CISCO SYSTEMS

Cisco ONS 15305 Quick Installation Guide

Release 2.0

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1   Obtaining Documentation

Cisco documentation and additional literature are available on Cisco.com. Cisco also provides several ways to obtain technical assistance and other technical resources. These sections explain how to obtain technical information from Cisco Systems.

Cisco.com

You can access the most current Cisco documentation at this URL:

http://www.cisco.com/univercd/home/home.htm

You can access the Cisco website at this URL:

http://www.cisco.com

You can access international Cisco websites at this URL:

http://www.cisco.com/public/countries_languages.shtml

Documentation DVD

Cisco documentation and additional literature are available in a Documentation DVD package, which may have shipped with your product. The Documentation DVD is updated regularly and may be more current than printed documentation. The Documentation DVD package is available as a single unit.

Registered Cisco.com users (Cisco direct customers) can order a Cisco Documentation DVD (product number DOC-DOCDVD=) from the Ordering tool or Cisco Marketplace.

Cisco Ordering tool:

http://www.cisco.com/en/US/partner/ordering/

Cisco Marketplace:

http://www.cisco.com/go/marketplace/

Ordering Documentation

You can find instructions for ordering documentation at this URL:

http://www.cisco.com/univercd/cc/td/doc/es_inpck/pdi.htm

You can order Cisco documentation in these ways:

- Registered Cisco.com users (Cisco direct customers) can order Cisco product documentation from the Ordering tool:

  http://www.cisco.com/en/US/partner/ordering/

- Nonregistered Cisco.com users can order documentation through a local account representative by calling Cisco Systems Corporate Headquarters (California, USA) at 408 526-7208 or, elsewhere in North America, by calling 1 800 553-NETS (6387).

2   Documentation Feedback

You can send comments about technical documentation to bug-doc@cisco.com.

You can submit comments by using the response card (if present) behind the front cover of your document or by writing to the following address:

Cisco Systems
Attn: Customer Document Ordering
170 West Tasman Drive
San Jose, CA 95134-9883

We appreciate your comments.

3   Cisco Product Security Overview

Cisco provides a free online Security Vulnerability Policy portal at this URL:

http://www.cisco.com/en/US/products/products_security_vulnerability_policy.html

From this site, you can perform these tasks:

- Report security vulnerabilities in Cisco products.
- Obtain assistance with security incidents that involve Cisco products.
- Register to receive security information from Cisco.

A current list of security advisories and notices for Cisco products is available at this URL:

http://www.cisco.com/go/psirt

If you prefer to see advisories and notices as they are updated in real time, you can access a Product Security Incident Response Team Really Simple Syndication (PSIRT RSS) feed from this URL:

http://www.cisco.com/en/US/products/products_psirt_rss_feed.html

Reporting Security Problems in Cisco Products

Cisco is committed to delivering secure products. We test our products internally before we release them, and we strive to correct all vulnerabilities quickly. If you think that you might have identified a vulnerability in a Cisco product, contact PSIRT:

- Emergencies — security-alert@cisco.com
- Nonemergencies — psirt@cisco.com

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Tip   We encourage you to use Pretty Good Privacy (PGP) or a compatible product to encrypt any sensitive information that you send to Cisco. PSIRT can work from encrypted information that is compatible with PGP versions 2.x through 8.x.

Never use a revoked or an expired encryption key. The correct public key to use in your correspondence with PSIRT is the one that has the most recent creation date in this public key server list:

http://pgp.mit.edu:11371/pks/lookup?search=psirt%40cisco.com&op=index&exact=on

In an emergency, you can also reach PSIRT by telephone:

- 1 877 228-7302
- 1 408 525-6532

4   Obtaining Technical Assistance

For all customers, partners, resellers, and distributors who hold valid Cisco service contracts, Cisco Technical Support provides 24-hour-a-day, award-winning technical assistance. The Cisco Technical Support Website on Cisco.com features extensive online support resources. In addition, Cisco Technical Assistance Center (TAC) engineers provide telephone support. If you do not hold a valid Cisco service contract, contact your reseller.

Cisco Technical Support Website

The Cisco Technical Support Website provides online documents and tools for troubleshooting and resolving technical issues with Cisco products and technologies. The website is available 24 hours a day, 365 days a year, at this URL:

http://www.cisco.com/techsupport

Access to all tools on the Cisco Technical Support Website requires a Cisco.com user ID and password. If you have a valid service contract but do not have a user ID or password, you can register at this URL:

http://tools.cisco.com/RPF/register/register.do

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Note Use the Cisco Product Identification (CPI) tool to locate your product serial number before submitting a web or phone request for service. You can access the CPI tool from the Cisco Technical Support Website by clicking the Tools & Resources link under Documentation & Tools. Choose Cisco Product Identification Tool from the Alphabetical Index drop-down list, or click the Cisco Product Identification Tool link under Alerts & RMAs. The CPI tool offers three search options: by product ID or model name; by tree view; or for certain products, by copying and pasting show command output. Search results show an illustration of your product with the serial number label location highlighted. Locate the serial number label on your product and record the information before placing a service call.

Submitting a Service Request

Using the online TAC Service Request Tool is the fastest way to open S3 and S4 service requests. (S3 and S4 service requests are those in which your network is minimally impaired or for which you require product information.) After you describe your situation, the TAC Service Request Tool provides recommended solutions. If your issue is not resolved using the recommended resources, your service request is assigned to a Cisco TAC engineer. The TAC Service Request Tool is located at this URL:

http://www.cisco.com/techsupport/servicerequest

For S1 or S2 service requests or if you do not have Internet access, contact the Cisco TAC by telephone. (S1 or S2 service requests are those in which your production network is down or severely degraded.) Cisco TAC engineers are assigned immediately to S1 and S2 service requests to help keep your business operations running smoothly.

To open a service request by telephone, use one of the following numbers:

Asia-Pacific: +61 2 8446 7411 (Australia: 1 800 805 227)
EMEA: +32 2 704 55 55
USA: 1 800 553-2447

For a complete list of Cisco TAC contacts, go to this URL:

http://www.cisco.com/techsupport/contacts

Definitions of Service Request Severity

To ensure that all service requests are reported in a standard format, Cisco has established severity definitions.

Severity 1 (S1)—Your network is "down," or there is a critical impact to your business operations. You and Cisco will commit all necessary resources around the clock to resolve the situation.

Severity 2 (S2)—Operation of an existing network is severely degraded, or significant aspects of your business operation are negatively affected by inadequate performance of Cisco products. You and Cisco will commit full-time resources during normal business hours to resolve the situation.

Severity 3 (S3)—Operational performance of your network is impaired, but most business operations remain functional. You and Cisco will commit resources during normal business hours to restore service to satisfactory levels.

Severity 4 (S4)—You require information or assistance with Cisco product capabilities, installation, or configuration. There is little or no effect on your business operations.

5   Obtaining Additional Publications and Information

Information about Cisco products, technologies, and network solutions is available from various online and printed sources.

- Cisco Marketplace provides a variety of Cisco books, reference guides, and logo merchandise. Visit Cisco Marketplace, the company store, at this URL:

  http://www.cisco.com/go/marketplace/

- *Cisco Press* publishes a wide range of general networking, training and certification titles. Both new and experienced users will benefit from these publications. For current Cisco Press titles and other information, go to Cisco Press at this URL:

  http://www.ciscopress.com

- *Packet* magazine is the Cisco Systems technical user magazine for maximizing Internet and networking investments. Each quarter, Packet delivers coverage of the latest industry trends, technology breakthroughs, and Cisco products and solutions, as well as network deployment and troubleshooting tips, configuration examples, customer case studies, certification and training information, and links to scores of in-depth online resources. You can access Packet magazine at this URL:

  http://www.cisco.com/packet

- *iQ Magazine* is the quarterly publication from Cisco Systems designed to help growing companies learn how they can use technology to increase revenue, streamline their business, and expand services. The publication identifies the challenges facing these companies and the technologies to help solve them, using real-world case studies and business strategies to help readers make sound technology investment decisions. You can access iQ Magazine at this URL:

  http://www.cisco.com/go/iqmagazine

- *Internet Protocol Journal* is a quarterly journal published by Cisco Systems for engineering professionals involved in designing, developing, and operating public and private internets and intranets. You can access the Internet Protocol Journal at this URL:

  http://www.cisco.com/ipj

- World-class networking training is available from Cisco. You can view current offerings at this URL:

  http://www.cisco.com/en/US/learning/index.html

6   Quick Overview

The ONS 15305 is a traffic concentrator that supports different types of transmission media. It can be used in networks based on fiber and copper media. The ONS 15305 concentrates both IP and TDM traffic and is able to interface to both TDM and IP backbone networks. The TDM part of the ONS 15305 is a cross-connect that can work as a terminal multiplexer, add/drop multiplexer, or nonblocking cross-connect. The IP part consists of a L2 switch.

The ONS 15305 is a very small device with a very high port density. It is also designed to be flexible and highly scalable. It is targeted for a number of different applications. Please refer to the *ONS 15305 Installation and Operations Guide* for further details.

The ONS 15305 is a very flexible device owing to its modular design. The ONS 15305 consists of a chassis with a motherboard with room for up to eight plug-in modules. Four of the plug-in modules are interface modules. The remaining four modules are: two redundant power supply modules, one fan module, and one system controller module. The ONS 15305 is a very flexible network component that can be used in star, ring, chained, and meshed networks.

7   Before Starting

This guide provides basic instructions for installing the Cisco ONS 15305 system and contains information about installing the ONS 15305 and commissioning the ONS 15305.

Use this guide as a general reference when performing an installation. For detailed installation instructions, refer to the most recent *Cisco ONS 15305 Installation and Operations Guide*.

⚠ Warning Always use the supplied ESD wristband when working with an ONS 15305. Plug the wristband cable into the ESD jack of the rack assembly and ensure the rack assembly is properly grounded.

8 Translated Warnings

Power Disconnection Warning

⚠ Warning Before working on a system that has an on/off switch, turn OFF the power and unplug the power cord.

Waarschuwing Voordat u aan een systeem werkt dat een aan/uit schakelaar heeft, dient u de stroomvoorziening UIT te schakelen en de stekker van het netsnoer uit het stopcontact te halen.

Varoitus Ennen kuin teet mitään sellaiselle järjestelmälle, jossa on kaksiasentokytkin, katkaise siitä virta ja kytke virtajohto irti.

Attention Avant de travailler sur un système équipé d'un commutateur marche-arrêt, mettre l'appareil à l'arrêt (OFF) et débrancher le cordon d'alimentation.

Warnung Bevor Sie an einem System mit Ein/Aus-Schalter arbeiten, schalten Sie das System AUS und ziehen das Netzkabel aus der Steckdose.

Avvertenza Prima di lavorare su un sistema dotato di un interruttore on/off, spegnere (OFF) il sistema e staccare il cavo dell'alimentazione.

Advarsel Slå AV strømmen og trekk ut strømledningen før det utføres arbeid på et system som er utstyrt med en av/på-bryter.

Aviso Antes de começar a trabalhar num sistema que tem um interruptor on/off, DESLIGUE a corrente eléctrica e retire o cabo de alimentação da tomada.

| ¡Advertencia! | Antes de utilizar cualquier sistema equipado con interruptor de Encendido/Apagado (ON/OFF), cortar la alimentación y desenchufar el cable de alimentación. |
| Varning! | Slå AV strömmen och dra ur nätsladden innan du utför arbete på ett system med strömbrytare. |

Laser Radiation Warning

Warning	Invisible laser radiation may be emitted from disconnected fibers or connectors. Do not stare into beams or view directly with optical instruments.
Waarschuwing	Losgekoppelde of losgeraakte glasvezels of aansluitingen kunnenonzichtbare laserstraling produceren. Kijk niet rechtstreeks in de straling en gebruik geen optische instrumenten rond deze glasvezels of aansluitingen.
Varoitus	Irrotetuista kuiduista tai liittimistä voi tulla näkymätöntä lasersäteilyä. Älä tuijota säteitä tai katso niitä suoraan optisilla välineillä.
Attention	Les fibres ou connecteurs débranchés risquent d'émettre des rayonnements laser invisibles à l'œil. Ne regardez jamais directement les faisceaux laser à l'œil nu, ni d'ailleurs avec des instruments optiques.
Warnung	Unterbrochene Fasern oder Steckerverbindungenkönnen unsichtbare Laserstrahlung abgeben.. Blicken Sie weder mit bloßem Auge noch mit optischen Instrumenten direkt in Laserstrahlen.
Avvertenza	Le fibre ottiche ed i relativi connettori possono emettere radiazioni laser. I fasci di luce non devono mai essere osservati direttamente o attraverso strumenti ottici.

Advarsel	Det kan forekomme usynlig laserstråling fra fiber eller kontakter som er frakoblet. Stirr ikke direkte inn i strålene eller se på dem direkte gjennom et optisk instrument.
Aviso	Radiação laser invisível pode ser emitida de conectores ou fibras desconectadas. Não olhe diretamente para os feixes ou com instrumentos ópticos.
¡Advertencia!	Es posible que las fibras desconectadas emitan radiación láser invisible. No fije la vista en los rayos ni examine éstos con instrumentos ópticos.
Varning!	Osynlig laserstrålning kan avges från frånkopplade fibrer eller kontaktdon. Rikta inte blicken in i strålar och titta aldrig direkt på dem med hjälp av optiska instrument.

9   Installation Materials for ONS 15305

Several items are needed to complete the installation of the ONS 15305. Some of these items are supplied by Cisco and some need to be supplied by the user. The following are the Cisco-supplied materials:

- 48 V power connector (accompanying DC module)
- ESD wrist strap with cable
- Release hook (for service module extracting)
- 2 brackets (19 in. [482.6 mm])
- 2 Brackets (ETSI)
- Mounting screws and washer lock
- 4 rubber feet for table placing
- Connection cable for connection between ONS 15305 (EIA/TIA-232) and PC/laptop (RJ-45)

The following materials, tools, and equipment are recommended but are not supplied with the ONS 15305:

- Fuse panel
- Power cable (from fuse to power connector), #18 AWG (0.75 mm)up to #16 AWG (1.5 mm)with four rigid wires
- Single-mode cable with LC connectors
- Fiber connector inspection instruments (Cisco recommends Video Microscopes)

- Cleaning equipment
- Caps for optical connectors (LC)
- Labels
- Installation material for mounting the ONS 15305 in the rack
- #1 Phillips screwdriver
- #3 Phillips screwdriver
- Voltmeter
- Power meter (for use with fiber optics only)
- Bit error rate (BER) tester
- CAT-5 cables to interconnect the ONS 15305 and ONS 15454

10   Installing the ONS 15305

To install the ONS 15305, complete the following procedures:

1. Installing the ONS 15305 in a 19-in. (482.6-mm) Rack
2. Installing 48-V Power and Ground to the ONS 15305
3. Installing the ONS 15305 AC 230V Power
4. Installing External Ground to the ONS 15305
5. Installing Service Modules
6. Installing the Ground Connector
7. Installing the ONS 15305 Fiber Cable
8. Connecting the Fiber Cable
9. Installing the ONS 15305 Electrical Cable
10. Connecting the Electrical Cables

Installing the ONS 15305 in a 19-in. (482.6-mm) Rack

The shelf assembly is allocated for installation in a 19-in. (482.6-mm) rack.

Note   You can also install the ONS 15305 in a ETSI rack (23.6 in [600-mm]) rack by using extension brackets to convert it. You need two 1-RU extension brackets for this procedure. The brackets are ordered separately.

Step 1 Depending on back access issues, choose a side to use as the front. See Figure 1 and Figure 2.

Step 2 Remove the two Phillips screws on the left and right and install the brackets with longer Phillips screws that are also in the plastic bag.

Step 3 Move the ONS 15305 to the desired rack position (Figure 1 and Figure 2).

Step 4 Secure the ONS 15305 to the rack. Tighten the ONS 15305 with four screws (Figure 1 and Figure 2).

Figure 1   Front Face-Out in a 19-in. (482.6-mm) Rack
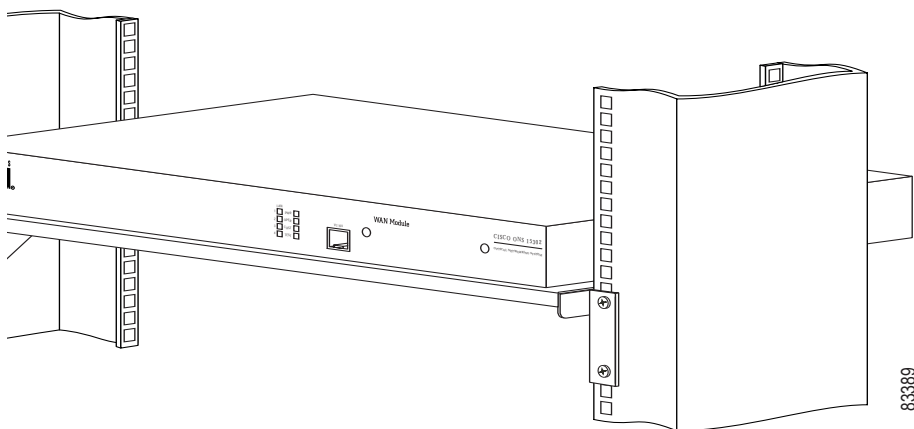
Figure 2   Connector Array in Front in a 19-in. (482.6-mm) Rack
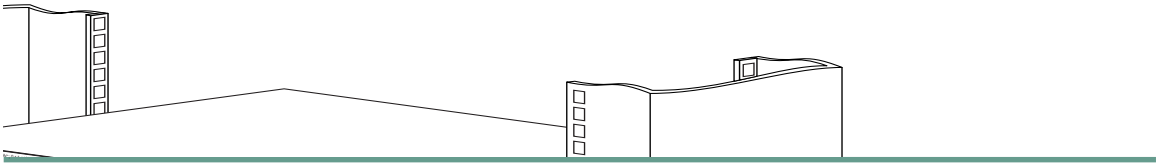
Installing 48-V Power and Ground to the ONS 15305

The power needs to be properly installed and grounded for operation of the ONS 15305. Figure 3 shows the location of the 48-V connector.

Figure 3   Location of the Power Connector on the ONS 15305 Faceplate (Connector Array)
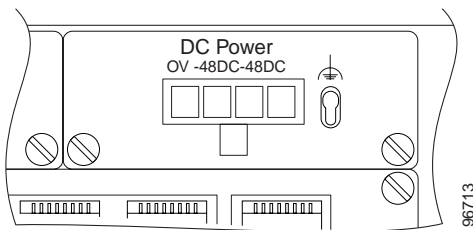
The ONS 15305 cabinet shall always be tied to a suitable earth reference potential as described in the "Installing External Ground to the ONS 15305" section on page 16. The 48-V power interface of ONS 15305 is galvanically insulated from the cabinet. The positive pole of the 48-V supply (0 VDC) shall always be connected to the same earth potential at the station battery on the PDP side. Use the following procedure to install power and ground to the ONS 15305:

Warning Before installing power to the ONS 15305, remove the fuses from both the A and B sides of the battery distribution bay (BDB) and power distribution panel (PDP). Failure to do so can result in injury or death.

Step 1   Remove the A- and B-side fuses from the BDB and the PDP.

Step 2   Connect according to Table 1.

Table 1   Power Wire Colors and Function

Wire Color Coding	Wire Carrying
■ Brown	0V
■ Blue	–48 VDC
■ Black	–48 VDC
■ Green/yellow	GND

Note   Be sure that the power cable is connected with the correct polarity.

Note   The ONS 15305 power cannot be switched off with a separate power switch.

Installing the ONS 15305 AC 230V Power

The following sections explain how to install ONS 15305 AC power connections.

Warning Please follow the safety precautions below when installing or removing the AC 230V module.

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

Figure 4 shows the AC 230V module.

Figure 4   *AC 230V Module*
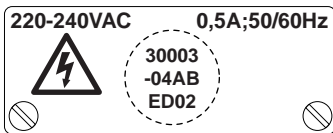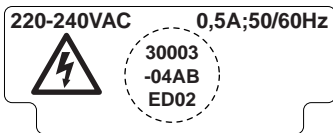
AC 230V Module Not Installed in ONS 15305

Warning ⚠ If the AC 230V module is not installed in ONS 15305, do not connect the power cable to mains. This will cause condensators inside the module to charge. Even if the power cable is removed from an uninstalled module, the discharge time will be long. Thus, touching the module will cause a hazardous discharge.

Power On

Warning **Insert the AC 230V module into ONS 15305 before connecting the power cable to the mains.**

Step 1 Insert the AC 230V module into the ONS 15305 device.

Step 2 Connect the AC power cable to the mains.

Power Off

Warning **Do not remove the AC 230V module when the module is connected to the mains. Make sure that the power cable is disconnected before removing the module.**

Caution To avoid hazardous discharge, please wait some minutes before removing the module.

Step 1 Remove the power cable from the mains.

Step 2 Please wait some minutes before removing the module, to avoid hazardous discharge.

Step 3 Remove the AC 230V module if necessary.

Installing External Ground to the ONS 15305

It is vital that the ONS 15305 cabinet is properly grounded. When installed in a rack, the ONS 15305 cabinet will be tied to the rack reference potential through the mounting brackets (earth, ground potential).

Note Make sure that the ONS 15305 brackets are mounted on unpainted rack area.

When not installed in a rack, the cabinet can be tied to an earth reference potential through the ground connector of the power supply plug as shown in Figure 3, or by mounting an extra connector to one of the cabinet screws as shown in Figure 5.

Figure 5   Ground Connector Position on the ONS 15305
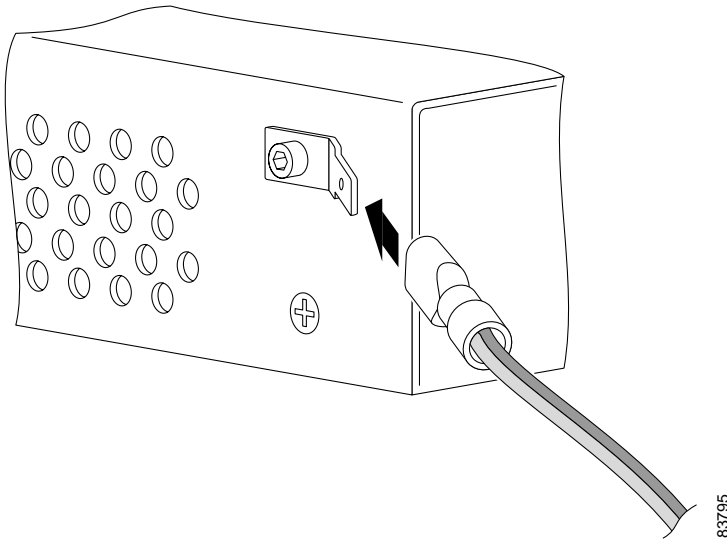
Installing the Ground Connector

Step 1   Remove the Phillips screw from the ONS 15305 (Figure 5).

Step 2   Affix the flat connector with the washer and the socket screw on the ONS 15305 (Figure 5).

Step 3   Insert the grounding cable in the flat cable plug and crimp the plug with a crimping tool (Figure 6).

Step 4   Verify that the ground cable is affixed 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 6   Connection of the Ground Cable with a Crimp Tool
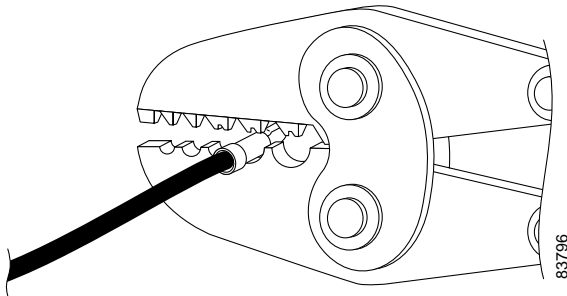
Installing Service Modules

This section describes installation procedures that are common and independent of service module type. For details on each service module, see the *ONS 15305 Installation and Operations Guide*. Interconnections and cabling are described in "Interconnections and Cable Handling" section on page 21.

It is possible to freely mix the four interface modules. There are no fixed positions for specific modules.

Note   Due to a heat/power dissipation related to the S1.1-8-LC module, there is a limitation of only two modules per ONS 15305 chassis. This is only related to this module.

Note   See the *ONS 15305 Installation and Operations Guide* for further information about service module power consumption and examples of module configuration within the capacity of the power modules.

Insertion or withdrawal of new modules does not affect the other modules. No manual configuration is needed if a module is replaced with a module of the same type.

It is possible to protect a module by adding a redundant module in the chassis.

All modules store inventory data in nonvolatile memory. The inventory data is accessible from the system controller and the management system.

All modules contain a LED that indicates the status of the module. The LED is green when the module is active. The LED is red if the module is failed. The LED is extinguished when the module is deactivated.

All modules support hot insertion and removal. When the module is replaced the switch must be activated and then the MOD FAIL LED must be extinguished before the module is removed. It is also possible to deactivate the module from the Cisco Edge Craft terminal. A special tool, the Card Extraction Tool (Figure 7) is needed to remove the module.

Figure 7   Card Extraction Tool
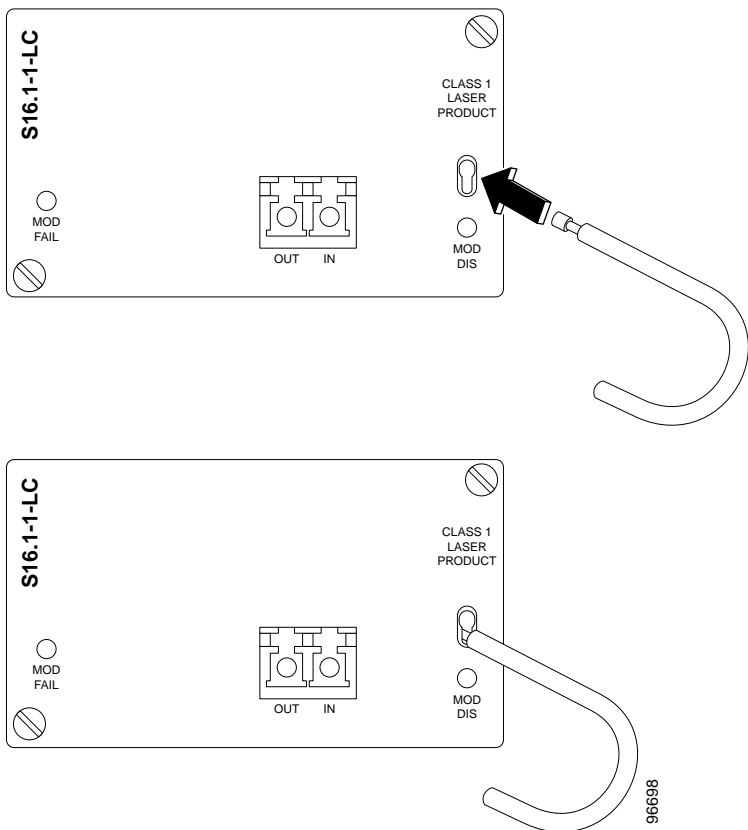
The following service modules are described in the *ONS 15305 Installation and Operations Guide*:

- Octal optical S-1.1 module (S1.1-8-LC)
- Dual optical S-4.1 module (S4.1-2-LC)
- Single optical S-16.1 module (S16.1-1-LC)
- Dual optical LAN 1000BaseLX module (GigE-2-LC)

- Octal LAN 10/100BaseTX module (E100-8)
- Octal E1 tributary module (E1-8)
- Hex E3/T3 tributary module (6xE3/T3-1.0/2.3)
- High density 63xE1 module (E1-63)
- Dual optical S-1.1 module (S1.1-2-LC)
- Single optical L-16.1 module (L16.2-1-LC) (Long Haul)
- Dual optical L4.2 module (L4.2-2-LC) (Long Haul)
- Dual optical S-1.1+21x E1 module (S1.1-2-LC/E1-21)
- Dual optical LAN 1000BaseLX module with mapper (GigE-WAN-2)
- Octal LAN 10/100BaseTX module with mapper (E100-WAN-8)

Small Form-Factor Pluggable Modules

The Small Form-factor Pluggable (SFP) modules to be used together with the GigE-WAN-2 service module are available from Cisco.

⚠

Caution If using SFP modules other than those delivered from Cisco, Cisco disclaims responsibility of possible damage or malfunction that might occur to involved equipment.

For details about the installation of SFP modules, please see the following documents:

- *Installing GBIC, SFP and XFP Optics Modules in Cisco ONS 15454, 15327, 15600, and 15310 Platforms*

  http://www.cisco.com/univercd/cc/td/doc/product/ong/15400/454spint/gbicsfp.htm
- *Cisco Small Form-Factor Pluggable Modules Installation Notes*

  http://www.cisco.com/en/US/products/hw/modules/ps5000/products_installation_guide_chapter09186a008011c581.html#81099

Interconnections and Cable Handling

Installing the ONS 15305 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 15305, connect a fiber cable with LC connector type to the transmit and receive ports of the transmission system. On the ONS 15305 module, the transmit and receive ports are located at the connector array of the unit. The receive port is named IN and the transmit port is named 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.**

⚠️

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.**

Connecting the Fiber Cable

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

Step 2   Clean and inspect the LC jumper cable connectors.

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

Step 4   Repeat Step 1 to Step 3 for the protection cable 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.

Installing the ONS 15305 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 15305, connect the electrical cable with the corresponding ports of the transmission system. On the ONS 15305 module, the electrical ports are located at the connector array of the system. 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.

Connecting the Electrical Cables

Step 1 Carefully connect the electrical cables to the customer-specified point.

Step 2 Repeat Step 1 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.

⚠️
Warning **With LFH cable, avoid sharp edges and excessive bending to protect the cable jacket. Always fasten the cable connectors with both fixing screws. If the connector is fixed with one screw only, this screw is likely to break if the cable is pulled by accident.**

Installation Checklist for ONS 15305

The following list is an installation checklist. Use this list as a reference when performing an installation. For detailed installation instructions, refer to the *Cisco ONS 15305 Installation and Setup Manual* (Release 1.0). To check the installation, verify the following items:

- ONS 15305 is mounted securely in the rack.
- Power runs to the ONS 15252.
- Power connections are fused properly (7A recommended).
- –48 VDC (tolerance –40.5 to –60 VDC) power is present.
- Transmit and receive fiber patchcords from the ONS 15454 are correctly connected to the ONS 15305.
- Fiber-optic patchcords route through the rack.
- Electrical cables route through the rack.
- Each cable is labeled.

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Note   For connection to the ONS 15454, see *Installing the Cisco ONS 15216 100 GHz DWDM Filters.*

11   ONSCLI—Command Line Interface

ONSCLI is a line-oriented ASCII-based management interface to ONS 15305, by means of which simple commands—possibly with parameters—can be issued to access or modify the ONS 15305 configuration.

Commissioning the IP Address Using the VT100 Interface

A local terminal with VT100 emulation is required during the first commissioning of the network element in order to set up the necessary communications parameters enabling access to the element through Cisco Edge Craft over the management port. After the first commissioning, the VT100 interface can be used to modify the communications parameters and perform status checks of the network element. The VT100 interface is password protected.

Accessing the ONSCLI

The ONSCLI is accessed through the VT100 port or through an IP connection (Telnet). The serial connection communications parameters are fixed (Table 2). VT100 terminal codes are used.

Table 2   EIA/TIA-232 Parameters

Parameter	Value
Speed	19200 bps
Data bits	8
Parity	None
Stop bits	1
Flow control	None

The VT100 port (Console port) for the ONS 15305 is provided using a RJ-45 connector. The cable for connecting the VT100 port to the serial port on the PC are provided.

Invoke ONSCLI

Step 1   Connect the VT100 interface of the network element to a free COM port of the PC running the Cisco Edge Craft application.

Step 2   A VT100 terminal application is available from the Cisco Edge Craft Logon window. Select Program > Cisco Edge Craft> Cisco Edge Craft.

Step 3   Double-click the VT100 icon in the lower right corner of the Logon window (Figure 8).

Figure 8   Logon Window

Figure 9   Start Window

Step 4   The terminal application launches (Figure 9).
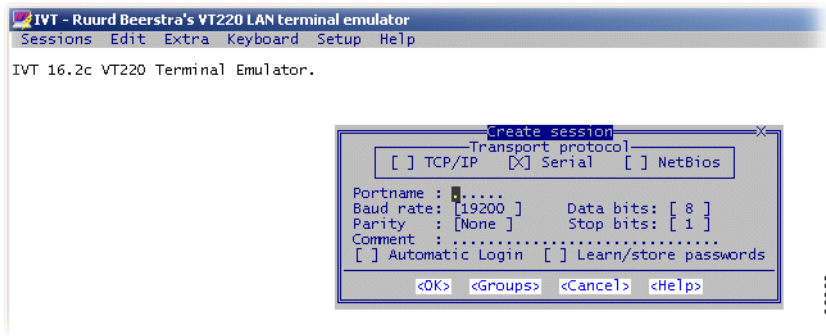
Step 5   Enter the COM port name and select OK.

Step 6   An ONSCLI session is invoked by typing onscli in terminal window. User authentication (password, 6 to 12 ASCII characters) is required, as the following session start-up sequence shows. The default password is ONSCLI.

```
>ONSCLI
------------------------------------------------
          ONS 15305 Command Line Interface
------------------------------------------------

Enter ONSCLI password: ******
ONSCLI>
```

Step 7   When access has been granted, you can define the following parameters:

```
IP-Configuration(Management-Port):
Show-Current-Alarms:
Change-Passwords: Manage CLI/TELNET passwords
Erase-CDB:
Reset-Device:
Display-Event-Log:
Clear-Event-Log:
Community-Handler:
Management-Modes:
Running-Config:
Exit:
```

It is sufficient to type leading characters of the command name to avoid ambiguity—the same applies to keywords.

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Note   The management port IP address is a compulsory parameter, and must be specified by you. All the other parameters (except default gateway) are defaulted to pre-defined values if they are not specified.

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Note   The backspace or delete key can be used to edit the command line. Commands and keywords are not case-sensitive.

Incorrect Password

Each password characters is echoed as '*'. An incorrect password is rejected with the message:

`invalid password`

and the password prompt is reissued.

An authorized ONSCLI user obtains full access rights to the available management information.

Exit

The Exit command is used to terminate an ONSCLI session. The ONSCLI session is automatically terminated after a period of 30 minutes of inactivity. ONSCLI does not accept simultaneous sessions.

Syntax Rules

An ONSCLI command line begins with a prompt (issued by ONSCLI), which serves to indicate the current position in the command hierarchy.

An ONSCLI command is issued by typing the command and then pressing Enter. Optionally, and only at the lowest level in the command hierarchy, one or more parameters might be supplied. These are identified by keywords. The command name, parameter keywords, and parameter values are delimited by one or more spaces.

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Note   Only sufficient leading characters of the command name must be typed to avoid ambiguity. The same applies to keywords.

Table 3   Command Line Editing Features

Command	Result
Delete or Backspace	Erases characters in the command line.
Arrow left	Moves the cursor to the left side.
Arrow right	Moves the cursor to the right side.
Arrow Up	Recalls the previous command in command history.
Return or Enter	At the command line, pressing the Return key performs the function of processing a command.
..	Returns to the previous command level.
\	Goes to the top command level.
?	Issues a list of commands valid at the current level, or shows the command usage.
Free	Shows VC-12 containers that are not yet utilized.
Used	Lists VC-12 containers that are in use.
Status	Presents current device and port status.
Exit	Exits ONSCLI.

Some commands (in particular, the Show command) can potentially produce many lines of output. After a predetermined number of lines of output in response to a single command, the user is prompted to enter y(es) or n(o) to continue the output. The line number limit is defined with the DISPLAY-LINES parameter of the Command-Line-Interface command.

Basic Command Syntax

A basic command has the following syntax:

Example 1   Basic Command Syntax

```
<basic command>       ::= [<path>]<command> [<parameter>]… <CR>
<path>                ::= [\]<command\>[<command\>]…
<command>             ::= <command name> | ..
<parameter>           ::= <spaces> <keyword>=<value> | ?
<value>               ::= <integer> |
                          <choice> |
                          <IP address> |
                          <string> |
                          <MAC address> |
                          <NSAP address> |
                          <time> |
                          <date> |
                          <KLM> |
                          <portList> |
                          <port>

<NSAP address>     ::= <area address>:<system id>:<selector>
<portList>         ::= <port>[,<port>]..
<areaAddressList>  ::= <area address>[,<area address>]...
```

where:

```
<spaces>      is a string of one or more ASCII spaces;

<integer>     is a decimal integer in the range [m:n], where the values m and n are
              context-dependent;

<choice>      is a literal string, whose permissable values and their significance are
              context-dependent and may be obtained by using the help ("?") parameter;

<IP address>  is an IP address of the form ddd.ddd.ddd.ddd,  where d is a decimal digit.
              Leading zeroes in each ddd may be omitted;
```

```
<string>       is a string of graphical ASCII characters, excluding  quotation marks (").
               If the string contains one or more spaces, then it MUST be enclosed in
               quotation marks. The maximum length of the string is context-dependent;

<MAC address>  is exactly 12 hexadecimal digits;

<time>         is a time-of-day of the form hh:mm:ss, where h, m and s are decimal digits;

<date>         is a date of the form dd/mm/yy, where d, m and y are decimal digits;
<KLM>          is a string of the form k.l.m,  where k is a decimal digit in the range
               [1:3],  l is a decimal digit  in the range [1:7], and  m is a decimal digit
               in the range [1:3].
<port>         is a decimal integer;
<area address> is a hexadecimal string;
<system id>    is a hexadecimal string;
<selector>     is a hexadecimal string;
```

The Help Command

Press the question mark (?) key to invoke the help command. This command displays all available commands at the current level, each with a short description. For example, typing "?" at the root level will list the commands that are available at that level.

Command Hierarchy

In the command hierarchy, the lowest level is represented by a basic command with one or more parameters.

If the help command is given, any other parameters are ignored and the basic command usage is displayed.

Table entries are accessed by introducing an additional command level giving access to the entire table. At this lowest level, the Add command (with the index and required table entries as parameters) can be used to add an element to the table and the Edit command can be used to replace an existing element in the table (if these operations are permitted on the table).

Similarly the Remove command (with the entry index as parameter) can be used to remove an existing element from the table, if this is permitted.

The Show command with an entry index value as a parameter displays the specified table entry. If no parameter is supplied with the Show command, the current content of the entire table is displayed.

12 Initial Configuration

Use the procedures in this section to do the most important configurations of ONS 15305. The most important tasks involved in initial configuration of ONS 15305 are:

- Configure Community-handler
- Assign an IP Address
- Change Passwords
- Erase a Community String

Configure Community-handler

The following example shows how to set community for a default user. If setting community for a specific user, the corresponding IP address must be entered instead of 0.0.0.0.

Step 1 Enter the following command at the prompt and press Enter.

```
ONSCLI> com
```

Step 2 Enter the following command at the prompt and press Enter.

```
ONSCLI> Community-handler\ll
```

Step 3 Define the following parameters as applicable.

```
Add:     Add-Community-entry
Edit:    Edit-Community-entry
Remove:  Remove-Community-entry
Show:    Show-Community-entry
Exit:

ONSCLI> Community-handler\
```

Step 4 Enter the following command at the prompt and press Enter.

```
ONSCLI>Community-handler\add man=0.0.0.0 com=public acc=super traps=disable

MANAGER:    0.0.0.0
COMMUNITY:  public
ACCESS:     super
TRAPS:      disableONSCLI>Community-handler\
```

Assign an IP Address

The ONS 15305 supports remote management solutions by means of Telnet and SNMP. The possibilities that regard to connectivity can be rather advanced for the ONS 15305, so the only explained solution in this document is when directly connected the management port (MNGT). For more information refer *Cisco Edge Craft User Guide* and the *ONS 15305 Installation and Operations Guide*.

To achieve one of the above mentioned management solutions, you must assign an IP address, subnet mask, and if required, a default gateway address.

System Mode

In ONS 15305 Release 2.0, an additional management mode, system mode, is added. System mode has two options: IP and IPUNNUMBERED.

The desirable system mode should be set before configuring the IP settings on the ONS 15305, since this is a strategic choice to align with the existing design of management data communication network. By default the system mode is IP, which means that all physical indices must have a unique IP address and subnet mask. For more information refer *CiscoEdge Craft User Guide* and the *ONS 15305 Installation and Operations Guide*.

Step 1 Enter the following command at the prompt:

```
ONSCLI> Management-modes\sys ?
```

Step 2 Press Enter. The following data is returned:

```
Usage:
System-Mode
[SYSTEM-MODE=<ip|ipunnumbered>]
```

System Mode—IP (Default)

Step 1 Enter the following command at the prompt:

```
ONSCLI>Management-modes\sys sys=ip
Change management configuration, are you sure? (y/n)?
```

Step 2 Press y.

Step 3 If system mode is ip, the command for assigning an IP adress is:

```
ONSCLI>Device\Management-Configuration\IP-Configuration
IP-ADDRESS=193.69.136.104, SUBNET-MASK=255.255.255.0
```

Step 4 Press Enter.

System Mode—IP Unnumbered

Step 1 Enter the following command at the prompt:

```
ONSCLI> Management-modes\sys sys=ipun
Change management configuration, are you sure? (y/n)?
```

Step 2 Press y.

Step 3 Assign an IP address. If system mode is IP unnumbered, use the following command:

```
ONSCLI>Device\Management-Configuration\IP-Configuration
IP-ADDRESS=193.69.136.104, SUBNET-MASK=255.255.255.0
```

For most commands, if no parameters are supplied, then all of the current parameter values are displayed.

```
ONSCLI>IP-Configuration
IP-ADDRESS: 10.0.0.1
SUBNET-MASK: 255.255.255.0
DEFAULT-GATEWAY: 10.0.0.254 (optional)
```

Change Passwords

Step 1 Enter the following command at the prompt:

```
ONSCLI>ch ?
```

Step 2 Press Enter. The following data appears:

```
Usage:
Change-Passwords
[ONSCLI -PASSWORD=<string[6:12]>]
[TELNET-PASSWORD=<string[6:12]>]
```

By this command, TELNET and ONSCLI passwords can be changed. Both passwords can be changed in the same command or they can be changed one by one.

Erase a Community String

To remove a community string, use the following command:

Step 1 Enter the following command at the prompt:

```
ONSCLI>Community-Handler\remove manager=0.0.0.0 community=public
```

Step 2 Press Enter. The following data appears:

```
MANAGER: 0.0.0.0
COMMUNITY: public
removed.
```

13 Further Configuration of ONS 15305

Please see *CiscoEdge Craft Software Guide* for instructions related to further configuration and *ONS 15305 Installation and Operations Guide* for details concerning the equipment.

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Tip See the Commissioning Wizard and the MCN Wizard in CiscoEdge Craft.

Recommended Order

1. Configure expected modules.
2. Enable alarm reporting on all modules including the power module(s).
3. Adjust time and date and optionally the time server.
4. Add a community string reflecting the IP address of your CiscoEdge Craft PC.
5. If your configuration includes SDH interfaces, enable all in use.
6. Configure synchronization as planned.
7. Configure DCN if not including signals through IP payload.
8. If your configuration includes SDH interfaces, structure the VC's as desirable.
9. If your configuration includes Ethernet into SDH, configure administratively the desired bandwidth for WAN port(s).
10. If your configuration includes PDH, interfaces enable and configure desirable port(s).
11. If your configuration includes Ethernet, consider the following; operation of each Ethernet port, IP-routing, STP, etc..

12. Provision circuits including cross-connections.
13. Configure protection SNCP and MSP if needed and consider performing configuration backup.