UC Mini Server
1U Rack Mount Version
Installation Instructions
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 Mini Server** or the larger-capacity UC Pro 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 Mini Server.

- Connectors, switches, and indicators on the front and back panels are described in this chapter.
- The **Installation** chapter covers wall mounting, power, and trunk and device connections.
- 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

Power and drive indicators are located on the UC Mini Server front panel. The power switch and reset button are also located here.

NIC 1 – flashing indicates network activity on Ethernet interface 1.

HDD – flashing indicates drive activity.

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

Reset Button – press in with a pen or other small tool to force a reboot of the system.

Power Button – used to apply or remove power from the power supply 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 the system power cord before servicing.

These indicators are typically active only during troubleshooting:

Unit ID – controlled by IPMI. Flashes to identify the selected server.

NIC 2 – flashing indicates network activity on Ethernet interface 2.
The back panel has the power switch, and connectors for:

- Power supply
- Ethernet port (NIC1)
- PRI telephony port
- Analog telephony ports
- Other computer connectors (typically used for troubleshooting only):
  - USB
  - Ethernet port (NIC 2)
  - IPMI LAN port
  - VGA video
  - RS232 serial port
Installation

Installation Overview

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

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

1. Mount the UC Mini Server in a 19" rack.
2. Connect AC power.
3. Connect the UC Mini Server to the LAN.
4. Connect optional Telco ISDN-PRI trunks to the UC Mini Server.
5. Connect optional analog trunks and analog station devices to the UC Mini Server.
6. Configure the UC Mini Server to join the network domain.
Safety Guidelines

Prior to installing the system, read and follow all safety guidelines. The UC Mini 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.

No user-serviceable parts inside; do NOT open the case.

**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 Mini Server
(1) Power cord
   4-position to 6-position crossover cords or line splitter cords if required by the installed analog ports
   Mounting screws
(1) Installation Instructions (this manual)

Location Requirements

The UC Mini 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 Mini Server must be installed per articles 115-15, 110-17 and 110-18 of the National Electrical Code ANSI/MFPA.

The UC Mini Server must be rack mounted.

Environmental Considerations

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

   **Operating Temperature**: 50° to 85° F / 10° to 35° C (outside the chassis)
   **Operating Humidity**: 8 to 90% (non-condensing)
Rack Mounting

The UC Mini Server comes with two rack mounting brackets, which are located on each side at the front of the chassis. To mount the system into a rack, simply screw these brackets directly to the front of the rack (two supplied screws for each bracket).

The brackets can be located at the front of the chassis or moved approximately one-third to the rear of the chassis.

![Default Front Position](image1)

![Alternate 1/3 Back Position](image2)
The UC Mini Server is equipped with a built-in power supply.

- Connect the power connector on the back panel to a standard 120 VAC, 60 Hz power outlet using the supplied IEC power cord.

To turn the UC Mini Server off when it is running, briefly press the power switch on the front panel for an orderly shutdown. The server should always be shut down before power is removed to prevent possible data loss.

To restart UC Mini Server when it is off, briefly press the power switch.

Your system is configured in the computer BIOS to automatically start when power is restored after a temporary loss of power.
**Ethernet Network Connection**

Use a Category 5 or better network cable when connecting to a 100 Mbps network. Use a Category 5e or better network cable when connecting to a GbE network.

- Connect the NIC1 Ethernet port on the UC Mini Server to your LAN. The local SIP telephone devices are on this LAN.
Telephony Connections

The UC Mini Server may be configured at the factory with one of several 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 Mini Server.

Telephony ports are on a single card, accessible from the back panel.

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. Only one card can be installed in the UC Mini 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 above, 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.

- 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)

<table>
<thead>
<tr>
<th>Pin Number</th>
<th>PRI Port</th>
<th>Trunk</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Transmit Tip</td>
<td>Receive Tip</td>
</tr>
<tr>
<td>2</td>
<td>Transmit Ring</td>
<td>Receive Ring</td>
</tr>
<tr>
<td>3</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>4</td>
<td>Receive Tip</td>
<td>Transmit Tip</td>
</tr>
<tr>
<td>5</td>
<td>Receive Ring</td>
<td>Transmit Ring</td>
</tr>
<tr>
<td>6</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>7</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>8</td>
<td>–</td>
<td>–</td>
</tr>
</tbody>
</table>
Analog Connections

**WARNING! RISK OF EQUIPMENT DAMAGE!**

The UC Mini Server supplies power on FXS device ports, and receives power from the telephone trunks on FXO trunk ports. Ensure that the correct UC Mini Server ports are used when connecting analog trunks or station devices.

You will need to refer to the analog port numbers when configuring the system from the UCM Admin Portal. The connector with the lowest numbered port is on the left when facing the back of the UC Mini Server.

**Connecting to Analog Trunks**

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

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

**4-Position Connectors**

- 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 Connectors**

- 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

#### One Port per Connector

<table>
<thead>
<tr>
<th>Server Pin Number (4-Position Plug)</th>
<th>Analog Trunk Pin Number (6-Position Plug)</th>
<th>Signal</th>
</tr>
</thead>
<tbody>
<tr>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>1</td>
<td>5</td>
<td>–</td>
</tr>
<tr>
<td>2</td>
<td>4</td>
<td>Tip</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
<td>Ring</td>
</tr>
<tr>
<td>4</td>
<td>2</td>
<td>–</td>
</tr>
<tr>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
</tbody>
</table>

#### Two Ports per Connector

<table>
<thead>
<tr>
<th>Server Pin Number (6-Position Plug)</th>
<th>Analog Trunk 1 Pin Number (6-Position Plug)</th>
<th>Analog Trunk 2 Pin Number (6-Position Plug)</th>
<th>Signal</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td>–</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>4</td>
<td>Tip 2</td>
</tr>
<tr>
<td>3</td>
<td>4</td>
<td></td>
<td>Tip 1</td>
</tr>
<tr>
<td>4</td>
<td>3</td>
<td></td>
<td>Ring 1</td>
</tr>
<tr>
<td>5</td>
<td></td>
<td>3</td>
<td>Ring 2</td>
</tr>
<tr>
<td>6</td>
<td></td>
<td></td>
<td>–</td>
</tr>
</tbody>
</table>
Connecting to Analog Station Devices

FXS ports connect to analog (POTS) station devices, such as telephones or fax machines. Your UC Mini Server may have 4-position or 6-position connectors; follow the appropriate instructions below.

4-Position Connectors

- 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 Connectors

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

Analog Device (FXS) Port Connector Pinout

<table>
<thead>
<tr>
<th>Server Pin Number (4-Position Plug)</th>
<th>Server Pin Number (6-Position Plug)</th>
<th>Analog Device Pin Number (6-Position Plug)</th>
<th>Signal</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>6</td>
<td></td>
<td>–</td>
</tr>
<tr>
<td>1</td>
<td>2</td>
<td>5</td>
<td>–</td>
</tr>
<tr>
<td>2</td>
<td>3</td>
<td>4</td>
<td>Tip</td>
</tr>
<tr>
<td>3</td>
<td>4</td>
<td>3</td>
<td>Ring</td>
</tr>
<tr>
<td>4</td>
<td>5</td>
<td>2</td>
<td>–</td>
</tr>
<tr>
<td>6</td>
<td>1</td>
<td></td>
<td>–</td>
</tr>
</tbody>
</table>
**Configuration and Administration**

**Joining the Local Domain**

The UC Mini 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 Mini Server.
4. When the login screen appears, log in to the UC Mini 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 Mini 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.

- When finished with the session, the user should click LOGOUT at the upper right of the screen.
Specifications

Power Requirements

Voltage .................................. 100–240 VAC
Frequency .............................. 50–60 Hz
Input Current ......................... 4 A (@115 VAC) / 2 A (@240 VAC) max.

Physical

Dimensions ........................... 1.7" H x 19" W x 14.5" D
Weight ................................... 12.5 lbs.

Environmental

Operating Temperature........... 50° to 85° F (10° to 35° C)
Storage Temperature ............. -4° to 158° F (-20° to 70° C)
Humidity.............................. 8 to 90%, non-condensing
Service

The Teo UC Mini 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.
**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! Do NOT open the unit; there are no user-serviceable parts inside. Refer service and repair issues to qualified personnel.
- 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 Mini 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.