SiteY> is too long for OSC channel. Network unfeasible
Metro Core, Metro Access	Error	Some channels exceeded the maximum number of allowed system optical-bypass
Metro Core	Error	MP tried to use the 32-DMX but this unit is not suitable in <SiteX>. Try selecting the 32DMX-O to fix overload channels
Metro Core	Error	Due to excessive channel tilt the 32-DMX is not suitable in <SiteX> <CW/CCW> direction. Try un-locking an amplifier or select the 32DMX-O
Metro Core	Error	Number of amplifiers exceeded the maximum (32) allowed per direction in the subnetwork.
Metro Core	Error	Number of amplifiers exceeded the maximum (40) allowed per direction in the network.
Metro Core	Error	Number of booster exceeded the maximum (15) allowed per connection[1].
Metro Core	Error	Gain of a BST in site <Site X> <CW/CCW> direction exceeded the maximum allowed (Gain > 20 dB) by the physical unit
Metro Core	Error	Gain of a PRE in site <Site X> <CW/CCW> direction exceeded the maximum allowed (Gain > 38 dB) by the physical unit
Metro Core	Error	Dispersion compensation over limit. [+ suggestion] Failed suggestions: • Try to unfreeze Site X • Try to unlock PRE • System needs custom design due to fibre between <SiteX> and <SiteY> • Try to remove Pass-Through suggestion between <SiteX> and <SiteY>
Metro Core, Metro Access	Error [below] Warning [near]	<East/West> channel power in <SiteX> is near or below the fail low threshold
Metro Core, Metro Access	Error [below] Warning [near]	<East/West> OSC power in <SiteX> is near or below the fail low threshold. Try to unfreeze site <SiteY>

Table C-1 Error Messages (continued)

Area	Severity	Error Message
Metro Core, Metro Access	Error [below] Warning [near]	<East/West> OSC power in <SiteX> is near or below the fail low threshold. Try to remove Pass-Through forcing from site <SiteY>
Metro Core, Metro Access	Error [Red] Warning [Orange, Yellow]	Resulting Network design has some channel with optical performance problems
Metro Access	Error [below] Warning [near]	<East/West> amplifier power in <SiteX> is near or below the fail low threshold
Metro Core, Metro Access	Warning	ETR/CLO, ISC-Peer, ISC-Compat services are only supported by a restricted number of topology. The tool does not perform checks. See user manual for the list of allowed network topology.
General	Warning	In <SiteX> multi mode patchcords between client port of transponder and Ycable module are not in BOM
Metro Core	Warning	VOA loops exhausted without stabilization...
Metro Core	Warning	Special Fiber design with DCU value exceeding 550 ps/nm. Try to lock preamplifier in previous nodes or request custom design
Metro Core, Metro Access	Warning	BOM does not contain any SFP module for the 2R Any Rate Client Service Type. Without SFP plug in, the board cannot work and it will be responsibility of the user adding the SFP as spare part
Metro Core	Warning	A 10 dB MU Bulk attenuator NOT included in BOM is required on TX port of 15530 <ServiceX>. Without Bulk Attenuator the service could not work and it will be responsibility of the user adding the Bulk Attenuator as spare part
General	Warning	ONS 15530 Client side SFP not included in BOM
General	Warning	In <SiteX>, ONS 15530 TXP/LineCard patchcords are not included in BOM
General	Info	15454-G1K-4 Gigabit Ethernet units not included in BOM
General	Info	ONS 15530 Common units not included in BOM
General	Info	ONS 15530 Aggregation units not included in BOM
Metro Core, Metro Access	Info	A default length of the Power Cables has been considered (10m). If a different length is required, BoM is to be manually updated
Metro Core, Metro Access	Info	The generated BOM does not include SONET/SDH units
Metro Core	Info	In <SiteX> <CW/CCW> direction, a fixed attenuator of <x> dB is needed.
Metro Core	Info	In <SiteX> <CW/CCW> direction before PRE amplifier, a fixed attenuator of <x> dB is needed.

Table C-1 Error Messages (continued)

Area	Severity	Error Message
Metro Access	Info	In some cases, only for Metro-Access, RX Bulk Attenuator values could be changed in Install-Mode even on "Frozen" sites. Please check RX Bulk Attenuator values with starting BoM
Metro Access	Info	OSC-Site and Glass-Through user configurations have been automatically upgraded to Line-Site by the tool.
Traffic Mapping	Info	Additional OADM ports added in <NodeX> for Anti-ASE: some channels in Optical Bypass.
Traffic Mapping	Info	No specific anti-ASE node is required for this traffic matrix requirement.

1. Both the System Error and the Dispersion Check indications are red-flagged in connections experiencing this problem.

C.2 Traffic Mapping Troubleshooting

Traffic mapping troubleshooting encompasses problems that directly relate to network traffic.

C.2.1 Unfeasible Network

Symptom Network not feasible. All the solutions exceed system capacity of 32, 16, or 8 wavelengths.

Table C-2 describes the potential causes of the symptom and the solution.

Table C-2 Unfeasible Network—System Capacity Exceeded

Possible Problem	Solution
Some span in the ring must carry more than 32 wavelengths to implement the traffic demands.	Remove all the forced routing direction on unprotected channels.
Some span in the ring must carry more than 16/8 wavelengths.	Try changing the Project Options > Analyzer algorithm and check for feasibility.

Symptom Network not feasible. Overlapped services assigned to the same wavelength.

Table C-3 describes the potential causes of the symptom and the solution.

Table C-3 Unfeasible Network—Overlapped Services

Possible Problem	Solution
Some unprotected channels with assigned wavelengths and directions overlap along the ring.	Remove preassigned directions and/or wavelengths on the specific channels.

C.2.2 Automatic Full-OADM NE Site Definition

Symptom MetroPlanner automatically generated full optical add/drop multiplexing (OADM) nodes, even though they were not explicitly requested by the user.

Table C-4 describes the potential causes of the symptom and the solution.

Table C-4 Automatic Full-OADM Node Site Definition

Possible Problem	Solution
Full-OADM layout automatic definition can occur under the following circumstances: • Large capacity nodes (adding/dropping more than 12 wavelengths per side or more than 16 wavelengths in one side) are implemented using full-OADM node configuration for cost and layout efficiency. • Small capacity nodes requiring more than four OADM cards in one side are implemented with full OADM.	Avoid forcing wavelengths for connections from/to the node and forcing directions on unprotected channels (keep the default, which optimizes the routing and coloring processes). For a small capacity node, try to force the full-OADM site as Passive OADM (that has 5 slots available for *x* sides).

C.2.3 Unfeasible Unprotected Service Circuits

Symptom Some circuit channels have negative optical signal-to-noise ratios (OSNRs) and/or power margins.

Table C-5 describes the potential cause of the symptom and the solution.

Table C-5 Unfeasible Unprotected Service Circuits

Possible Problem	Solution
The connection exceeds the optical target span budget.	Try to force the connection direction in order to route it on the other ring direction.

C.3 Amplifier and DCU Placement Troubleshooting

The amplifier and dispersion compensation unit (DCU) placement algorithm is iterative and its convergence can depend on the initial state the optimizer is run against.

C.3.1 Unfeasible Service Circuits

Symptom The user forced one or more nodes as Passive OADM, and some connections are unfeasible.

Table C-6 describes the potential cause of the symptom and the solutions.

Table C-6 Unfeasible Service Circuits

Possible Problem	Solution
You cannot make the passive OADM forced node passive (excessive loss) for performance reasons. Cisco MetroPlanner attempts to place an amplifier in the node, but cannot because the node was forced to be a passive OADM.	• Undo the forced passive OADM and allow the optimization process in the node. Then run the analyzer again. • Force an amplifier (such as a booster) in the previous node (if not already present). Then run the analyzer again. **Note** You should force the amplifier in both the clockwise and counterclockwise directions.

C.3.2 Exhausted VOA Loop

Symptom Cisco MetroPlanner generates a warning stating that the system requires an inline bulk attenuator, but the exact value of the attenuator will not be given as an output.

Table C-7 describes the potential causes of the symptom and the possible solutions.

Table C-7 Exhausted VOA Loop

Possible Problem	Solution
The maximum number of amplifier and DCU placement algorithm iterations has been reached.	There are two possible solutions: • If there are no channels with negative margins, disregard the warning and do nothing. • If at least one channel has negative margins, try one of the following actions: – Try to force the preamplifiers in the transmit (Tx) node of the failed channels and run the analyzer again. – Look at the system specification and determine whether the system is feasible. If so, find the path of the channel with the worst OSNR margin and force an amplifier in the first passive location starting from the Tx node and run the analyzer again.

C.3.3 Network Requires Custom Design

Symptom Cisco MetroPlanner warns you that the system requires a custom design.

Table C-8 describes the potential cause of the symptom and the solution.

Table C-8 Network Requires Custom Design

Possible Problem	Solution
Network requires a custom design due to mixed fibers traversed by service <ServiceX>.	Contact your Cisco representative to receive a custom network design.

C.3.4 Dispersion Check Warning

Symptom Cisco MetroPlanner issues a dispersion check error.

Table C-9 describes the potential causes of the symptom and the solutions.

Table C-9 Dispersion Check Warning

Possible Problem	Solution
Cisco MetroPlanner generates a dispersion check error for the following possible reasons: • You forced a site to a specific type, preventing the placement of a preamplifier. The analyzer requires a preamplifier on this site. • The dispersion check failed in a site where a preamplifier is already present.	Attempt to lock a preamplifier in the first previous free site in the path of the failed channel.
Dispersion check failed in Install mode where the dispersion of the previous span was modified.	Try unfreezing the first or the last preamplifier along the failing service.

C.3.5 32DMX-O Card with Bulk Attenuators Option Is Disabled

Symptom Cisco MetroPlanner generates the following message: “MetroPlanner tried to use the 32Chs DMX but this unit is not suitable in this network; try allowing the use of bulk attenuators or select the 32Chs DMX-O”.

Table C-10 describes the potential cause of the symptom and the solution.

Table C-10 Disabled Bulk Attenuators Option

Possible Problem	Solution
The user has disabled the use of bulk attenuators. The channels experience a large power tilt.	• Enable the bulk attenuators at the 32DMX output ports. • Try to lock amplifiers (boosters in line sites, for example) to reduce tilt. • Select the 32DMX-O card.

C.3.6 32DMX Card Is Not Suitable Due to Excessive Channel Tilt

Symptom Cisco MetroPlanner generates the following message: “Due to excessive channel tilt, the 32Chs DMX is not suitable in this network; try unlocking an amplifier or select the 32Chs DMX-O”.

Table C-11 describes the potential cause of the symptom and the solution.

Table C-11 Excessive Channel Tilt

Possible Problem	Solution
The channel tilt cannot be recovered with the use of bulk attenuators at the 32DMX output, due to large channel power variations as the number of installed channels is varied.	• Try to lock amplifiers (boosters in line sites, for example) to reduce tilt. • Select the 32DMX-O card.