Cisco ONT 1031 Setup Quick-Start Guide

This document describes the basic process of cabling and configuring the Cisco ONT 1031 Internet access device, which provides optical fiber Ethernet connections to homes and small offices. The Cisco ONT 1031 is configured and managed remotely using the Cisco Ethernet Subscriber Solution Engine (Cisco ESSE). This document is for installation technicians who install Cisco ONT 1031 devices in subscriber environments.

Parts List

The shipment of your Cisco ONT 1031 includes the following items:

- One Cisco ONT 1031
- One black, desktop power supply with attached 33-ft cord
- One black power supply cord (6 feet in length)
- One radio frequency interference (RFI) suppressor bead
- Two wall-mounting brackets
- Four bolts for the wall-mounting brackets
- This quick-start guide
- Cisco product documentation CD

Figure 1 shows the items included with the device. If any of the items is missing or damaged, contact your customer service representative.
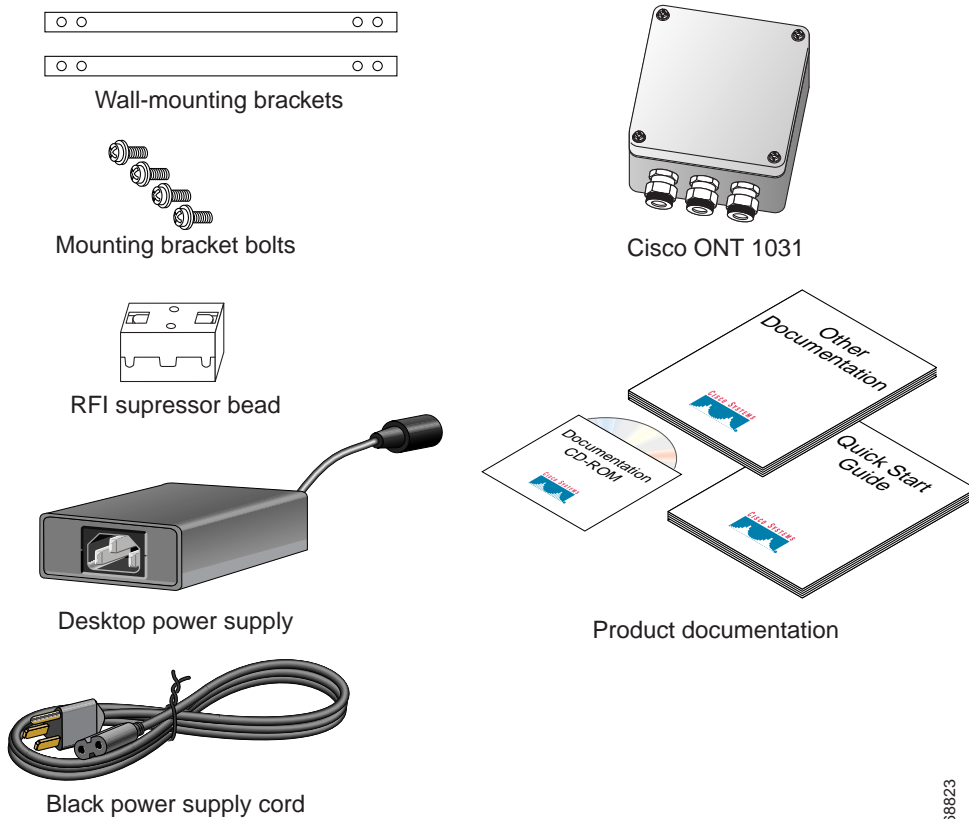
Figure 1   Items Included with the Cisco ONT 1031

Wall-mounting brackets

Mounting bracket bolts

Cisco ONT 1031

RFI supressor bead

Desktop power supply

Product documentation

Black power supply cord

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Preparing to Install the Cisco ONT 1031

The Cisco ONT 1031 is intended to be installed on an exterior wall of a home or small business. Before you begin installing the Cisco ONT 1031, do the following:

1. Verify that the device will be placed within 35 feet of a power outlet and that the power outlet that will supply the device is not controlled by a wall switch. The power cord coming from the power supply may run through a small hole drilled in the wall or out a slightly opened window.
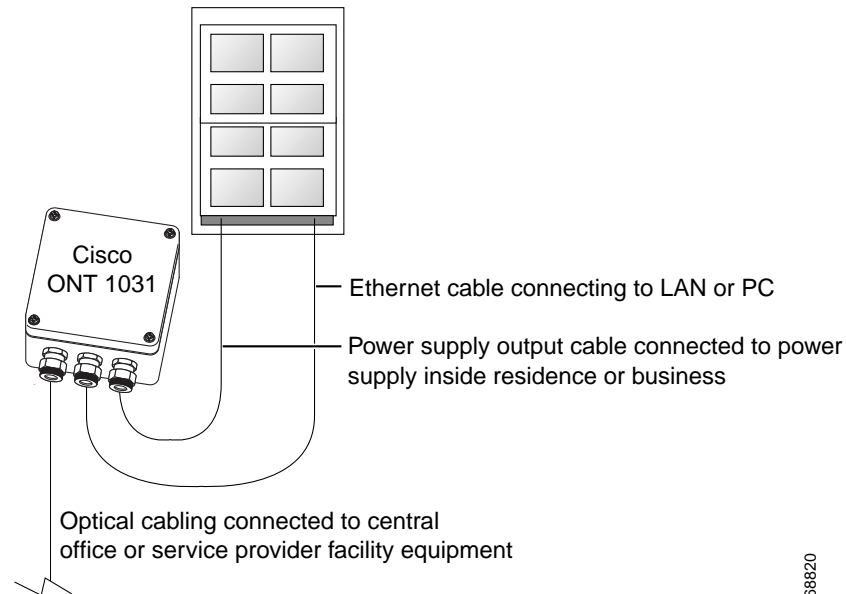
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Warning   **The power supply must be placed indoors.**

2. Verify that the needed Ethernet wiring for the PC or LAN the user wishes to connect to the Internet is already at or can be extended to the desired mounting site. The Ethernet cable may run through a small hole drilled in the wall, or out a slightly opened window.

3. Verify that optical cabling is already at or can be extended to the desired mounting site.

Figure 2   Sample Installation Solution

Cisco
ONT 1031

— Ethernet cable connecting to LAN or PC

Power supply output cable connected to power
supply inside residence or business

Optical cabling connected to central
office or service provider facility equipment

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Ethernet Interfaces

The pinout of the cable connecting the Cisco ONT 1031 and the subscriber's equipment will depend on the type of equipment you need to connect to and the configuration of the Cisco ONT 1031 software. When connecting an MDI[1] interface (such as a PC) to an MDI-X interface, use a straight-through cable. When connecting an MDI-X interface to another MDI-X interface, use a crossover cable.The Cisco ONT 1031 subscriber port has an MDI-X interface, as do most network devices (such as switches).

When the Cisco ONT 1031 is configured to autonegotiate, it can detect which type of interface is on the opposite end of the cable, and it can automatically switch from MDI-X to MDI if it needs to, allowing either type of cable to be used.

1. Medium Dependent Interface (MDI) -- The MDI is a mechanical and electrical interface between the transmission medium and the physical layer device (PHY). MDI-X is a variant of the MDI interface.

Wall-Mounting the Cisco ONT 1031

This procedure tells you how to mount the Cisco ONT 1031 to the outside of a building. After selecting an appropriate place to mount the Cisco ONT 1031, perform the following steps:

Step 1   Remove the Cisco ONT 1031 from its shipping container and packaging (see Figure 3).

Figure 3   Cisco ONT 1031 Removed from Packaging
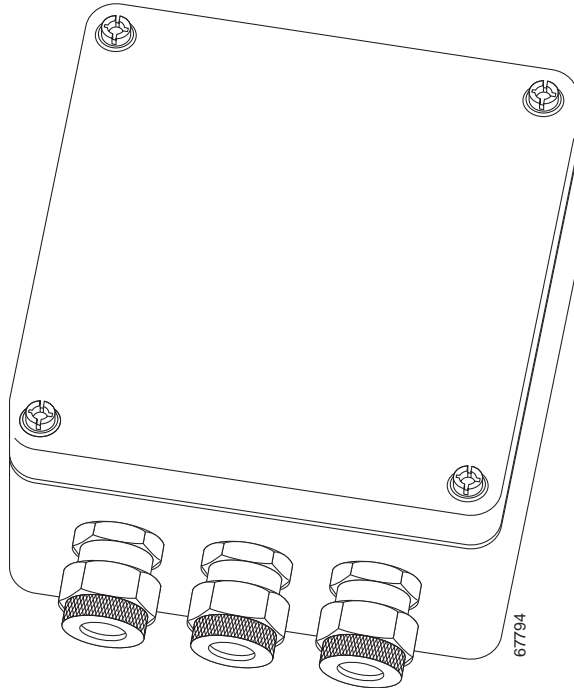
Step 2 The top cover is held on by four captive screws. Using a screwdriver, loosen the screws and remove the top cover from the device. Set the top cover aside (see Figure 4).

Figure 4   Cisco ONT 1031 with Top Cover Removed

Mounting-bolt wells

Mounting-bolt wells

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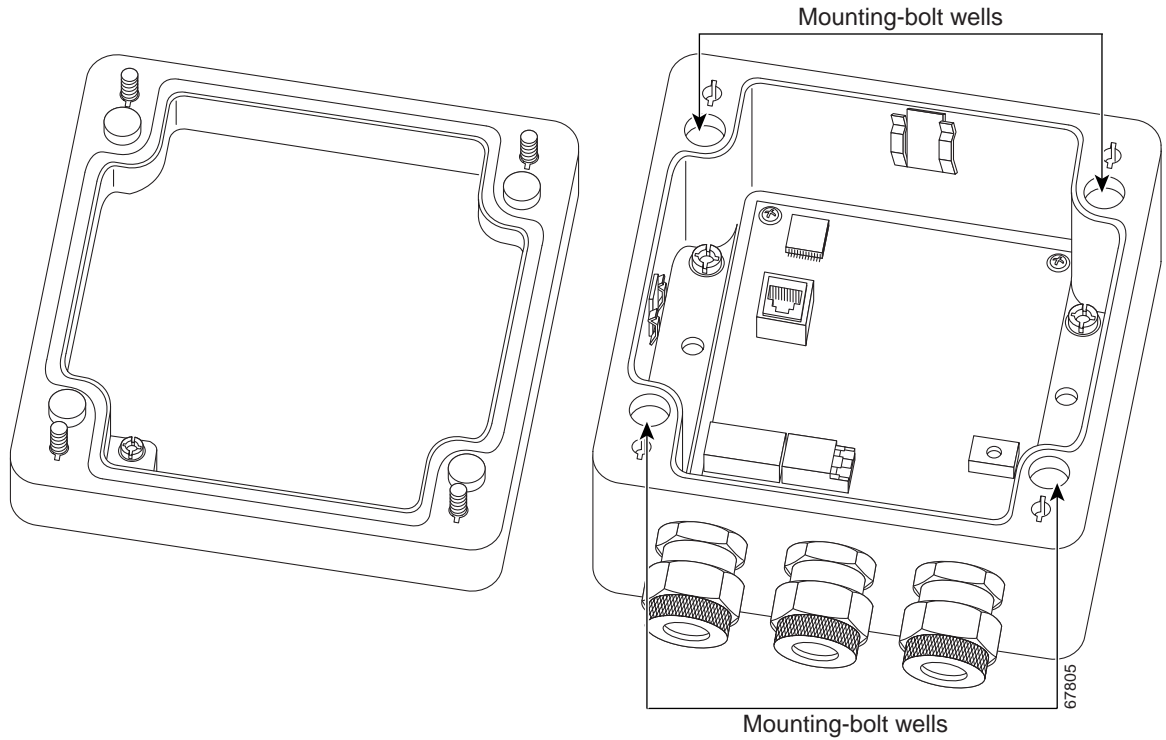
Step 3   Slide the provided bolts into the wells at each of the four corners of the chassis (well locations are shown in Figure 4).

Step 4   Using a flat-head screwdriver, bolt the wall mounting brackets onto the Cisco ONT 1031 chassis (see Figure 5). With both brackets have been attached, the unit should look as shown in Figure 6.

Figure 5   Attaching the Mounting Brackets

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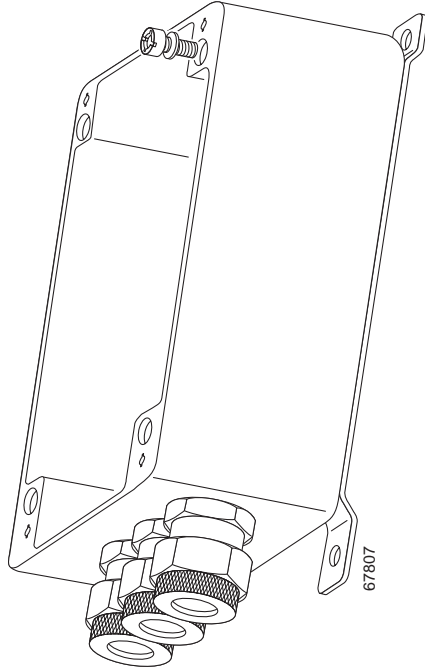
Figure 6   View of Device from Rear, with Mounting Brackets Attached
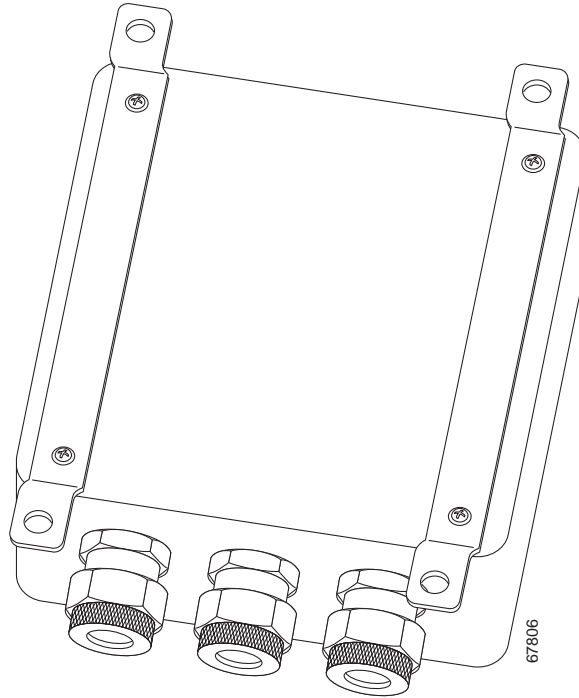
Step 5 Using a 1-inch wood screw or other appropriate fastener at each of the remaining four holes on the mounting bracket, fasten the Cisco ONT 1031 to the side of the building.

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Caution To comply with EMC and NEMA requirements and maintain the integrity of the enclosure, the unit must be vertically mounted so that the cable openings point down.

The Cisco ONT 1031 is now mounted to the side of the building.

Proceed to the next sections to perform power and data connections.

Connecting Power to the Cisco ONT 1031

To connect power to the Cisco ONT 1031, perform the following steps:

**Step 1** Plug the 6-ft power cord into the power supply and into a wall socket.

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Tip Verify that the socket is not controlled by a wall switch. It is preferable but not absolutely necessary to have the Cisco ONT 1031 be the only device on that breaker or fuse circuit in the building.

**Step 2** Run the 33-ft power cord from the power supply to the Cisco ONT 1031 mounting site.

Step 3 Using a crescent wrench, loosen the environmental seal on the right side of the unit. The arrangement of the seals and washers is shown in Figure 7.

Figure 7   Right Environmental Seal Removed

Seal
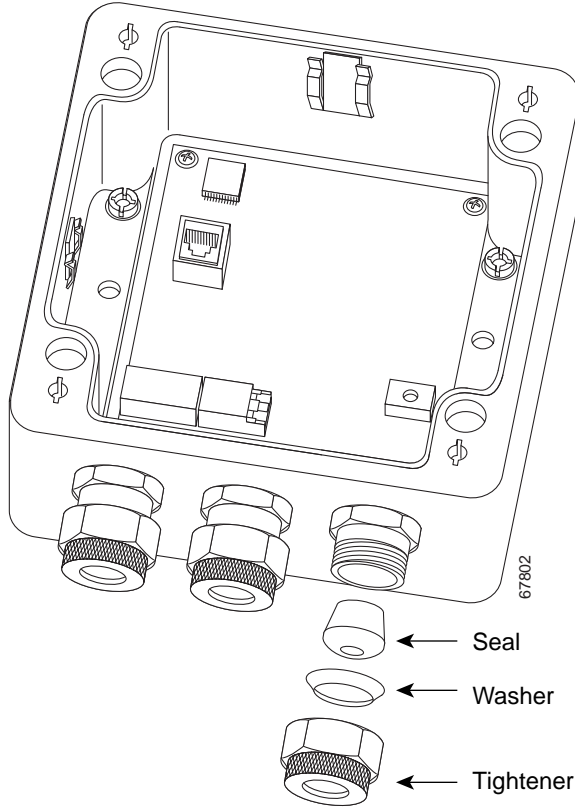
Washer

Tightener

Step 4   Run the power cable through the tightener and the washer, then clamp on the rubber environmental seal. See Figure 8.

Figure 8   Tightener, Washer, and Seal Placed on Power Cable
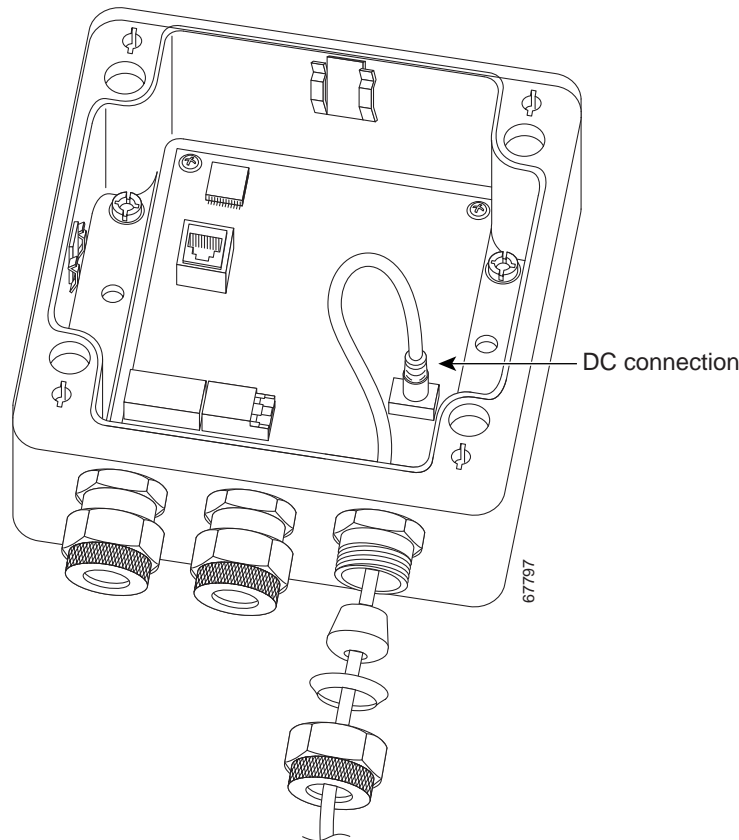

Tightener   Washer   Seal
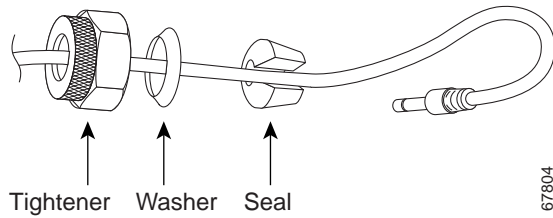
> ✎
> **Note** The split in the environmental seal might be difficult to find at first. Stretching the seal with a screwdriver will reveal the split quickly.

Step 5 Run the power cable into the Cisco ONT 1031 chassis and plug it into the DC connection, as shown in Figure 9.

Figure 9   DC Connection Plugged In

DC connection

Step 6 Verify that the uplink LED shown in Figure 14 on page 14 lights up. The light indicates that the unit is receiving power.

Step 7 Leave as little slack as possible inside the chassis.

Step 8 Tighten down the seal, washer, and tightener with your bare fingers. Tighten another one-half turn using a crescent wrench.

The Cisco ONT 1031 now has DC power. Proceed to the next section to connect the subscriber port Ethernet cable to a LAN or PC.

Connecting to the LAN or PC

To connect the subscriber port to the subscriber Ethernet LAN or PC, perform the following steps:

Step 1 Verify that the Ethernet cable that runs to the Cisco ONT 1031 mounting site is connected to an Ethernet LAN or PC.

Step 2 Using a crescent wrench, loosen and remove the center environmental seal.

Step 3 As you did with the power connection, run the Ethernet cable through the tightener, washer, and environmental seal.

Step 4 Run the Ethernet cable into the Cisco ONT 1031 chassis, and connect the RJ-45 cable end to the subscriber port as shown in Figure 10.

Figure 10   Connecting the Ethernet Cable
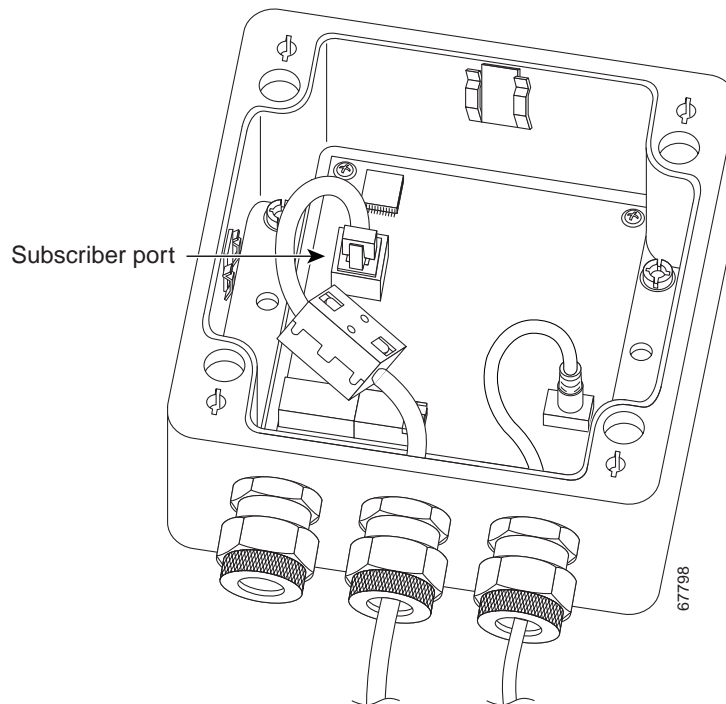
Step 5 Place an RFI suppressor bead over a portion of the Ethernet cable inside the chassis, and work any slack outside the chassis.

Step 6 Replace the environmental seal, washer, and tightener, and tighten as much as possible using your bare fingers.

Step 7 Using a crescent wrench, tighten the center environmental seal another one-half turn. Do not overtighten the environmental seal.

The Ethernet LAN or PC is now connected to your Cisco ONT 1031. To connect the optical fiber data connection, proceed to the next section.

Connecting the Optical Fiber Ethernet Cable

Warning   **Invisible laser radiation may be emitted from the end of the unterminated fiber cable or connector. Do not stare into the beam or 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. Use of controls or adjustments or performance of procedures other than those specified may result in hazardous radiation exposure.**

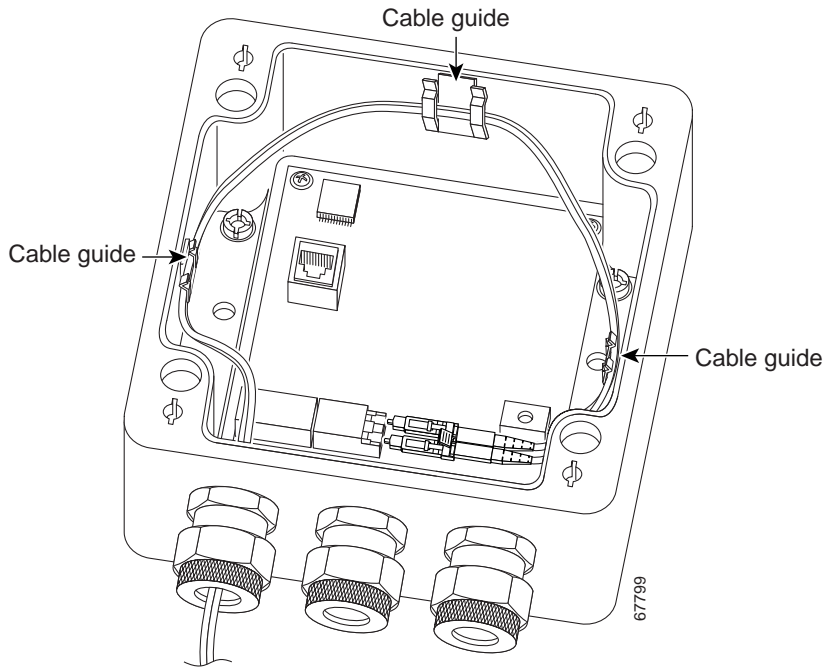To connect the optical fiber Ethernet cable, perform the following steps:

Step 1   Attach an LC connector to the unfinished optical cable pair (see Figure 11).

Figure 11   Optical Cable LC Connector
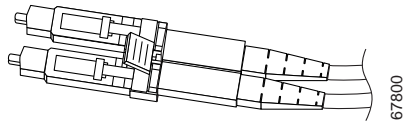
Step 2   Remove the left environmental seal from the Cisco ONT 1031 chassis.

Step 3   Run the finished optical cable through the tightener, washer, and environmental seal.

Step 4   Run the optical cable into the Cisco ONT 1031 chassis as shown in Figure 12. Be sure to use the cable guides as shown.

*Figure 12   Running the Optical Cable into the Chassis*

Note The power and Ethernet cables are not shown in Figure 12, but they should already be installed at this point.

Step 5 Remove the dust cover for the optics on the Cisco ONT 1031.

Step 6 Connect the optical cable to the optical port inside the Cisco ONT 1031 chassis as shown in Figure 13.

Figure 13   Connecting the Optical Cable
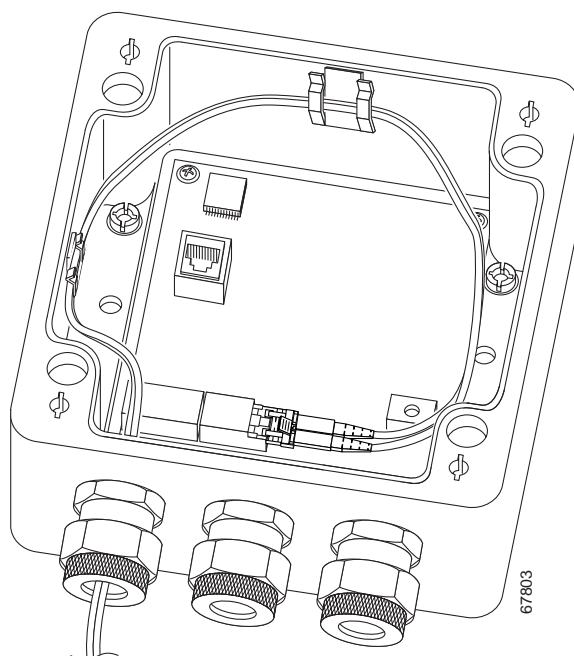
Step 7 Using your bare fingers, tighten the environmental seal.

Step 8 Using a crescent wrench, tighten the environmental seal an additional one-half turn. Do not overtighten the environmental seals.

All connections are now complete. To verify that connections are functioning, proceed to the next section.

Verifying the Installation

Two LEDs inside the chassis are provided to verify the uplink and subscriber connections. To verify that the connections are functioning properly, do the following:

Step 1 Check for a steady green light from the subscriber LED (see Figure 14). The green light indicates that the subscriber link is active.

If the LED is intermittently flickering or off, there may be a problem with the Ethernet connection, the power cable, or the subscriber Ethernet device. Reseat the cable connections in the chassis and at the LAN or PC and power socket. If the problem persists, replace the Ethernet cable or power cable. The LED will also remain off if the Cisco ONT 1031 is not connected to an Ethernet device (such as a PC or a LAN hub) through the Ethernet cable.

Step 2   Check the uplink LED (see Figure 14). This LED indicates the status of the optical fiber connection.

- If the LED is off, the Cisco ONT 1031 is either not getting power or is damaged. Verify that the power cable is undamaged and the AC-to-DC converter is getting AC power.

- If the LED is red, the Cisco ONT 1031 is functioning and has power, but no light is detected on the optical fiber cable. Check for a badly seated connection, damaged cable, or a disconnect at the other end of the cable.

- If the LED is orange, the Cisco ONT 1031 is functioning, has power, and a functioning optical uplink, but has not yet been detected by the network management system.

- If the LED is green, the optical connection is complete and functioning, and the Cisco ONT 1031 has been contacted by its management system.

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Note   The Cisco ONT 1031 is intended to connect with a Catalyst 4000 switch in the nearest central office. If the switch connecting to your Cisco ONT 1031 is not properly configured, the optical link will not come up. This configuration should have been performed prior to the installation of the Cisco ESSE management system; it is described in the documentation for the Cisco ESSE.

Figure 14   LED Locations
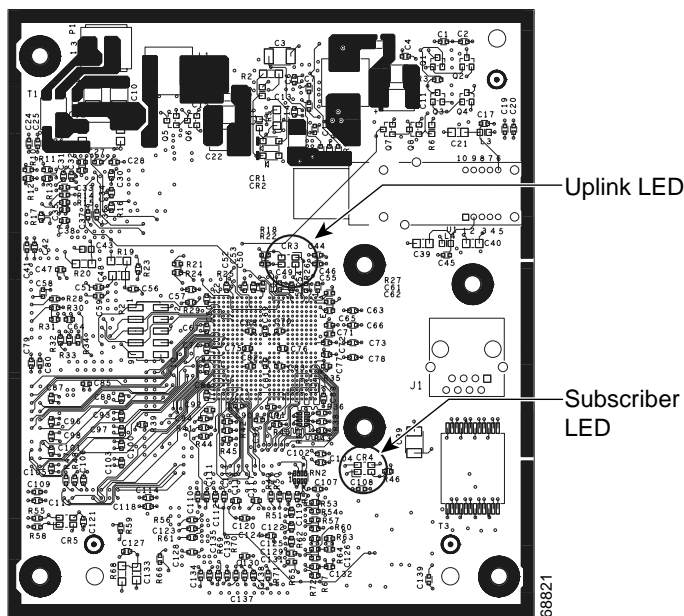
Step 3   Proceed to the next section to seal the chassis and complete the installation.

Sealing the Cisco ONT 1031

The Cisco ONT 1031 circuitry cannot operate in an open environment; it must be sealed off from rain, hail, other environmental concerns to function properly. To seal the chassis, do the following:

Step 1   Recheck the power and Ethernet connections for unnecessary slack inside the chassis. Slack in the cables should be outside the chassis.

Step 2   Recheck the environmental seals. They should be tight enough that a wrench rather than bare fingers is needed to move the tighteners, and the seals should provide a complete moisture seal around the cables.

Step 3   Align the TOP markings on the cover and chassis, and replace the cover on the front of the unit.

Step 4   Using a flat-head screwdriver, tighten all four captive screws.

Installation of the Cisco ONT 1031 is now complete.

Configuring the Cisco ONT 1031

There is no direct configuration possible for the Cisco ONT 1031. This device was designed to be configured from a central management point using network management software intended specifically for this device (the Cisco ESSE).

Translated Safety Warnings

The following sections provide translations of safety warnings for the Cisco ONT 1031.

Unterminated Fiber Warning

Warning   **Invisible laser radiation may be emitted from the end of the unterminated fiber cable or connector. Do not stare into the beam or 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. Use of controls or adjustments or performance of procedures other than those specified may result in hazardous radiation exposure.**

Waarschuwing   **Er kunnen onzichtbare laserstralen worden uitgezonden vanuit het uiteinde van de onafgebroken vezelkabel of connector. Niet in de straal kijken of deze rechtstreeks bekijken met optische instrumenten. Als u de laseruitvoer met bepaalde optische instrumenten bekijkt (zoals bijv. een oogloep, vergrootgras of microscoop) binnen een afstand van 100 mm kan dit gevaar voor uw ogen opleveren. Het gebruik van regelaars of bijstellingen of het uitvoeren van procedures anders dan opgegeven kan leiden tot blootstelling aan gevaarlijke straling.**

Varoitus Päättämättömän kuitukaapelin tai -liittimen päästä voi tulla näkymätöntä lasersäteilyä. Älä tuijota sädettä tai katso sitä suoraan optisilla välineillä. Lasersäteen katsominen tietyillä optisilla välineillä (esim. suurennuslasilla tai mikroskoopilla) 10 cm:n päästä tai sitä lähempää voi olla vaarallista silmille. Säätimien tai säätöjen käyttö ja toimenpiteiden suorittaminen ohjeista poikkeavalla tavalla voi altistaa vaaralliselle säteilylle.

Attention Des émissions de radiations laser invisibles peuvent se produire à l'extrémité d'un câble en fibre ou d'un raccord sans terminaison. Ne pas fixer du regard le rayon ou l'observer directement avec des instruments optiques. L'observation du laser à l'aide certains instruments optiques (loupes et microscopes) à une distance inférieure à 100 mm peut poser des risques pour les yeux. L'utilisation de commandes, de réglages ou de procédures autres que ceux spécifiés peut entraîner une exposition dangereuse à des radiations.

Warnung Eine unsichtbare Laserstrahlung kann vom Ende des nicht angeschlossenen Glasfaserkabels oder Steckers ausgestrahlt werden. Nicht in den Laserstrahl schauen oder diesen mit einem optischen Instrument direkt ansehen. Ein Betrachten des Laserstrahls mit bestimmten optischen Instrumenten, wie z.B. Augenlupen, Vergrößerungsgläsern und Mikroskopen innerhalb eines Abstands von 100 mm kann für das Auge gefährlich sein. Die Verwendung von nicht spezifizierten Steuerelementen, Einstellungen oder Verfahrensweisen kann eine gefährliche Strahlenexposition zur Folge haben.

Avvertenza L'estremità del connettore o del cavo ottico senza terminazione può emettere radiazioni laser invisibili. Non fissare il raggio od osservarlo in modo diretto con strumenti ottici. L'osservazione del fascio laser con determinati strumenti ottici (come lupette, lenti di ingrandimento o microscopi) entro una distanza di 100 mm può provocare danni agli occhi. L'adozione di controlli, regolazioni o procedure diverse da quelle specificate può comportare il pericolo di esposizione a radiazioni.

Advarsel Usynlig laserstråling kan emittere fra enden av den ikke-terminerte fiberkabelen eller koblingen. Ikke se inn i strålen og se heller ikke direkte på strålen med optiske instrumenter. Observering av laserutgang med visse optiske instrumenter (for eksempel øyelupe, forstørrelsesglass eller mikroskoper) innenfor en avstand på 100 mm kan være farlig for øynene. Bruk av kontroller eller justeringer eller utførelse av prosedyrer som ikke er spesifiserte, kan resultere i farlig strålingseksponering.

Aviso Radiação laser invisível pode ser emitida pela ponta de um conector ou cabo de fibra não terminado. Não olhe fixa ou diretamente para o feixe ou com instrumentos ópticos. Visualizar a emissão do laser com certos instrumentos ópticos (por exemplo, lupas, lentes de aumento ou microscópios) a uma distância de 100 mm pode causar riscos à visão. O uso de controles, ajustes ou desempenho de procedimentos diferentes dos especificados pode resultar em exposição prejudicial de radiação.

¡Advertencia! **El extremo de un cable o conector de fibra sin terminación puede emitir radiación láser invisible. No se acerque al radio de acción ni lo mire directamente con instrumentos ópticos. La exposición del ojo a una salida de láser con determinados instrumentos ópticos (por ejemplo, lupas y microscopios) a una distancia de 100 mm puede comportar lesiones oculares. La aplicación de controles, ajustes y procedimientos distintos a los especificados puede comportar una exposición peligrosa a la radiación.**

Varning! **Osynlig laserstrålning kan komma från änden på en oavslutad fiberkabel eller -anslutning. Titta inte rakt in i strålen eller direkt på den med optiska instrument. Att titta på laserstrålen med vissa optiska instrument (t.ex. lupper, förstoringsglas och mikroskop) från ett avstånd på 100 mm kan skada ögonen. Om andra kontroller eller justeringar än de angivna används, eller om andra processer än de angivna genomförs, kan skadlig strålning avges.**

Power Supply Installation Warning

Warning **The power supply must be placed indoors.**

Waarschuwing **De stroomtoevoer moet binnen worden geplaatst.**

Varoitus **Tehonlähde on sijoitettava sisätiloihin.**

Attention **Le bloc d'alimentation électrique doit être placé à l'intérieur.**

Warnung **Die Stromversorgungsquelle darf nicht im Freien aufgestellt werden.**

Avvertenza **L'alimentatore deve essere posto in un luogo interno.**

Advarsel **Strømkilden skal være plassert innendørs.**

Aviso **A fonte de alimentação deve ser instalada no interior.**

¡Advertencia! **El suministro de energía debe estar ubicado en un lugar cubierto y no al aire libre.**

Varning! **Strömkällan måste vara placerad inomhus.**