Installation

This chapter provides instructions for installing Cisco ONS 15302 system.

Note The instructions in this section primarily address the installation of the ONS 15302, and modules supplied by Cisco Systems. When installing racks, electrical wiring, raceways, and other equipment not covered in this manual, you should follow all local, state, federal, or international (if applicable) codes and regulations.

Caution Static electricity can damage electronic equipment. While unpacking and handling electronic modules, wear a grounding wrist strap to discharge the static buildup. Grounding wrist straps are designed to prevent equipment damage caused by static electricity. Before making the necessary interconnections, connect the grounding wrist strap.

4.1 Installation Overview

You should be thoroughly familiar with the instructions in this manual before starting any work. Use the following instructions when installing the ONS 15302.

Step 1 Read and observe all safety cautions and warnings in Chapter 1, "Safety Summary."

Step 2 Before inspecting the ONS 15302, first verify the ONS 15302 equipment according to the procedures in Chapter 3, "Pre-Installation Procedures." If there is a problem with the equipment, contact the Cisco TAC. The phone numbers from TAC are available in the www.cisco.com/warp/public/687/Directory/DirTAC.shtml please refer to this WEB site for your country contact.

Step 3 If you do not install the equipment immediately, store as specified in Chapter 3, "Pre-Installation Procedures."

Step 4 Unpack equipment only after preparing the site as described in Chapter 3, "Pre-Installation Procedures."

Step 5 When installing equipment at a site, follow the procedures in this chapter in the order presented.

Step 6 Make connections using the information in Chapter 6, "Technical Specifications."

4.2 Installation Planning

Based on the configuration to be installed, determine the size, number, and location of racks, as well as the ONS 15302 installation requirements. The following are unit dimensions to take into consideration when installing the ONS 15302. The ONS 15302 can be installed in 485 mm (19-in.) equipment racks, and can be adapted for 600 mm ETSI (23.6-in.) racks. The racks must be accessible from the front and rear for equipment installation.

Note   You need 500 mm (19.7-in.) space of rear access for installation of the equipment.

Use the following considerations when planning how to install in the rack a ONS 15302.

- Install the lowest unit in a rack first.
- Wire size and dimension requirements are based on cable length and local engineering standards and practices.
- Route the power cable from the power distribution panel (PDP) to the ONS 15302, along the edge of the equipment rack.
- Route the grounding cable from the station ground to the ONS 15302, proceeding down along the edge of the equipment rack.
- Route the electrical cables from the ONS 15302 along the edge of the rack to the overhead cable transport tray.
- Route the optical cables from the ONS 15302 along the edge of the rack to the overhead cable transport tray.

4.2.1 Required Items

In addition to a standard installers tool kit, the following items are also required:

- Phillips screwdriver (PH3) to attach the ONS 15302 to the rack, and Phillips screwdriver (PH1) to attach the brackets to the ONS 15302
- 2.5-mm Allen key (to attach the external grounding)
- 4 mounting screws, M6 (#12-24 x 3/4 pan head phillips) and nuts
- Power cable (from fuse to power connector), #18 AWG (0.75 mm) up to #16 AWG (1.5 mm) with four rigid wire
- Yellow green flexible ground cable, #16 AWG (1.25 mm) up to #14 AWG (2.50 mm) (for the external grounding)
- Cletop cleaning cassette (type A for SC connectors)
- Video fiber connector inspection instrument
- Caps for optical connectors
- Plugs for optical adapters
- Tie wraps

4.2.2 Installation Guidelines

When installing ONS 15302 equipment into a rack, follow these guidelines:

- Consider the effect of additional electronic equipment and its generated heat on the ONS 15302 system equipment.

- Make sure the equipment rack is properly bolted to the ground, and if required, to the ceiling. Ensure that the weight of the equipment does not make the rack unstable.

- When mounting the equipment between two posts or rails, ensure that the minimum clearance between the sides is 485 mm (19 in.).

- Maintain a minimum clearance of 500 mm (19.7 in.) in front of the equipment and 500 mm (19.7 in.) at the back of the equipment.

Figure 4-1 shows the outer dimensions of the ONS 15302 system equipment.

Figure 4-1   Outer Dimensions of the ONS 15302 System

445 (17.5)

REAR

240 (9.4)

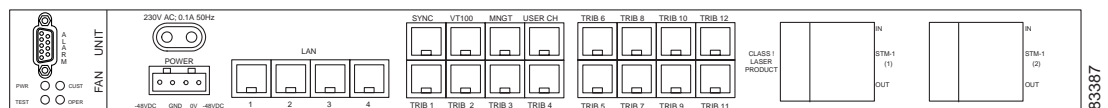FRONT

485 (19.1)
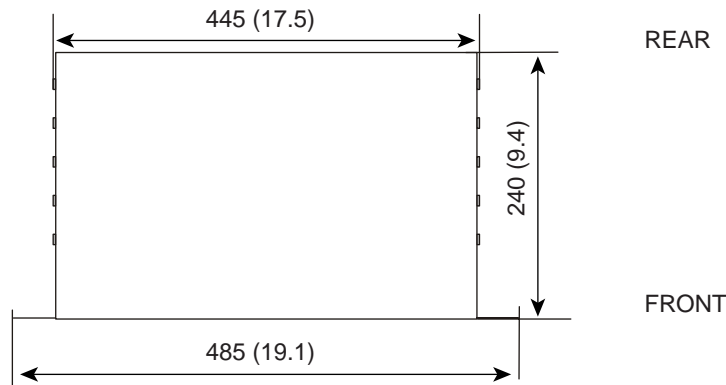
All dimensions are in mm (and in.)

83496

4.2.3 Install Ground to 48 V

It is vital that the ONS 15302 is properly grounded. The ONS 15302 is grounded via the 48V power connector to the rack ground, refer to "4.4.2Install the ONS 15302 –48 VDC Power".

The location of the power connector on the ONS 15302 is shown in Figure 4-2.

Figure 4-2   ONS 15302 Faceplate (Connector Array)

# 4.2.4 Install External Ground for 230 V Supply to the ONS 15302

> ✎
> **Note**   This ground connection is only used when the system is powered with 230 VAC and the system is not installed in a rack.

The ONS 15302 should be grounded via the external ground connector to the rack ground.

The location of the ground connector on the ONS 15302 is shown in Figure 4-3.

Figure 4-3   Ground Connector Position on the ONS 15302
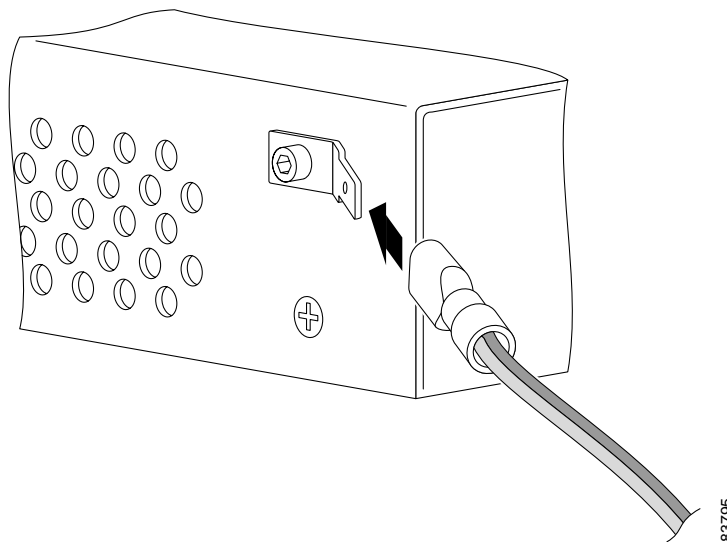
Install the Ground Connector

Step 1   Remove the phillips screw from the ONS 15302, Figure 4-3.

Step 2   Affix the flat connector with the washer and the socket screw on the ONS 15302, Figure 4-3.

Step 3   Insert the grounding cable in the flat cable plug and crimp the plug with a crimping tool, Figure 4-4.

Step 4   Verify that the ground cable is affix in the flat cable plug.

Step 5   Connect the flat cable plug to the flat connector.

Step 6   Route the ground cable securely to the local ground connector and connect it according to local site practice.

Figure 4-4   Connection of the Ground Cable with a Crimp Tool
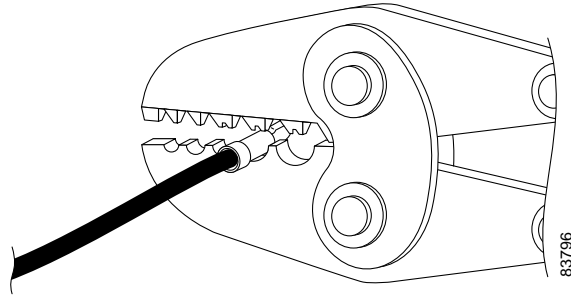
4.2.5 Power Considerations

The ONS 15302 can be powered using a regular telecommunication power supply of –48 VDC with a VDC return. The ONS 15302 supports redundant 48 VDC power supplies but if used the two supplies should be independently powered. The ONS 15302 can also be powered using 230 VAC regular power grid.

4.3 Fiber Cleaning

Cletop cleaning cassettes (type A for SC connectors) must be used to clean the fiber connectors and adapters before installing fiber. A video inspection instrument, with optical adapters for SC connectors is also required to inspect the fiber connectors and adapters before installing fiber.

> **Note** Before powering the ONS 15302 clean and inspect the fiber, to prevent equipment damage. Dust particles and damaged fiber connectors will affect the optical transmission. Replace damaged fiber connectors immediately.

> **Warning** **Invisible laser radiation may be emitted from the end of the unterminated fiber cable or connector. Do not view directly with optical instruments. Viewing the laser output with certain optical instruments (for example, eye loupes, magnifiers, and microscopes) within a distance of 100 mm may pose an eye hazard.**

> **Warning** **Invisible laser radiation may be emitted from disconnected fibers or connectors. Do not stare into beams or view directly with optical instruments.**

> **Warning** **Class 1 laser product.**

Clean Fiber Connectors

Step 1   Remove the dust cap from the fiber connector.

Step 2   Inspect connector for damage or dirt with a proper inspection tool.

Step 3   Insert the connector into the Cletop cleaning cassette slot, rotate one quarter turn, and gently swipe downwards. Repeat the inspection and cleaning from the connectors, until satisfactory results are achieved.

Step 4   Insert the fiber connector into the applicable adapter.

Step 5   Place dust caps on the fiber connectors when not in use.

Clean Fiber Adapters

Step 1   Remove the dust plug from the fiber adapter.

Step 2   Inspect the connector for damage or dirt with a proper inspection tool.

Step 3   Insert a cleaning stick into the adapter opening.

Step 4   Inspect results and continue Step 3 until satisfactory results are achieved.

Step 5   Place dust plugs on the fiber adapters when not in use.

4.4 ONS 15302 Installation

Use the following procedures to install the ONS 15302 in an equipment rack, but verify first that at least 3 RU of rack space is available.

When installing the ONS 15302, you can also use the extension brackets, included in the ONS 15302 accessory kit, to convert a 485-mm (19-inch) rack to a 600-mm (23.6-inch) rack.

Note   1 RU is 44.45 mm.

Caution   Static electricity can damage electronic equipment. While unpacking and handling electronic modules, wear a grounding wrist strap to discharge the static buildup. Grounding wrist straps are designed to prevent equipment damage caused by static electricity. Before making the necessary interconnections, connect the grounding wrist strap.

Mount the ONS 15302 in an Equipment Rack

Step 1   Depending on access requirement, front or rear access, decide which side you want to use as the front side in the rack. Refer to Figure 4-5 and Figure 4-6.

Step 2   Remove the four phillips screws on the left and right side of the ONS 15302 and install the brackets with the longer phillips screws that are provided.

Step 3   Move the ONS 15302 to the desired rack position (Figure 4-5 and Figure 4-6).

Step 4   Affix the ONS 15302 to the rack with four M6 (#12-24 x3/4 pan head phillips) screws and nuts.

Figure 4-5   Install the ONS 15302 with the Connector Array in Front in a 19-in. Rack
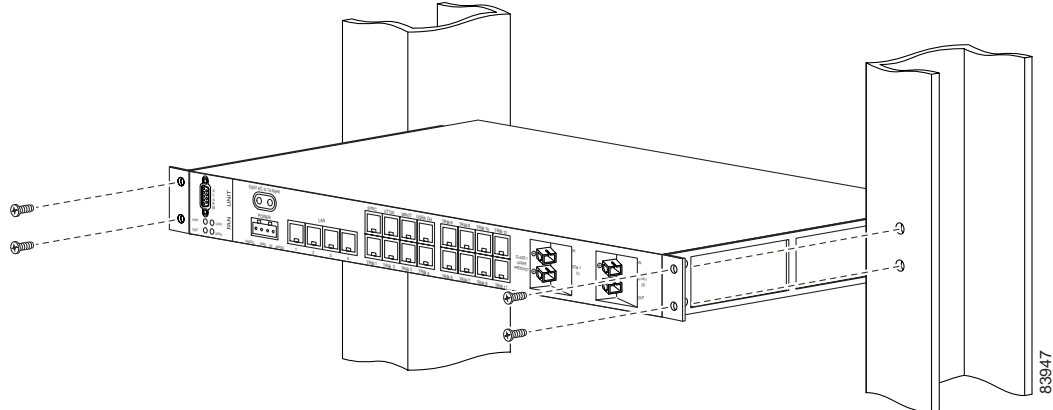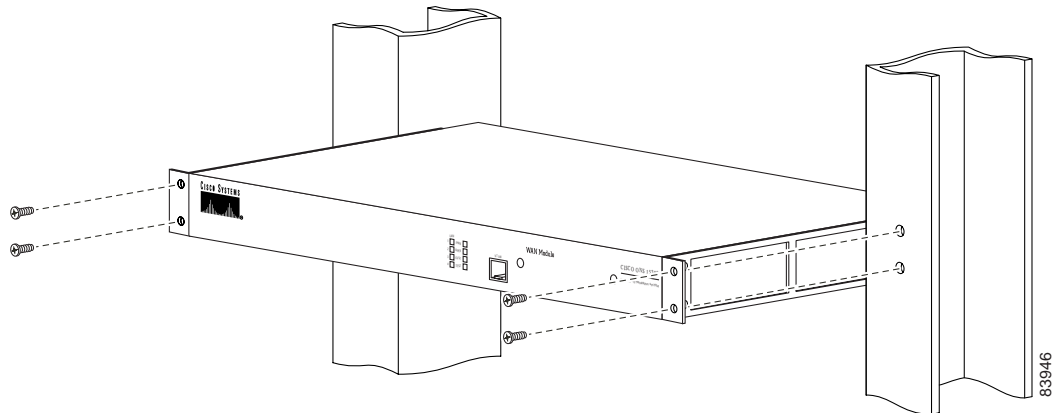

Figure 4-6   Install the ONS 15302 with the WAN Module in Front in a 19-in. Rack

Mount the ONS 15302 in an Equipment Rack Using Extension Brackets

The ONS 15302 can be installed in a 600-mm (23.6-in.) rack using the extension brackets. You need two 1 RU extension brackets for this procedure.

Step 1   Depending on access requirement, front or rear access, decide which side you want to use as the front side in the rack. Refer to See Figure 4-5 and Figure 4-6.

Step 2   Remove the four phillips screws on the left and right side of the ONS 15302 and install the brackets with the longer phillips screws that are provided.

Step 3   Move the ONS 15302 to the desired rack position.

Step 4   Affix the ONS 15302 to the equipment rack with four M6 (#12-24x3/4 pan head phillips) screws and nuts.

4.4.1 Installation in Restricted Access Locations

The ONS 15302 can be installed in a restricted access location (RAL) or outside of an RAL.

4.4.1.1 Definitions

Restricted Access Location

A restricted access location is a site location for equipment where both of the following paragraphs apply:

- Access can only be gained by service persons or by users who have been trained on the restrictions and the precautions for this specific site.
- Access is by means of at least one of the following, special tool, lock and key, or other means of security.

SELV Circuits

Safety Extra-Low Voltage (SELV) circuits are ports that have maximum DC working voltage level less than 60 V (42.4 VAC). In addition, the ports must not be connected to telecommunication networks as defined in EN 60950 (see CEI/ IEC 60950-1 2001-10, standard clause 1.2.13.8).

In practice, the electrical cables shall not exit the building. In addition, the electrical cables shall connect to equipment that meets one of the following requirements:

- Installed in the RAL.
- Does not have electrical cables that exit the building unless those ports are TNV (Telecommunication Networks Voltage) circuits.
- Has a written consent (or in other evidence) that its connecting port towards the SELV circuit port is not a telecommunication network.

Telecommunication Network

A telecommunication network is a metallically terminated transmission medium intended for communication between equipment that might be located in separate buildings, excluding:

- Main system for supply, transmission and distribution of electrical power, if used as a telecommunication transmission medium
- Cable distribution system
- SELV circuits connecting units of information technology equipment

TNV Circuit

A TNV circuit in the equipment to which the accessible area of contact is limited. A TNV circuit is so designed and protected that, under normal operating conditions and single fault conditions (see CEI/IEC 60950-1 2001-10, standard clause 1.4.14), the voltages do not exceed specified limit values.

4.4.1.2 Installation in Restricted Access Location

After installation in a RAL, such as in a telecommunications center, the ONS 15302 must be properly installed in a rack with brackets or in other ways properly connected to a safety ground. The ONS 15302 48-VDC power must not be powered from a source external to the RAL. The E1 interface used should be limited to SELV.

4.4.1.3 Installation Outside of a Restricted Access Location

After installation in a non-RAL location, the ONS 15302 48-V power and all communication ports used must be connected to SELV circuits, for example, a port on a personal computer or 10/100-Mbit Ethernet hub/router or other information technology (IT) equipment. The 48-VDC power must not exceed 60 VDC, and must be powered from a certified external power supply unit (PSU) or a battery unit (with no connection to –48 V telecommunications voltage).

The optical ports and 230-VAC power plug have no limitations regarding safety recommendations.

4.4.2 Install the ONS 15302 –48 VDC Power

The following procedure explains how to install ONS 15302 power connections.

Connect the ONS 15302 A-side and B-side Power Connections to the PDP

Warning   **Before performing any of the following procedures, ensure that power is removed from the DC circuit.**

Warning   **The plug-socket combination must be accessible at all times, because it serves as the main disconnecting device.**

Caution   Static electricity can damage electronic equipment. While unpacking and handling electronic modules, wear a grounding wrist strap to discharge the static buildup. Grounding wrist straps are designed to prevent equipment damage caused by static electricity. Before making the necessary interconnections, connect the grounding wrist strap.

Step 1   Remove the A- and B-side fuses from the power distribution panel (PDP).

Step 2   Make sure that –48 VDC (tolerance –36 to –72 VDC) power is present.

Step 3   Press a slot screwdriver in the rectangular opening on top of the connector to open the inside contact (Figure 4-7).

Step 4   Insert the wire in the contact and remove the screwdriver from the connector.

Step 5   To verify that the wire is properly fix in the unit, pull on the wire.

Step 6   Repeat Step 3 to Step 5 for the other three wires.

Step 7   Affix the four wires on the connector using the two tie wraps to ensure strain relief (Figure 4-7).
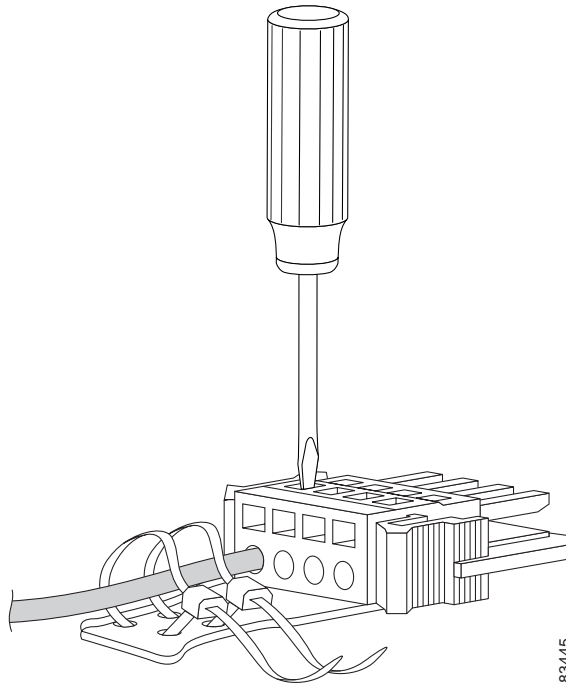
Note   Be sure that the power cable is connected and verify the correct polarity. Check if is properly fused (1.5-A recommended).

Note   Note that the ONS 15302 power cannot be switched off with a separate power switch.

Figure 4-7   Connect the Wire to the Connector

Step 8   Remove the A- and B-side fuses from the PDP.

Step 9   Connect the ONS 15302 power cable (with the ground) to the power connector of the connector array of the ONS 15302 as shown in Figure 4-2.

Step 10   Connect the first ONS 15302 –48 VDC power cable to the A-side of the PDP.

Step 11   Connect the first ONS 15302 0 VDC power cable to the A-side of the PDP

Step 12   Connect the second ONS 15302 –48 VDC power cable to the B-side of the PDP.

Step 13   Connect the second O NS 15302 0 VDC power cable to the B-side of the PDP

Note   Be sure the poles are correct when you connect the power cable.

Step 14   Reinsert the A-side and B-side PDP fuses.

Step 15   Verify that the A- and B-side –48 VDC and –48 VDC return (0 VDC) of the ONS 15302 are connected to the proper poles at the power source. The –48 VDC return must be connected to ground the PDP on both the A and B sides.

Step 16   Verify that the incoming power is within the range of –36 VDC to –72 VDC before applying power.

Note   The power supply has been connected correctly when the green LED is lit.

4.4.3 Install External Ground for 230 V Supply to the ONS 15302

The following procedure explains how to install ONS 15302 power connections.

Caution   Static electricity can damage electronic equipment. While unpacking and handling electronic modules, wear a grounding wrist strap to discharge the static buildup. Grounding wrist straps are designed to prevent equipment damage caused by static electricity. Before making the necessary interconnections, connect the grounding wrist strap.

Connect the ONS 15302 to normal AC Outlet

Step 1   Remove the fuses from the normal AC outlet.

Step 2   Connect the ONS 15302 power cable to the 230 VAC power connector on the back of the ONS 15302 as shown in Figure 4-2.

Note   Beware that ONS15302 power cannot be switched off with a separate power switch.

4.4.4 Install the ONS 15302 Fiber Cable

Caution   Static electricity can damage electronic equipment. While unpacking and handling electronic modules, wear a grounding wrist strap to discharge the static buildup. Grounding wrist straps are designed to prevent equipment damage caused by static electricity. Before making the necessary interconnections, connect the grounding wrist strap.

To install fiber-optic cables in the ONS 15302, connect a fiber cable with SC connector type to the transmit and receive ports of the transmission system. On a the ONS 15302 module, the transmit and receive ports are located at the connector array of the unit. The receive port is named STM-1 IN and the transmit port is named STM-1 OUT.

Cisco recommends that you label the transmit and receive fiber (before installation) to and from the optical transmission system at each end of the fiber span to avoid confusion with cables that are similar in appearance.

Warning   **Invisible laser radiation may be emitted from the end of the unterminated fiber cable or connector. Do not view directly with optical instruments. Viewing the laser output with certain optical instruments (for example, eye loupes, magnifiers, and microscopes) within a distance of 100 mm may pose an eye hazard.**

Cisco ONS 15302 Installation and Operations Guide, R1.0

⚠

Warning   **Invisible laser radiation may be emitted from disconnected fibers or connectors. Do not stare into beams or view directly with optical instruments.**

⚠

Warning   **Class 1 laser product.**

Connect the Fiber Cable

Step 1   Remove the dust plugs from the SC (STM-1) connectors.

Step 2   Clean and inspect the SC jumper cable connectors.

Step 3   Connect the SC module input and output to the fiber termination rack.

Step 4   Repeat Step 1 to Step 3 for protection if applicable.

Step 5   Guide the fiber through the cable ties mounted on the sides of the rack. The cable ties affix the fiber to the side of the rack to reduce the risk of fiber pinching.

4.4.5 Install the ONS 15302 Electrical Cable

⚠

Caution   Static electricity can damage electronic equipment. While unpacking and handling electronic modules, wear a grounding wrist strap to discharge the static buildup. Grounding wrist straps are designed to prevent equipment damage caused by static electricity. Before making the necessary interconnections, connect the grounding wrist strap.

To install electrical connection cables in the ONS 15302, connect the electrical cable with the corresponding ports of the transmission system. On the ONS 15302 module, the electrical ports are located at the connector array of the system only the VT100 (CLI Port) is located on both sides of the system. All electrical cables are equipped with RJ-45 connectors. The alarm cable is equipped with a DS-9 connector. Cisco recommends that you label the electrical cable at each end before installation to avoid confusion with cables that are similar in appearance.

⚠

Caution   Follow all directions and warning labels when working with electrical cables.

Connect the Electrical Cables with RJ-45 Connector

Step 1   Carefully connect the electrical cables with RJ-45 connectors to the customer specified point.

Step 2   Repeat Step 1 to for all other electrical cables.

Step 3   Guide the cables through the cable ties mounted on the sides of the rack. The cable ties are used to hold the cables to the side of the rack to reduce the risk of fiber pinching.

Connect the Alarm Cable

Step 1   Carefully connect the alarm cable to the alarm port.

Step 2   Affix the connector with the retaining screw to the alarm port.

Step 3   Guide the cable through the cable ties mounted on the sides of the rack. The cable ties are used to hold the cables to the side of the rack to reduce the risk of fiber pinching.

4.5 Initial Configuration

By following the guides below you should be able to do the most important configurations of ONS 15302.

4.5.1 Factory Pre-configuration

The ONS 15302 is a flexible product with many possible network applications and it is delivered from the factory with the following pre-configured settings. The Ethernet ports 1 to 5 are members of VLAN 1, the aggregate (STM-1) is enabled and one VC-12 container is allocated to the Ethernet WAN port number 5. In addition an entry in the SNMP community table is pre-configured so that when an IP address is assigned. This configuration is present, regardless of whether the WAN module is inserted or not.

Note   If you erase the configuration on the device the above mentioned factory pre-configuration will disappear. A back up file is the easiest solution to store the factory pre-configuration. For the back up you can use scripts which can be prepared as back up, and send as text file from VT100 emulating program.

Follow the steps in this chapter to perform initial configuration of ONS 15302. Please note that the most important tasks involved in configuration of ONS 15302 are:

- Connection and Password
- Assign IP address
- Select synchronization source
- Configure Ethernet WAN bandwidth
- Assign a VC-12 container and activate a 2 MBit/s (Mbps) tributary port
- Define SNMPv1 community
- Erase a community string

4.5.1.1 Connection and Password

For connection to the ONS 15302 different passwords are needed.

1. Local connection through VT100 port
- ONSCLI Username is ONSCLI
- ONSCLI Password is ONSCLI

2. Connection through Telnet and ONSCLI

- Telnet Password is Telnet

- ONSCLI Username is ONSCLI

- ONSCLI Password is ONSCLI

Note Password can be changed by Super User

4.5.1.2 Assign an IP Address to the ONS 15302

The ONS 15302 supports remote management solutions by the means of Telnet, SNMP, and through an Internet browser (Netscape or Microsoft Internet Explorer). Several advanced connectivity options are available with the ONS 15302. This document describes the simplest method—direct connection through the MNGT port.

To achieve connectivity for remote management solutions, you must first assign an IP address, subnet mask, and, if required, a default gateway address, as shown in Example 4-1.

Example 4-1   Assigning an IP Address

```
ONSCLI\Device\Management-Configuration\Management-Mode MODE=ipManagementPort
```

Press **Enter**

```
Change management configuration, are you sure? (y/n)
```

Press **y,** then **Enter**

```
MODE: IP-Management-Port

ONSCLI\Device\Management-Configuration\Management-Mode\Customize
ONSCLI\Device\Management-Configuration\Custom\Management-Port\IP-Configuration
IP-ADDRESS=10.0.0.1 SUBNET-MASK=255.255.255.0 DEFAULT-GATEWAY=10.0.0.254
```

Press **Enter**

```
IP-ADDRESS:       10.0.0.1
SUBNET-MASK:      255.255.255.0
DEFAULT-GATEWAY:  10.0.0.254
```

4.5.1.3 Select Synchronization Source

There are several alternatives for synchronization of the ONS 15302. You can choose whether to receive synchronization from a local oscillator, from one of the tributaries, from the aggregate port, or through the dedicated SYNC port.

By default, the synchronization source is a local oscillator, but if, for example, the ONS 15302 interfaces an SDH node on the optical STM-1 interface, you must change the synchronization source to aggregate. To do this, use the command shown in Example 4-2.

Example 4-2   Selecting the Synchronization Source

```
ONSCLI>Device\sync-source admin-source=aggr1
```

Press **Enter**

```
ADMIN-SOURCE:  aggr1
OPERATIONAL-SOURCE:  Holdover
```

4.5.1.4 Configure Ethernet WAN Bandwidth

Note   When factory pre-configured the only bandwidth allocated is 2.16 MBit/s (Mbps) for port=5, which means that one VC-12 container is selected.

One of the many benefits of the ONS 15302 is that you can choose between all 63 of the VC-12 containers available in the STM-1 frame (limited to 50 VC-12 containers for the Ethernet WAN ports). Forty-seven VC-12 containers are sufficient for operating at 100 MBits/s (Mbps).

The VC-12 containers needed to achieve the desired bandwidth must be selected in the same order at both ends of the link. In a back-to-back configuration using two ONS 15302s, the KLM-scheme (the VC-12 mapping scheme in a VC-4 container) used must be identical. In a larger network, where the VC-12s might be cross-connected, only the sequence must be identical.

To simplify the allocation of bandwidth, the number of VC-12 containers needed can be entered together with the desired sort-mode. The VC-12s can be sorted according to ITU-T G.707 or in Lexicographic-order. The default sort-mode is Lexicographic-order.

The following example shows how bandwidth can easily be allocated for the Ethernet WAN port by selecting a number of VC-12 containers.

Step 1   Enter the WAN-port level in ONSCLI and type **?** to view the available commands, as shown in the following example:

```
ONSCLI>Ports\Ethernet-Port-Properties\WAN-Port(s)\?
```

Press **Enter**

```
*** current menu path:

<root>
  Ports
    Ethernet-Port-Properties
      WAN-Port(s)

*** valid commands:

General:            WAN port general settings
Add-VC12-channel:   Add a VC12 to WAN port
Edit-VC12-channel:  Modify Admin Status of a VC12
Remove-VC12-channel: Remove a VC12 from WAN port(always the last)
Status:             Device status
Free:               List of free VC12
Used:               List of used VC12
Exit:               Exit from ONSCLI
```

Step 2   Type **general** to see the current status for the WAN-port(s), as shown in the following example:

```
ONSCLI>...\WAN-Port(s)\general
```

Press **Enter**

```
WAN-PORT:          5
OPER-CAPACITY:     0. Mbps.
OPER-VC12-NBR:     0
ADMIN-CAPACITY:    0. Mbps.
ADMIN-VC12-NBR:    0
PATH-TRACE:        disabled
EXPECTED-TI:       <Path-trace J2>
HEX-EXPECTED-TI:   3C,50,61,74,68,2D,74,72,61,63,65,20,4A,32,3E
TRANSMIT-TI:       <Path-trace J2>
HEX-TRANSMIT-TI:   3C,50,61,74,68,2D,74,72,61,63,65,20,4A,32,3E
RECEIVED-TI:
HEX-RECEIVED-TI:   00,00,00,00,00,00,00,00,00,00,00,00,00,00,00
CHANNEL-TI:        0


---------------------------------------------
KLM     WAN-CHANNEL ADMIN-STATUS OPER-STATUS
---------------------------------------------
KLM table empty.
```

Step 3   Type **Add-VC12-channel ?** to see the attributes available for the command, as shown in the following example:

```
ONSCLI>...\WAN-Port(s)\Add-VC12-channel ?
```

Press **Enter**

```
Usage:
   Add-VC12-channel

WAN-PORT=<integer value 5:8> (Only port 5 if WAN-module not present)
[KLM=<K.L.M - integer value 1:3.integer value 1:7.integer value 1:3>] (Optional starting
point if desirable to add multiple VC-12 containers to a WAN-port)
[ADMIN-STATUS=<enabled|disabled>] (Optional, by default enabled)
[NUMBER-TO-ADD=<integer value 1:50>] (Optional, if desirable to simplify allocation of
multiple VC-12 containers)
[SORT-MODE=<LEX|G707>] (Optional, by default the "lexigraphic order")

Configure the needed number of VC-12 containers to a selected WAN port, as shown in the
following example:
ONSCLI>...\WAN-Port(s)\Add-VC12-channel wan-port=5 klm=1.1.1 admin-status=enabled
number-to-add=10 sort-mode=g707
```

Press **Enter**

```
Adding klm 1.1.1 ok
Adding klm 2.1.1 ok
Adding klm 3.1.1 ok
Adding klm 1.2.1 ok
Adding klm 2.2.1 ok
```

```
Adding klm 3.2.1 ok
Adding klm 1.3.1 ok
Adding klm 2.3.1 ok
Adding klm 3.3.1 ok
Adding klm 1.4.1 ok

WAN-PORT:          5
OPER-CAPACITY:     0. Mbps.
OPER-VC12-NBR:     0
ADMIN-CAPACITY:    21.60 Mbps.
ADMIN-VC12-NBR:    10
PATH-TRACE:        disabled
EXPECTED-TI:       <Path-trace J2>
HEX-EXPECTED-TI:   3C,50,61,74,68,2D,74,72,61,63,65,20,4A,32,3E
TRANSMIT-TI:       <Path-trace J2>
HEX-TRANSMIT-TI:   3C,50,61,74,68,2D,74,72,61,63,65,20,4A,32,3E
RECEIVED-TI:
HEX-RECEIVED-TI:   00,00,00,00,00,00,00,00,00,00,00,00,00,00,00
CHANNEL-TI:        0


-------------------------------------------
KLM      WAN-CHANNEL ADMIN-STATUS OPER-STATUS
-------------------------------------------
1.1.1    1           enabled      down
2.1.1    2           enabled      down
3.1.1    3           enabled      down
1.2.1    4           enabled      down
2.2.1    5           enabled      down
3.2.1    6           enabled      down
1.3.1    7           enabled      down
2.3.1    8           enabled      down
--- More (y/n)? y"ENTER"

3.3.1    9           enabled      down
1.4.1    10          enabled      down

ONSCLI>...\WAN-Port(s)\
```

4.5.1.5 Assign a VC-12 Container and Activate a 2 MBit/s (Mbps) Tributary Port

The procedure for assigning a VC-12 container to a tributary port on the ONS 15302 is similar to allocation of bandwidth to an Ethernet WAN port. The same flexibility is maintained for the selection of VC-12 containers.

Use the following procedure to configure and activate a tributary port on the ONS 15302:

Step 1   Assign a VC-12 container to a tributary-port

```
ONSCLI>Ports\TRIB-Ports\Assign-VC12-Channel ?

Usage:

   Assign-VC12-Channel

TRIB-PORT=<integer value 1:12> (Select the Trib-port you would like to assign a VC-12
container. If desirable to assign multiple Trib-ports this will be the starting point)
[KLM=<K.L.M - integer value 1:3.integer value 1:7.integer value 1:3>] (Optional, if a
specific KLM reference is desirable. When assigning multiple Trib-ports simultaneously,
this will be the staring point in the mapping scheme.)
```

```
[NUMBER-TO-ADD=<integer value 1:12>] (Optional, desirable number of Trib-ports in multiple
assignment)
[SORT-MODE=<LEX|G707>] (Optional, by default the "lexigraphic order")


ONSCLI>...\TRIB-Ports\assign-vc12-channel trib-port=1 klm=3.7.3
```

Press **Enter**

```
---------------------
TRIB-PORT     KLM
---------------------
1             3.7.3
```

Step 2   Enable and select transmission parameters for the Tributary-port

```
ONSCLI>...\TRIB-Ports\general ?
```

Press **Enter**

```
Usage:

   General

[TRIB-PORT=<integer value 1:12>] (Select desired Trib-port)
[DESCRIPTION=<string[0:64]>] (Optional)
[ADMINISTRATIVE-STATUS=<enable|disable>] (Select enable)
[MODE=<TRA|PRA>] (Optional, default transparent (TRA) acc. to G.703)
[LOOP-MODE=<NONE|LL2|LL3>] (Optional, for tests)
[PATH-TRACE=<enabled|disabled>] (Optional)
[EXPECTED-TI=<string[1:15]>] (Optional)
[TRANSMIT-TI=<string[1:15]>] (Optional)

ONSCLI>...\TRIB-Ports\general trib-port=1 description=qrg administrative-status=enable
mode=pra
```

Press **Enter**

```
TRIB-PORT:            1
DESCRIPTION:          qrg
ADMINISTRATIVE-STATUS: enable
OPERATIONAL-STATUS:   down
MODE:                 PRA
KLM:                  3.7.3
LOOP-MODE:            NONE
PATH-TRACE:           disabled
EXPECTED-TI:          <Path-trace J2>
HEX-EXPECTED-TI:      3C,50,61,74,68,2D,74,72,61,63,65,20,4A,32,3E
TRANSMIT-TI:          <Path-trace J2>
HEX-TRANSMIT-TI:      3C,50,61,74,68,2D,74,72,61,63,65,20,4A,32,3E
RECEIVED-TI:
HEX-RECEIVED-TI:      00,00,00,00,00,00,00,00,00,00,00,00,00,00,00

ONSCLI>...\TRIB-Ports\
```

4.5.1.6 Define SNMPv1 Community

The factory pre-configured SNMPv1 community is shown in Example 4-3.

Example 4-3   Factory Pre-configured SNMPv1 Community

ONSCLI>Security\Community-Table Show

Press **Enter**

```
Manager:   0.0.0.0
Community: public
Access:    super
Traps:     disable
```

This is an unsecure community that enables all managers to access the device with the community string public, regardless of the IP address of the SNMP manager.

To add your own community string, use the following command:

ONSCLI>Security\Community-Table\Add MANAGER=10.0.0.20 COMMUNITY=admin ACCESS=super TRAPS=enable

Press **Enter**

4.5.1.7 Erase a Community String

To remove a community string the following command can be used:

ONSCLI>Security\Community-Table**remove manager=0.0.0.0 community=public**

Press **Enter**

4.6 SW Download through Local VT100 Interface

The software is loaded using a PC connected directly to the ONS 15302 via the VT100 port. You must be on site with the ONS 15302 to install the software, you can not complete the installation remotely. The file is loaded using the Xmodem protocol. Booting the system triggers local software download. Ethernet traffic is lost during the software load process. Please secure the traffic on 2 MBit/s (Mbps) tributaries.

Please follow the steps below for a successful download operation.

Step 1 Make sure that you are connected and the cursor ONSCLI>DEVICE\> is visible.

Step 2 Type *reset* and press **Enter**. Press **Y** to confirm command.

Step 3 You have now triggered a software restart, and the boot process will be started immediately.

Step 4 When you see the following window (Figure 4-8), press **1** immediately.

Figure 4-8   ONS 15302 Software Download Startmenu

```
        Startup menu

      Continue

 [1]  Download sw
 [2]  Download sw
 [3]  Erase Flash blocks
 [4]  Perform SDRAM test
 [5]  Erase NVRAM file
 [6]  Force full diag
 [7]  Continue

Enter your choice:
```

Note   If you are too slow entering **1,** the device will continue the boot process and you will have to reboot again.

Step 5   If you successfully completed Step 4, you will immediately be prompted to choose a baud rate for the Xmodem. The recommended baud rate is 115 200 bit/s, Figure 4-9.

```
Choose the number for your selection
```

Figure 4-9   Select a Baud Rate

```
Choose 0 - 4 to change baud rate
0 for 9600   Bits Per Second
1 for 19200  Bits Per Second
2 for 38400  Bits Per Second
3 for 57600  Bits Per Second
4 for 115200 Bits Per Second
Any other key to continue:   4
```

Step 6   After completing Step 5, you will be requested to set up your terminal according to chosen baud rate, Table 4-1.

Step 7   Disconnect and set terminal speed to 115 200 bit/s, connect and press **Enter** to continue.

Step 8   Set the parameters as shown in Table 4-1.

Table 4-1   EIA/TIA 232 Interface Parameter

Parameter	Settings
Bits per second	115200
Data bits	8
Parity	None
Stop bits	1
Flow control	Hardware

Step 9   When the setup is correct, the following message will appear in terminal window:
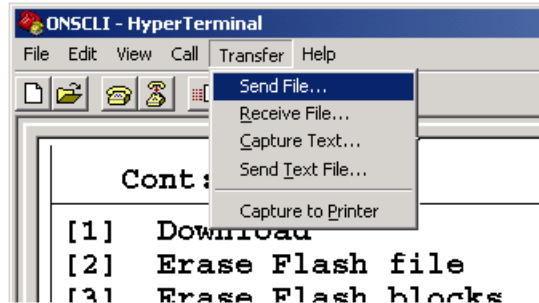
```
Please download program using XMODEM.
$$$$
```

The device is now ready to receive the new software (firmware).

Step 10   If you perform this by using Hyper Terminal (Windows), please perform the steps shown in Figure 4-10.

    a.   Select **Transfer**.

    b.   Select **Send File**.

Figure 4-10   Hyper Terminal Window

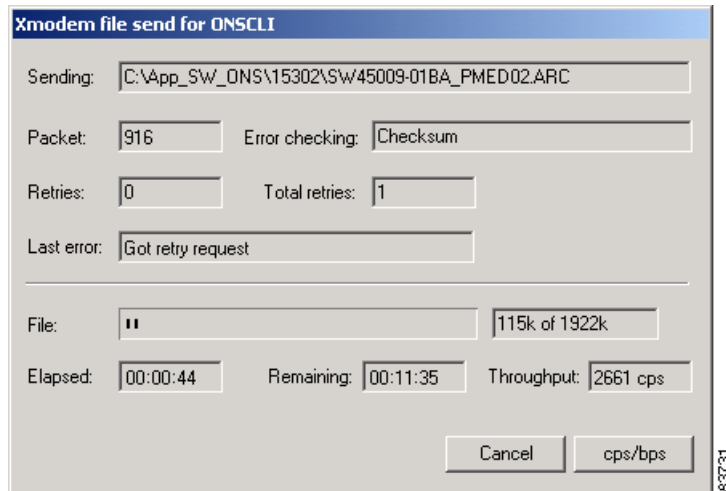**Step 11**   Select the **Folder** containing the software, Figure 4-11.

The correct filename appears, otherwise press **Browse** and search for the right filename.

Choose **Protocol** Xmodem.

Press **Send.**

Figure 4-11   Send File Menu
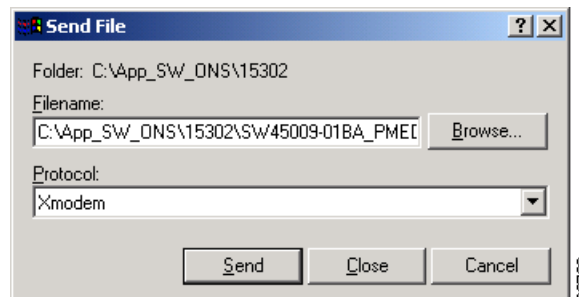
The download is now started and you can monitor the download process in the **Remaining** field, Figure 4-12.

Figure 4-12   Download Response Menu

When the download has finished, the device will immediately start to write to flash and update its registry and automatically reboot. The total time for the download operation is approximately 10 minutes.

Step 12   At this time, the system instructs you to disconnect the connection and to change the baud rate to 9600. Then the system reboots.

Step 13   Check the inventory to make sure that the download operation was successful using the following string:

ONSCLI>**Device\Inventory**