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UC Pro Server

Installation Instructions

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Contents

Introduction **5**
Using this Manual 5
Front Panel 6
Back Panel 8
Installation **9**
Installation Overview 9
Safety Guidelines and General Installation 10
Rack Mounting 12
Power 17
Ethernet Network Connection 18
Telephony Connections 19
Configuration and Administration **27**
Joining the Local Domain 27
Configuring System Options 27
User Configuration Options 29
Specifications **31**
Service and Warranty **33**
Service 33
Teo Product Warranty 33
Safety and Regulatory Requirements **35**
Cautions 35
FCC Part 15 35
National Electrical Code 35

Introduction

The Teo UC (Unified Communications) System is a SIP-based VoIP platform that integrates a wide variety of communications services via a software-based solution that runs on the **UC Pro Server** or the smaller-capacity UC Mini Server. The servers run proprietary Teo software on a Linux operating system, and can be configured for a wide range of station and call capacities.

Features of the UC system include:

- Automated Attendant
- Voicemail
- Conferencing
- Call reporting
- Call recording
- Mobile phone support
- Softphone
- Presence-based call routing
- Fax Server
- E911
- LDAP/Active Directory integration
- Mass provisioning of users
- Mass provisioning of devices
- Centralized administration of all system functions

Using this Manual

This manual covers the hardware installation and initial configuration of the UC Pro Server.

- Connectors, switches, and indicators on the front and back panels are described in this chapter.
- The **Installation** chapter covers rack mounting, line and device connection, and power.
- The **Configuration and Administration** chapter gives a brief introduction to the web-based Administration and User Portals. Detailed online help for these tools can be accessed from the portal interfaces.

Front Panel

Seven computer and network status indicators are located on the UC Pro Server front panel.

Remove the front bezel to access the reset button, power button, hard drive bays, USB and serial ports, and a DVD drive.

Front Bezel Removal

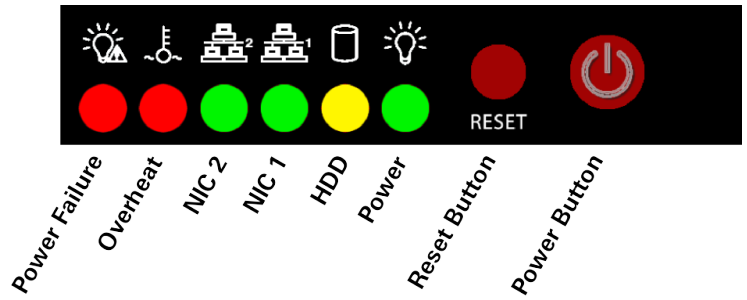
Press the red lever left to unlatch the front bezel, and then pull the bezel forward to remove. The bezel may be locked (using the included key) to prevent removal.

Computer/Network Control Panel

The UC Pro Server has a switch and indicator area on the front panel. Indicators can be viewed with the front bezel in place; remove the bezel to access the reset and power buttons.

Indicators and Switches

The indicators on this panel show the status of the internal computer system and network connections. The power switch and reset button are also located here.



Power Failure – flashing indicates a failure in either of the two redundant hot-swappable power supplies.

Overheat/Fan Fail – flashing indicates a fan failure. Continuously on (not flashing) indicates an overheat condition, which may be caused by cables obstructing the airflow in the system or the ambient room temperature being too warm.

NIC 2 – flashing indicates network activity on Ethernet interface 2 (WAN).

NIC 1 – flashing indicates network activity on Ethernet interface 1 (LAN).

HDD – flashing indicates hard drive and/or DVD-ROM drive activity.

Power – indicates that power is being supplied to the system's power supply units. This indicator should normally be illuminated when the system is operating.

Reset Button – press to force a reboot of the system.

Power Button – used to apply or remove power from the power supplies to the server system.Turning off system power with this button removes the main power but keeps standby power supplied to the system.Therefore, you must unplug both system power cords before servicing.

Back Panel

The back panel has connectors for:

- Power supplies
- Ethernet ports
- PRI ports
- Analog ports
- Other computer connectors (typically used for troubleshooting only)
    - Keyboard
    - Mouse
    - VGA video
    - RS232 serial port
    - USB ports

Installation

Installation Overview

The UC Pro Server is shipped with all ordered options installed at the factory.

You will need to perform the following steps to install the UC Pro Server:

1. Mount the UC Pro Server in the rack.
2. Connect the UC Pro Server to the LAN.
3. Connect the Telco ISDN-PRI port(s) to the UC Pro Server.
4. Connect AC power.
5. Connect optional analog lines and analog devices to the UC Pro Server.
6. Configure the UC Pro Server to join the network domain.

Safety Guidelines and General Installation

Safety Guidelines

Prior to installing the system, read and follow all safety guidelines. The UC Pro Server must be installed only by qualified personnel. The following warnings and cautions must be observed during installation and operation of the system.

WARNING!

RISK OF ELECTRICAL SHOCK!

Never install telephone wiring during a lightning storm.

Never install telephone jacks in wet locations unless the jack is specifically designed for wet locations.

Never touch uninsulated telephone wires or terminals unless the telephone line has been disconnected at the network interface.

Do not attach or staple the AC power cord to any building surface.

CAUTION!

To reduce the risk of fire, use only No. 26 AWG UL Listed or CSA Certified Telecommunications Line Cord for all connections to the telephone network.

CAUTION!

This equipment shall be installed only in restricted access areas in accordance with Articles 110-16, 110-17 and 110-18 of the National Electrical Code ANSI/NFPA No. 70–1987 and any local codes as required.

Unpack and Inspect the Equipment

Check the components for damage that might have occurred during shipment. If any equipment is damaged, contact the carrier. Verify that the shipment is complete by comparing the shipped equipment with the shipping list.

The following items are included:

(1) UC Pro Server

(2) Power cords

(2) Brackets for 19" rack mounting

(4) Mounting bracket thumbscrews

(2) Rack inner rails

(2) Rack inner rail extensions

(6) Rack inner rail screws

(2) Rack long (front) outer rails

(2) Rack short (rear) outer rails

(1) Front bezel key

(1) Installation Instructions (this manual)

Location Requirements

The UC Pro Server installation requires a clean, secure room on the customer premises. The room must have adequate ventilation and room for front and rear panel access. The UC Pro Server must be installed per articles 115-15, 110-17 and 110-18 of the National Electrical Code ANSI/MFPA.

The UC Pro Server must be mounted in a 19" equipment rack.

Environmental Considerations

The UC Pro Server is designed to operate within the following environmental limits:

Operating Temperature: 0° to 40° C (outside the chassis)

Operating Humidity: Up to 95% (non-condensing)

Rack Mounting

Rack Precautions

- Ensure that the leveling jacks on the bottom of the rack are fully extended to the floor with the full weight of the rack resting on them.
- In a single rack installation, stabilizers should be attached to the rack.
- In multiple rack installations, the racks should be coupled together.
- Always make sure the rack is stable before extending a component from the rack.
- You should extend only one component at a time – extending two or more simultaneously may cause the rack to become unstable.
- Determine the placement of each component in the rack before you install the rails.
- Install the heaviest server components on the bottom of the rack first, and then work up.
- Always keep the rack's front door and all panels and components on the servers closed when not servicing to maintain proper cooling.
- Equipment should be mounted into a rack so that the amount of airflow required for safe operation is not compromised.
- Equipment should be mounted into a rack so that a hazardous condition does not arise due to uneven mechanical loading.
- A reliable ground must be maintained at all times. To ensure this, the rack itself should be grounded. Particular attention should be given to power supply connections other than the direct connections to the branch circuit (i.e. the use of power strips, etc.).
- The UC Pro Server weighs approximately 40 lbs. Make sure that the rack unit is capable of properly supporting this weight.

Mounting Instructions

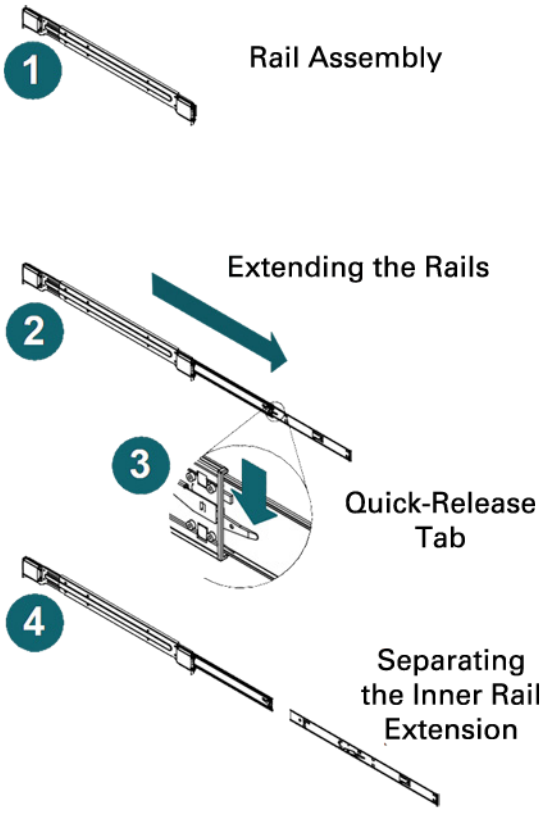
There are a variety of rack units on the market, which may mean that the assembly procedure will differ slightly. You should also refer to the installation instructions that came with the rack unit you are using.

Identifying the Sections of the Rack Rails

Two rack rail assemblies are included in the rack mounting kit. Each assembly consists of two sections: an inner fixed chassis rail that secures directly to the server chassis, and an outer fixed rack rail that secures directly to the rack itself.

Separating the Inner and Outer Rails

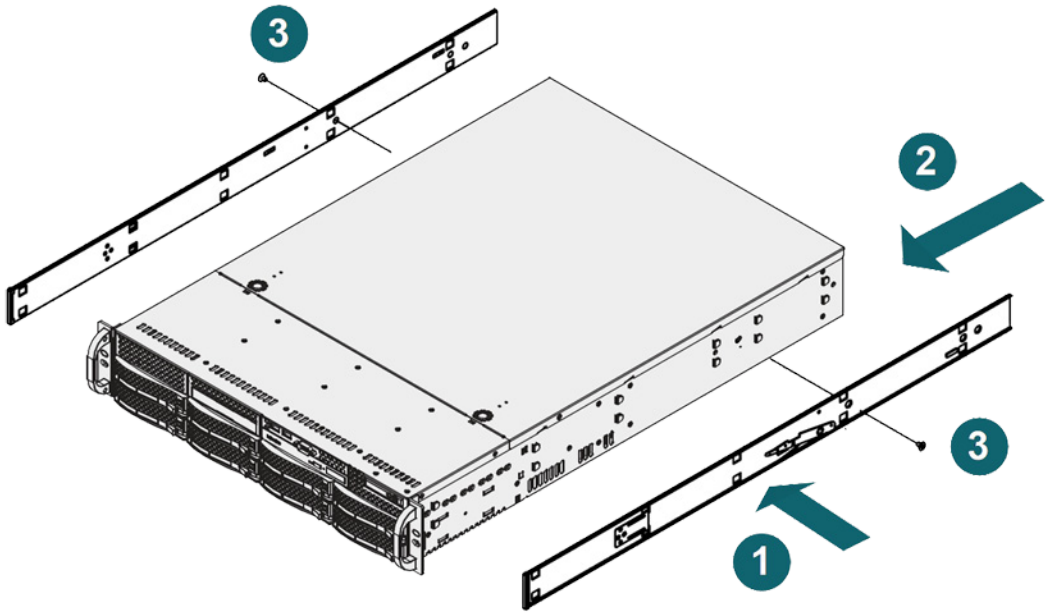
1. Locate the rail assembly in the chassis packaging.
2. Extend the rail assembly by pulling it outward.
3. Press the quick-release tab.
4. Separate the inner rail extension from the outer rail assembly.



Installing the Inner Rail Extensions

The UC Pro Server includes a set of inner rails in two sections: inner rails and inner rail extensions. The inner rails are pre-attached. The inner rail extension is attached to the inner rail to mount the chassis in the rack.

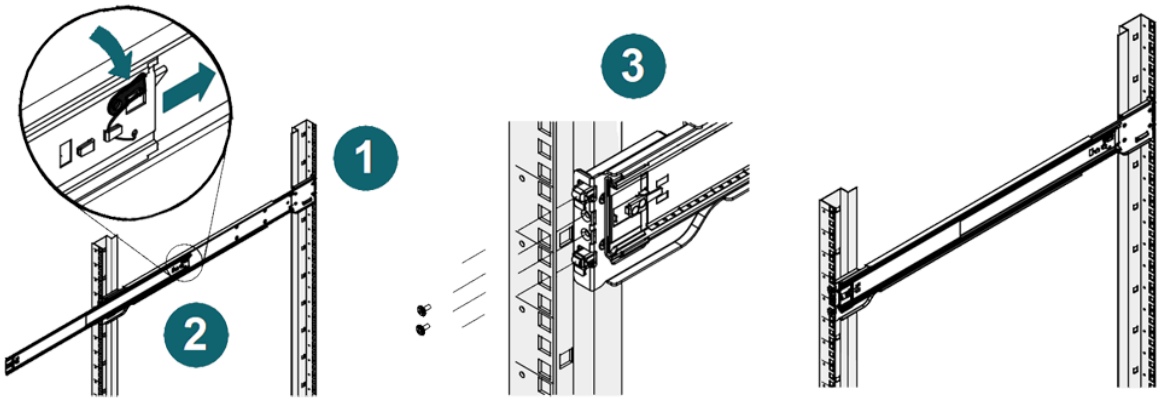
1. Place the inner rack extensions on the side of the chassis, aligning the hooks of the chassis with the rail extension holes. Make sure that the extension faces "outward" just like the pre-attached inner rail.
2. Slide the extension toward the front of the chassis.
3. Secure the chassis with 2 screws as illustrated. Repeat steps for the other inner rail extension.



Installing the Outer Rails to the Rack

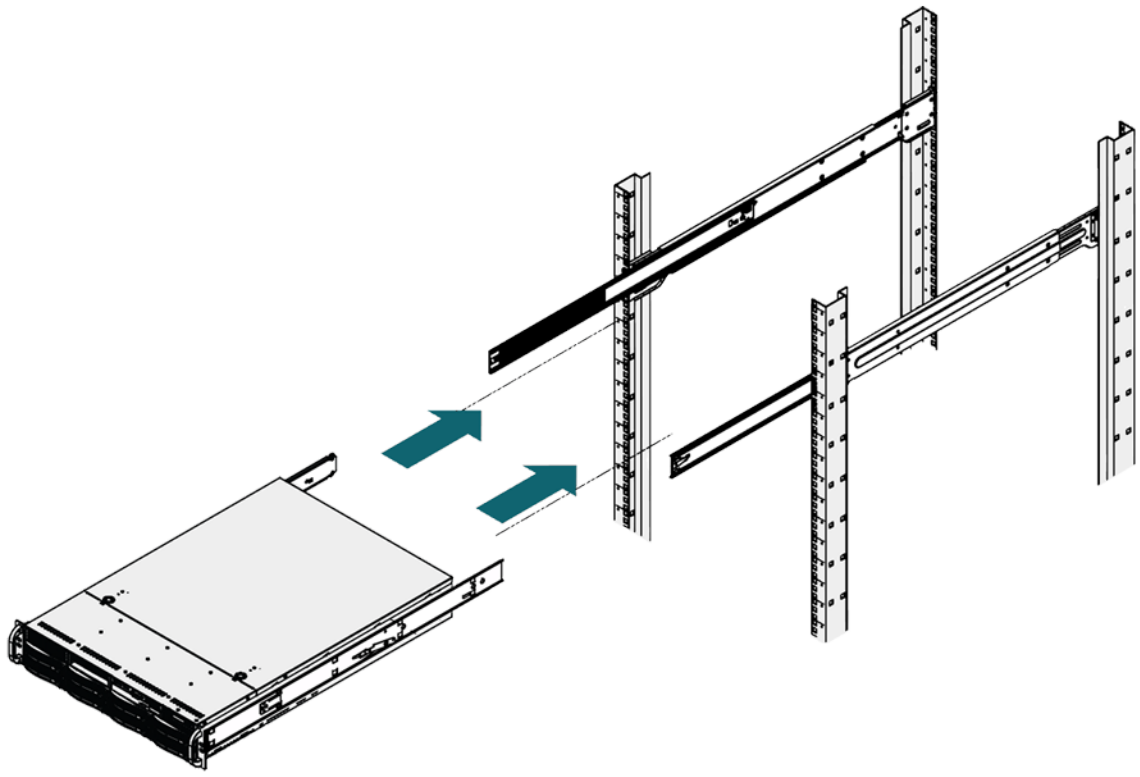
Outer rails attach to the server rack and hold the server in place. The outer rails extend between 30 inches and 33 inches.

1. Secure the back end of the outer rail to the rack, using the screws provided.
2. Press the button where the two outer rails are joined to retract the smaller outer rail.
3. Hang the hooks of the rails onto the rack holes and if desired, use screws to 3. secure the front of the outer rail onto the rack.
4. Repeat steps 1-3 for the remaining outer rail.



Installing the Chassis into a Rack

1. Extend the outer rails as illustrated below.
2. Align the inner rails of the chassis with the outer rails on the rack.
3. Slide the inner rails into the outer rails, keeping the pressure even on both sides. When the chassis has been pushed completely into the rack, it should click into the locked position.
4. Optional screws may be used to secure the front of the server to the rack.

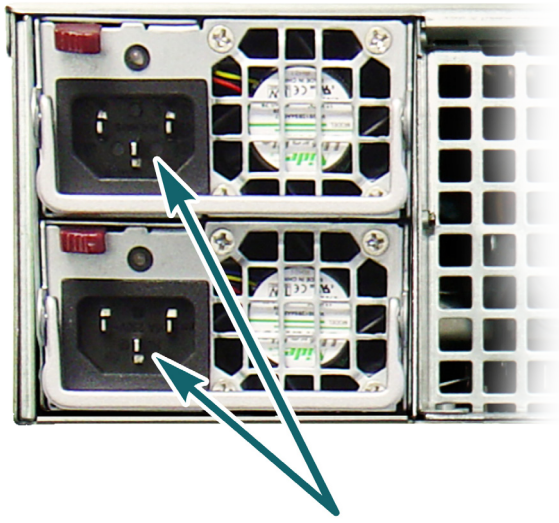


Power

The UC Pro Server is equipped with two redundant hot-swappable power supplies.

Connect the power connectors on the back panel to standard 120 VAC, 60 Hz power outlets using the supplied IEC power cords.

If multiple circuits are available at the equipment site, connect each power cord to a separate power circuit to ensure that the server will continue to operate if one circuit fails.



Power Connectors

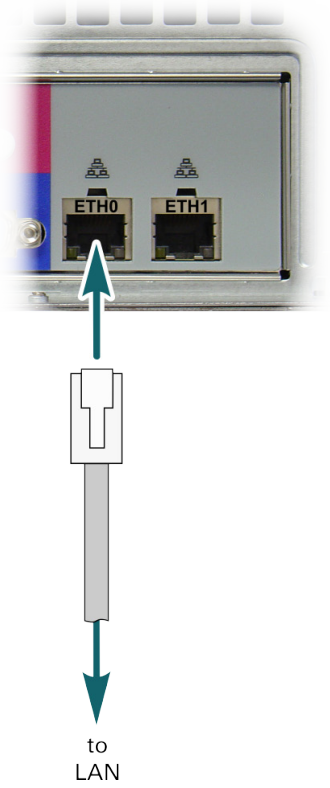
Your system is configured in the computer BIOS to automatically start when power is connected. This setting ensures that the UC Pro Server will restart in the event of a temporary loss of power.

To manually turn the UC Pro Server off or on, press the power button *(page 7)*.

Ethernet Network Connection

Use a Category 5 or better network cable.

- Connect the **ETH0** port on the UC Pro Server to your LAN. The local SIP telephone devices are on this LAN.
- DO NOT connect anything to the **ETH1** port.



Telephony Connections

The UC Pro Server may be configured at the factory with one or more optional telephony port cards, which can include PRI trunk, analog trunk (FXO), and analog device (FXS) ports. Use the images below to identify the ports on your UC Pro Server.

Port Identification

Note – The connector orientation may be reversed (rotated 180°) on some cards.

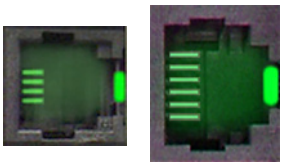
PRI Trunk Port

Eight-position connector surrounded by a metal shield – connects to an ISDN Primary Rate Interface (PRI) trunk.

Analog Ports

To determine analog port configuration, apply power to the server **before connecting any analog trunks or station devices**, this will illuminate the installed ports. The color and size of the connector indicates the port configuration.

Analog Station Device (FXS) Port

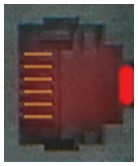


Four- or six-position connector, lit green – connects to one analog station device, such as a telephone or fax machine.

Analog Trunk (FXO) Port, 1 trunk

Four-position connector, lit red – connects to one analog loop start trunk.

Analog Trunk (FXO) Port, 2 trunks

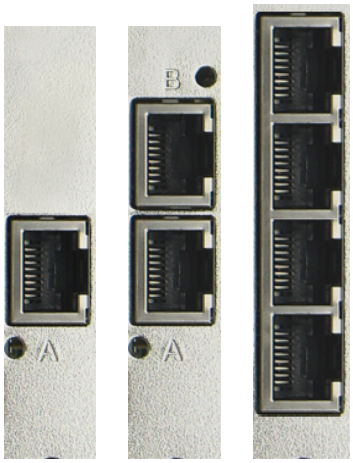


Six-position connector, lit red – connects to two analog loop start trunks.

Card Configurations

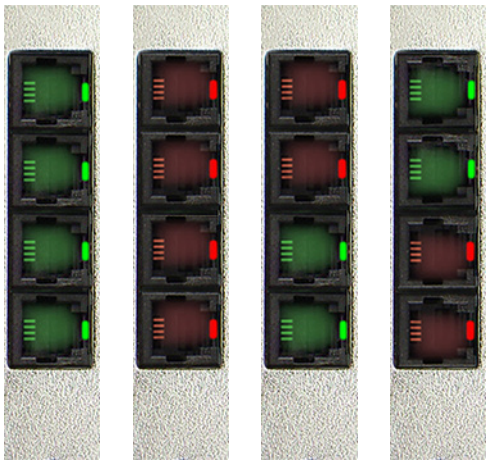
Available factory-installed telephony cards are shown in this section. Up to eight cards in any combination can be installed in the UC Pro Server.

One, Two, or Four PRI Ports



Four FXS/FXO Ports

This card can be configured with (4) FXS, (4) FXO, or (2) FXS + (2) FXO ports.



One FXS + Four FXO Ports

Each FXO connector on this card has two ports.

Line splitter cords are supplied with this card option.

One PRI + One FXS + Four FXO Ports

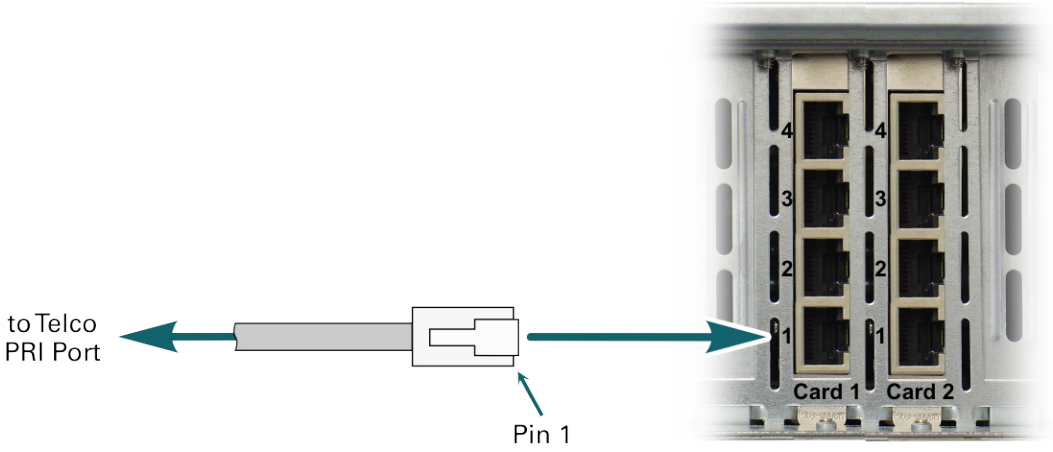
This card is similar to the one shown at the left, with the addition of (1) PRI port.

Connecting to Telco PRI Trunks

Connection to the external telephone network is typically through one or more ISDN PRI trunks. Each PRI port can be configured to support up to 23 simultaneous calls.

Multiple cards with PRI ports may be installed; some cards may also include analog ports. When facing the back of the server, card 1 is on the left, as shown below. Ports on each card are numbered 1-4, with port 1 on the bottom.

Note – The connector arrangement and number of connectors per card may differ, depending on the server configuration.



- Connect each PRI port to an ISDN PRI trunk, using standard Ethernet cables.

  Note – Some installations may require a PRI swap cable or swap adapter to reverse the transmit and receive pairs.

ISDN PRI Trunk Port Connector Pinout *(with Crossover Cable)*

Pin Number	PRI Port	Trunk
1	Transmit Tip	Receive Tip
2	Transmit Ring	Receive Ring
3	–	–
4	Receive Tip	Transmit Tip
5	Receive Ring	Transmit Ring
6	–	–
7	–	–
8	–	–

Analog Connections

WARNING! RISK OF EQUIPMENT DAMAGE!

The UC Pro Server supplies power on FXS device ports, and receives power from the telephone trunks on FXO trunk ports.

Ensure that the correct UC Pro Server ports are used when connecting analog trunks or station devices.

Multiple cards with analog ports may be installed; some cards may also include PRI ports. When facing the back of the server, card 1 is on the left, as shown below. Ports on each card are numbered 1-4, with port 1 on the bottom.

Note – The connector arrangement and number of connectors per card may differ, depending on the server configuration.

- To determine analog port configuration, apply power to the UC Pro Server to illuminate the ports *(page 19)*.

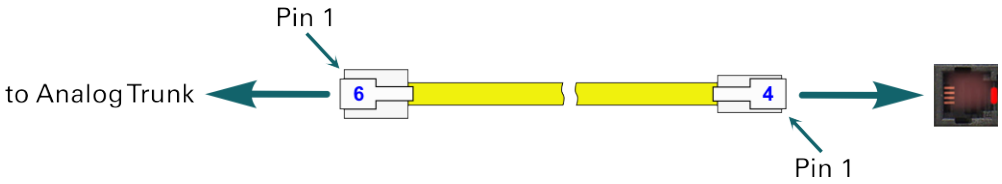
Connecting to Analog Trunks

FXO ports connect to standard analog loop start (POTS) telephone trunks.

Your UC Pro Server may have 4-position connectors supporting one trunk, and/or 6-position connectors supporting two trunks; follow the appropriate instructions below.

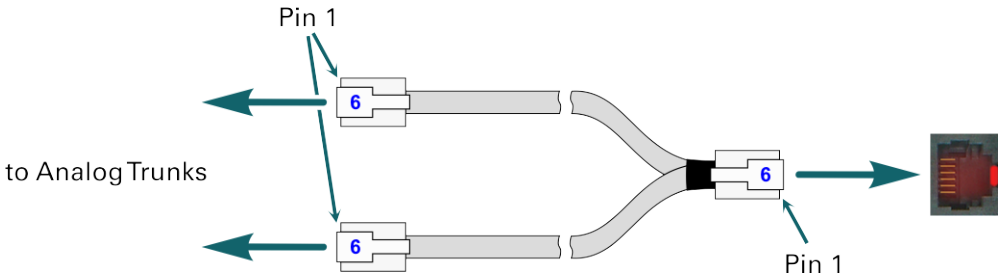
Note – The connector orientation may be reversed (rotated 180°) on some cards.

4-Position Connector



- Use the supplied yellow crossover cord. Connect the 4-position plug to the server, and connect the 6-position plug to the analog trunk jack.

6-Position Connector



- Use the supplied line splitter cord as shown to connect to two individual 6-position trunk jacks.

  The lower numbered trunk port is labeled "Port N" on the cord, and the higher numbered port is labeled "Port N+1".

Analog Trunk (FXO) Port Connector Pinouts

Server Pin Number (4-Position Plug)	Analog Trunk Pin Number (6-Position Plug)	Signal
–	–	–
1	5	–
2	4	Tip
3	3	Ring
4	2	–
–	–	–

Server Pin Number (6-Position Plug)	Analog Trunk 1 Pin Number (6-Position Plug)	Analog Trunk 2 Pin Number (6-Position Plug)	Signal
1			–
2		4	Tip 2
3	4		Tip 1
4	3		Ring 1
5		3	Ring 2
6			–

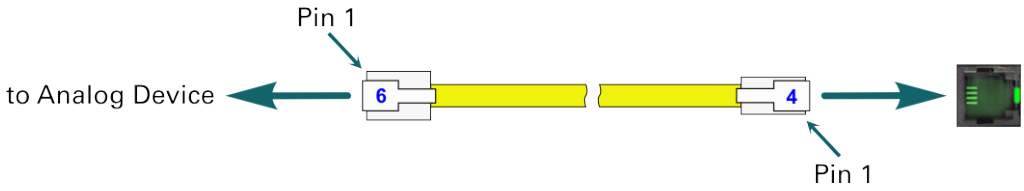
Connecting to Analog Station Devices

FXS ports connect to analog (POTS) station devices, such as telephones or fax machines.

Your UC Pro Server may have 4-position or 6-position connectors; follow the appropriate instructions below.

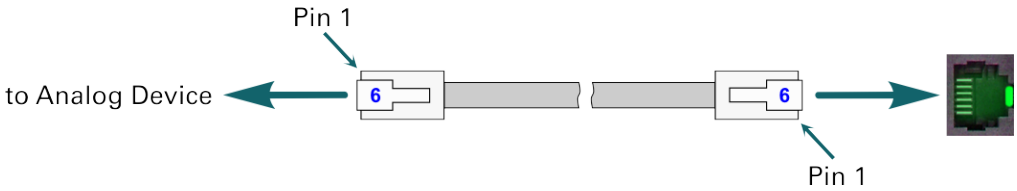
Note – The connector orientation may be reversed (rotated 180°) on some cards.

4-Position Connector



- Use the supplied yellow crossover cord. Connect the 4-position plug to the server, and connect the 6-position plug to the analog device.

6-Position Connector



- Use a standard telephone line cord to connect to the analog device.

Analog Device (FXS) Port Connector Pinout

Server Pin Number (4-Position Plug)	**Server Pin Number** (6-Position Plug)	**Analog Device Pin Number** (6-Position Plug)	**Signal**
–	1	6	–
1	2	5	–
2	3	4	Tip
3	4	3	Ring
4	5	2	–
–	6	1	–

Configuration and Administration

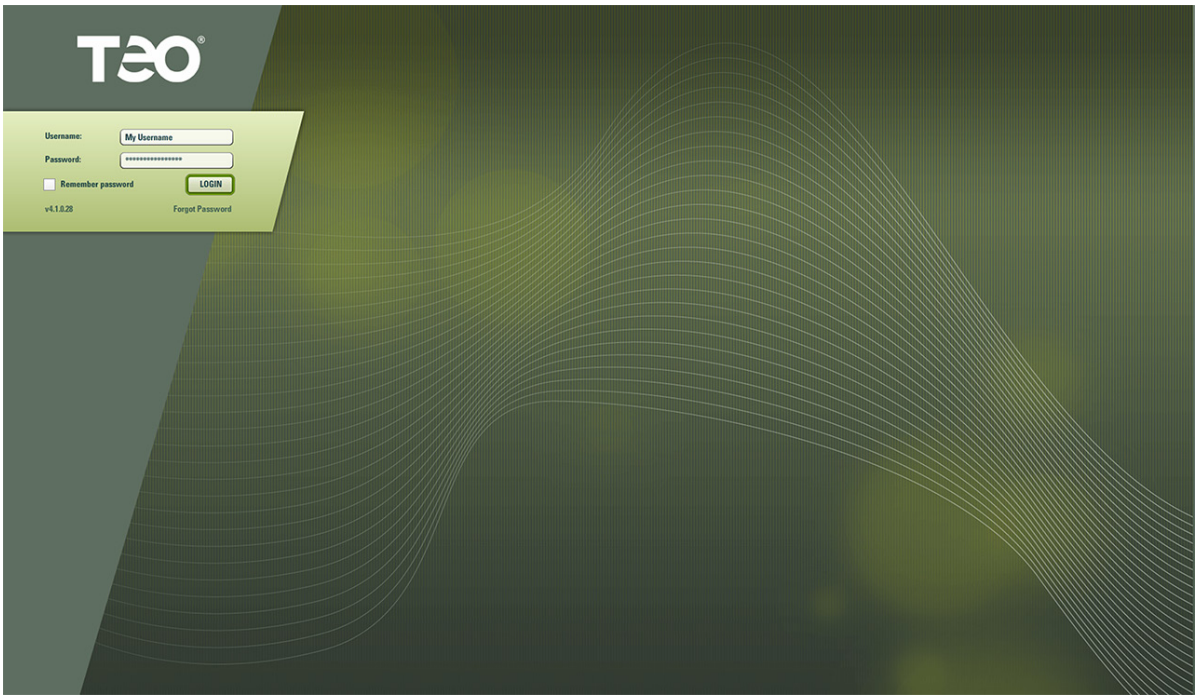
Joining the Local Domain

The UC Pro Server may be preconfigured at the factory with a network address specified by the customer. If no custom address was requested, the system will be configured with DHCP enabled.

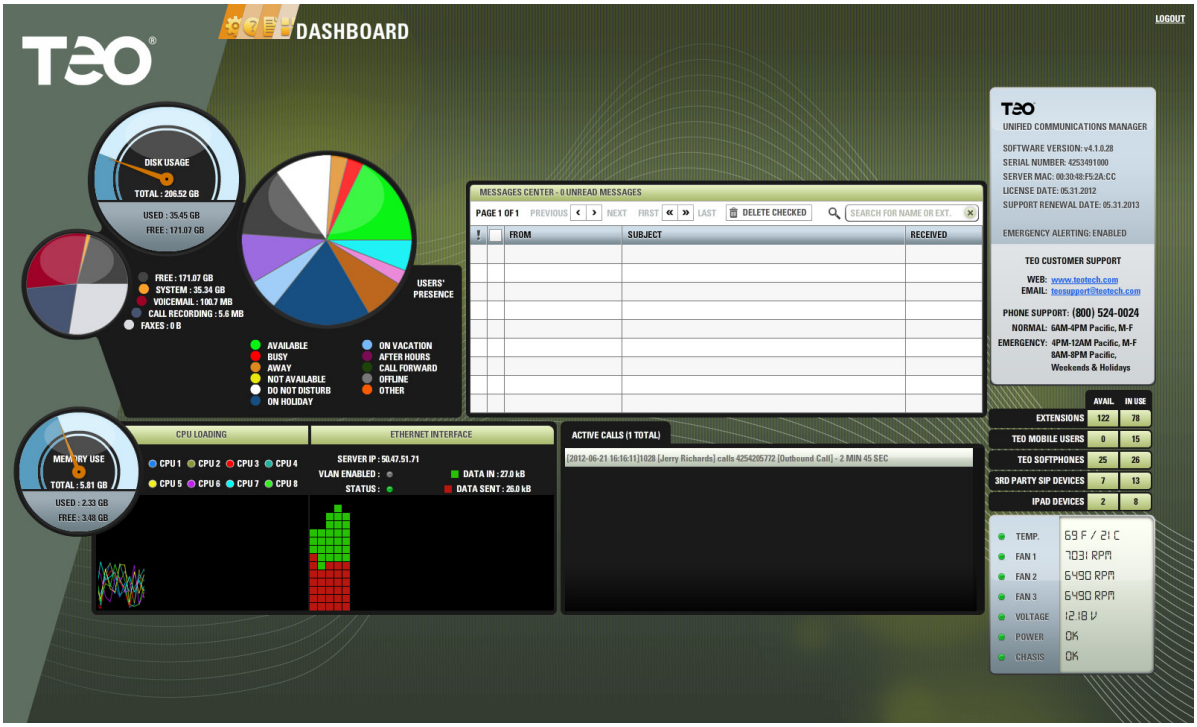
Network addresses can be changed from the System Configuration – Network Resources options in the Administration portal.

Configuring System Options

1. All configurable options are set via a web-based remote administration session.
2. Open a web browser on any computer that has access to the LAN. A widescreen display of at least 1680 x 1050 resolution is recommended. *Adobe Flash Player is required.*
3. Browse to the address of the UC Pro Server.
4. When the login screen appears, log in to the UC Pro Server using the administration username and password that was supplied by Teo (you can change the username and password or add additional administration accounts later).



- The Administration Dashboard will be shown.



Use the menus at the top of the screen to access the configuration options.

Online help is available for most configuration options. Click the ? icon to view help in a new browser tab or window.

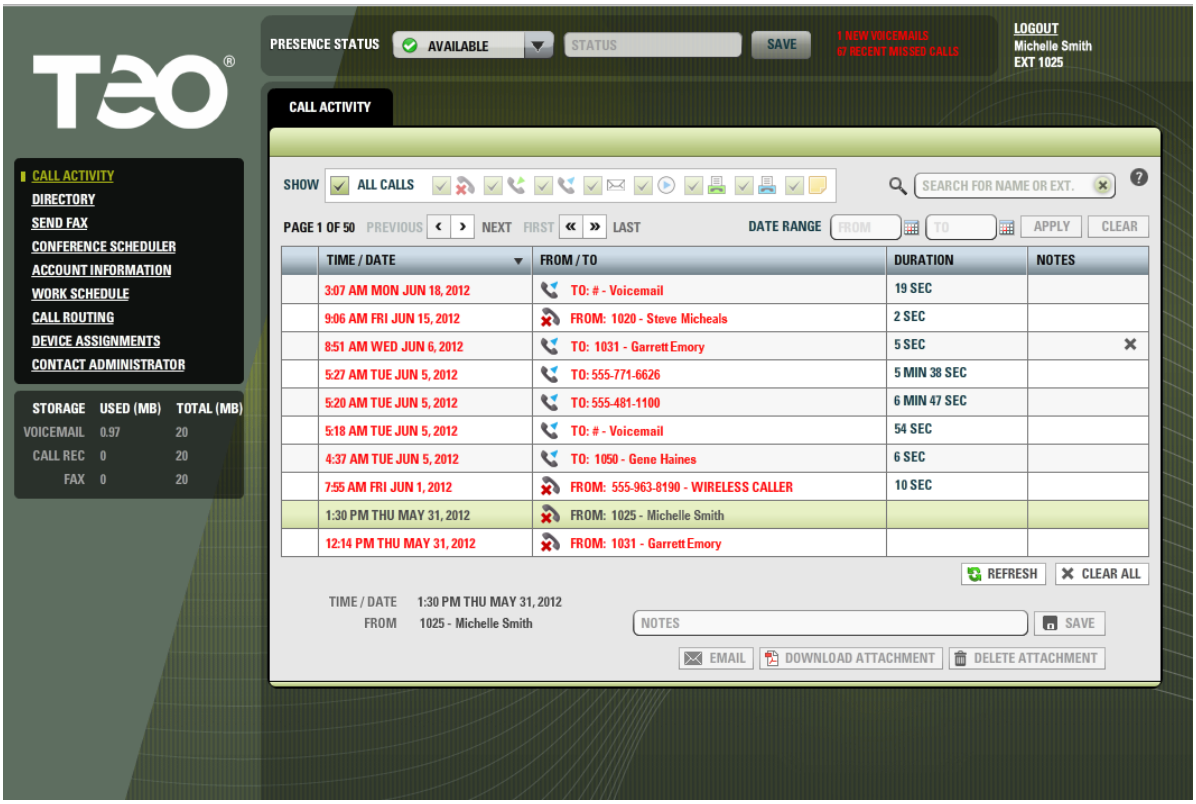
When finished with the administration session, click **LOGOUT** at the upper right of the screen.

User Configuration Options

Each telephone user can configure a limited set of options. The administrator must set up an account name and password for each user.

- The user needs to browse to the login page (UC Pro Server address). A display resolution of 1024 x 768 is sufficient for the User Portal interface. *Adobe Flash Player is required.*

After logging in, the user can access their call history and configuration options.



Online help is available for most configuration options by clicking the ? icon.

Specifications

Power Requirements

Voltage .....100–240 VAC

Current.....10 A (@100 V) / 4 A (@240V) max. per outlet (2 required)

Physical

Dimensions .....3.5" H x 19" W x 27" D (including mounting brackets)

Weight .....40 lbs.

Environmental

Operating Temperature.....32° to 104° F (0° to 40° C)

Storage Temperature .....-4° to 185° F (-20° to 85° C)

Humidity.....0 to 95%, non-condensing

Service and Warranty

Service

The Teo UC Pro Server has no user-serviceable parts inside; repair must be done by Teo.

Prior to equipment removal, call Teo Customer Technical Support for assistance in determining the source of the problem. This critical action can often prevent needless removal of equipment and subsequent customer inconvenience.

Teo
Technical Support Department
11609 49th Place West
Mukilteo, WA 98275-4255 USA

Phone: (425) 349-1000
(800) 524-0024
Fax: (425) 349-1010
E-mail: tech@teotech.com
Web: www.teotech.com

Teo is committed to meeting the product needs of our customers. Please write or call us with any suggestions for improvement.

Teo Product Warranty

For a period of one year from date of dealer purchase, but not to exceed 16 months from date of manufacture, Teo Technologies, Inc. (Teo) warrants its products to be free from defects in material and workmanship under conditions of normal use and service. Teo shall, at its option, repair or replace any defective product which, in its opinion, has not been misused, damaged, or improperly installed.

Repair or replacement under this warranty will be performed at Teo's factory. Authorization must be obtained from Teo prior to returning a product for repair. Freight must be prepaid for all units returned to Teo. Units repaired under warranty will be shipped UPS Ground (or equivalent), freight prepaid by Teo.

Products that are older than the warranty period, but less than 7 years old, or still manufactured by Teo may be repaired at the factory for a flat rate charge. Repaired out-of-warranty units are warranted for 90 days from the date of repair.

The repair or replacement of a product under this warranty represents the entire obligation of Teo; Teo shall not be liable for any special or consequential damages resulting from or caused by any defect, failure, incapacity or malfunction of any of its products.

> *The foregoing express warranty is in lieu of all other warranties, express or implied, including but not limited to any implied warranty of merchantability, fitness, or adequacy for any purpose or use, quality, productiveness or capacity; Teo, to the extent permitted by law, hereby disclaims all such other warranties.*

Safety and Regulatory Requirements

Cautions

- Power wiring must be 18 AWG or larger.
- Do NOT attach or staple any Power Wiring to any building surface.
- Risk of electrical shock! Disconnect power before opening unit.
- At no time during connecting or routing of cables should power be applied to the equipment.
- Use caution when installing or modifying telephone wiring.
- Never touch uninsulated telephone wiring unless it is disconnected at the network interface.
- Never install telephone jacks in wet locations unless jack is designed for wet locations.
- Do not use solvents or liquids to remove dust or dirt from the UC Pro Server.

FCC Part 15

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to the Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This unit generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense. Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

National Electrical Code

This equipment shall be installed only in restricted access areas in accordance with **Article 800** of the **National Electrical Code ANSI/NFPA No. 70 1999** and any local codes as required. All external wiring should follow current National Electrical Code requirements.