



TSBC Series Installation Guide

TSBC-HW

September 30, 2017

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Preface

About this Guide

This guide provides installation, and setup procedures for the TSBC-HW.

Conventions

Terminology	Description
TSBC-HW	This term is used when a description applies to both a TSBC-HW-SRV and TSBC-HW-TRANS.
TSBC-HW-SRV	This term is used when a description applies to a TSBC-HW-SRV-HIGH and TSBC-HW-SRV-MID.
TSBC-HW-SRV-HIGH	This term is used when a description applies only to the TSBC-HW-SRV-HIGH.
TSBC-HW-SRV-MID	This term is used when a description applies only to the TSBC-HW-SRV-MID.
TSBC-HW-TRANS	This term is used when a description applies to a TSBC-HW-TRANS-1372 and TSBC-HW-TRANS-2744.
TSBC-HW-TRANS-1372	This term is used when a description applies only to the TSBC-HW-TRANS-1372.
TSBC-HW-TRANS-2744	This term is used when a description applies only to the TSBC-HW-TRANS-2744.

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Section 1 Introduction

This section provides an introduction to the installation and setup of a TSBC-HW:

The following topics are covered:

- Section 1.1 “Identifying the TSBC-HW Equipment”
- Section 1.2 “Installation Prerequisites”
- Section 1.3 “Preventing Electrostatic Discharge Damage”
- Section 1.4 “Recommended Reading”

1.1 Identifying the TSBC-HW Equipment

The TSBC-HW is comprised of the following equipment:

- TSBC-HW-SRV
- TSBC-HW-TRANS

1.1.1 TSBC-HW-SRV

The TSBC-HW-SRV is available in two models:

- TSBC-HW-SRV-HIGH, (figure 1.1 on page 3)
- TSBC-HW-SRV-MID, (figure 1.2 on page 4)

TSBC-HW-SRV-HIGH

Characteristics	Dual Xeon E5-2643, 6C/12T, 3.4 GHz	
	24GB RAM RDIMM, 2400MHz	
	2x 200GB SSD	
	NUMA optimized for PCIe faster access	
	Dell iDRAC6 out-of-band interface	
Interfaces	Configuration for 10GE interfaces	Management: 2x GigE copper
		Control: 2x GigE copper
		VoIP: 4x 10GE SFP+ SR optics (850nm)
	Configuration for GigE interfaces	Management: 2x GigE copper
		Control: 2x GigE copper
		VoIP: 6x GigE copper

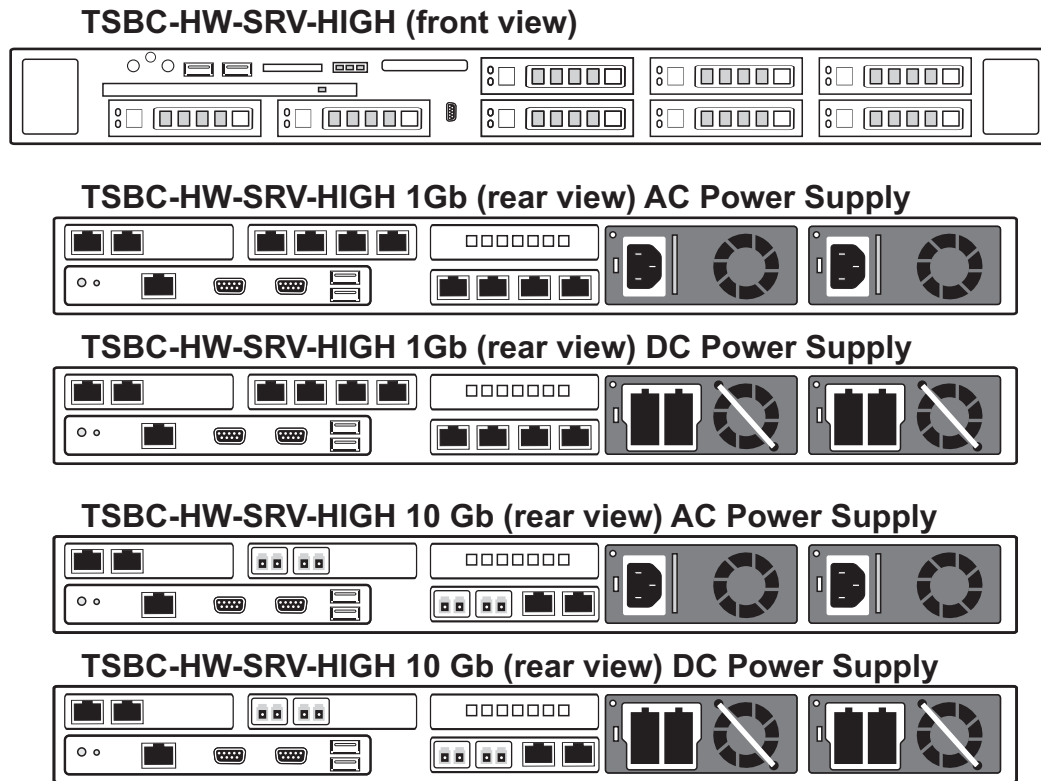


Figure 1.1 TSBC-HW-SRV-HIGH

For information about the TSBC-HW-SRV-HIGH, refer to Dell's documentation:
<http://www.dell.com/support/home/us/en/19/product-support/product/poweredge-r630/manuals>

TSBC-HW-SRV-MID

Characteristics	Single Xeon E3-1240, 4C/8T, 3.5GHz	
	16GB RAM RDIMM, 2400MHz	
	2x 200GB SSD	
	NUMA optimized for PCIe faster access	
	Dell iDRAC8 out-of-band interface	
Interfaces	Configuration for 10GE interfaces	Management: 2x GigE copper
		Control: 2x GigE copper
		VoIP: 2x 10GBASE-T
	Configuration for GigE interfaces	Management: 2x GigE copper
		Control: 2x GigE copper
		VoIP: 6x GigE copper

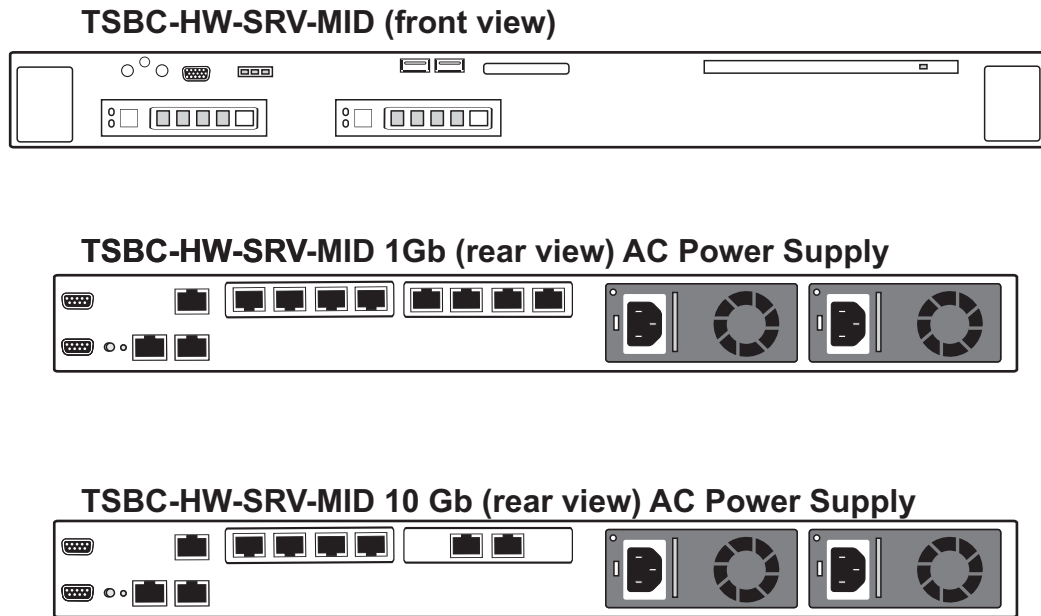


Figure 1.2 TSBC-HW-SRV-MID

For information about the TSBC-HW-SRV-MID, refer to Dell's documentation:

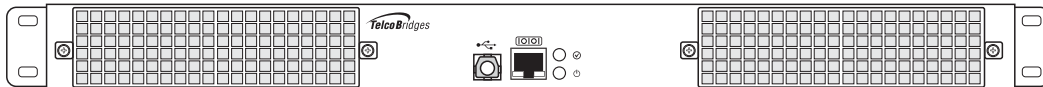
<http://www.dell.com/support/home/us/en/04/product-support/product/poweredge-r330/manuals>

1.1.2 TSBC-HW-TRANS

The TSBC-HW-TRANS, shown in figure 1.3 on page 4, is available in two models:

- TSBC-HW-TRANS-1372
- TSBC-HW-TRANS-2744

TSBC-HW-TRANS-1372/2744 (front view)



TSBC-HW-TRANS-1372/2744 (rear view)

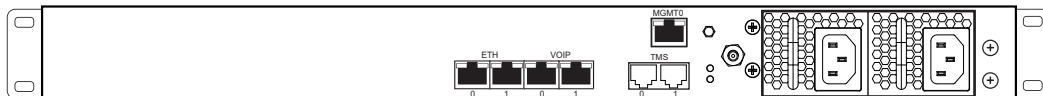


Figure 1.3 TSBC-HW-TRANS

1.2 Installation Prerequisites

For the installation to proceed without interruption, it is important that you verify that you have all necessary materials on hand.

A TSBC-HW system can range in size from 1 to 18U is vertical rack space at full capacity

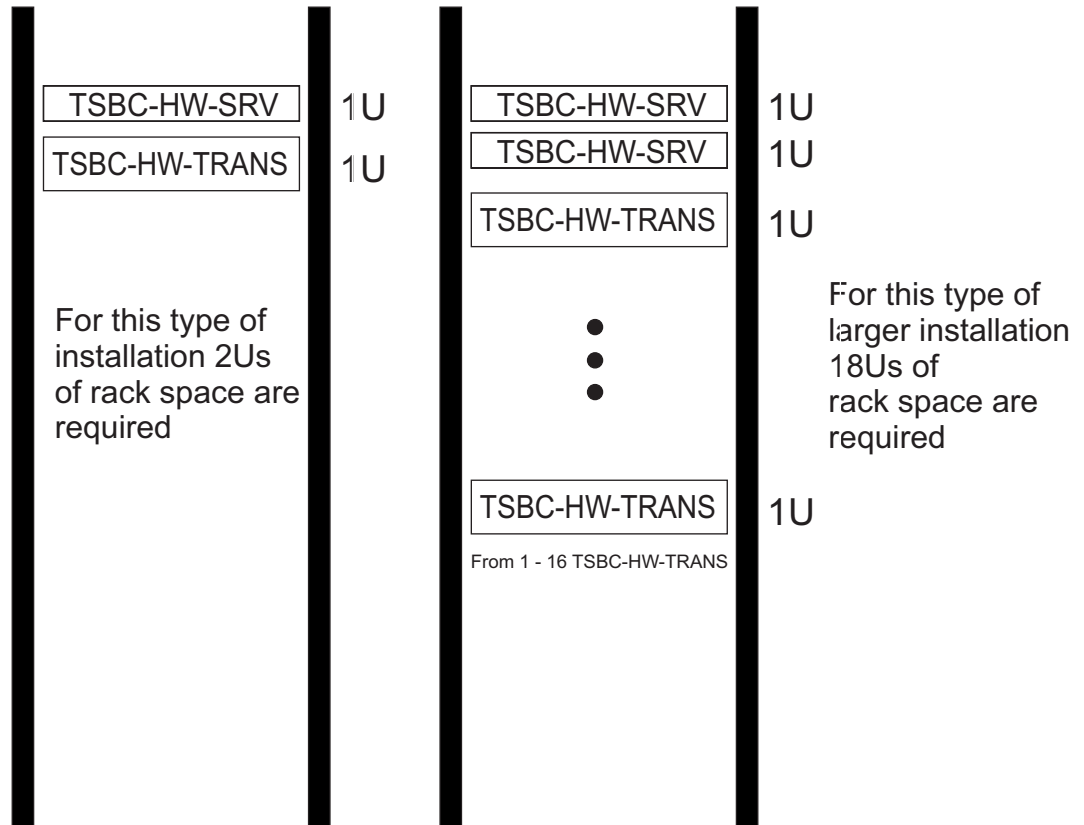


Figure 1.4 Example of an equipment rack-space allocation

1.2.1 TSBC-HW-SRV

Adequate space for the installation of the TSBC-HW-SRV

You must mount the TSBC-HW-SRV on a 19" equipment rack (customer provided). Your TSBC-HW-SRV is a 1U unit.

Note The depth of the TSBC-HW-SRV is greater than the 16" (406mm) depth of the TSBC-HW-TRANS1372/2744 units. It is important to plan for an equipment rack of adequate size.

The dimension of the TSBC-HW-SRV-HIGH are:

- Height x Width x Depth (mm) 42.8 x 482.3 x 755.1

- Height x Width x Depth (inch) 1.68 x 18.98" x 29.72"

The dimension of the TSBC-HW-SRV-MID (without bezel and redundant power supply)

- Height x Width x Depth (mm) 42.8 x 434.0 x 625.0
 - Height x Width x Depth (inch) 1.68 x 17.08" x 24.60"
-

Adequate power supply and power connections

Each TSBC-HW-SRV requires two power connections to provide for its redundant power supply. To guarantee an uninterrupted supply of electricity, each power connection must be fed by a dedicated power source.

An IP address for the management port

Each TSBC-HW-SRV requires a IP address for the management port. To avoid delays, you should have the IP address, netmask and gateway addresses on hand. Take note that the management port supports DHCP, see Section 3.1 "Connecting to the TSBC-HW-SRV Management Interface" on page 16 for further information.

Cabling

Ensure that you have the correct quantity of cables for your system:

TSBC-HW-SRV-HIGH

- Fiber cable pairs (for 10G configurations)
- Ethernet CAT5 cables

TSBC-HW-SRV-MID

- Ethernet CAT5 cables
- Ethernet CAT7 cables (for 10G configurations)

1.2.2 TSBC-HW-TRANS

Adequate space for the installation of the TSBC-HW-TRANS

You will need to mount the TSBC-HW-TRANS on a 19" equipment rack (customer provided). The TSBC-HW-TRANS is housed in a 1U chassis.

The dimension of the TSBC-HW-TRANS are:

- Height x Width x Depth (mm) 44.5 x 429.0 x 406.0
- Height x Width x Depth (inch) 1.75 x 16.9" x 16"

Adequate power supply and power connections

Each TSBC-HW-TRANS requires two power connections to provide for its redundant power supply.

To guarantee an uninterrupted supply of electricity, each power connection must be fed by a dedicated power source.

1.3 Preventing Electrostatic Discharge Damage

Electrostatic discharge (ESD) can damage equipment and impair electrical circuitry. It may occur if electronic printed circuit cards are improperly handled and may cause complete or intermittent failure.



Always follow ESD prevention procedures when removing and replacing modules:

- Ensure that the equipment is grounded.
- Wear an ESD-preventive wrist strap and ensure that it makes good contact with your skin. Connect the wrist strap clip to an unpainted surface of the equipment or the grounded equipment rack in order to channel away all ESD voltage safely to ground. To guard against ESD damage and shocks, the wrist strap and cord must be in proper working condition.
- If no wrist strap is available, and you must work with the equipment, ground yourself by touching a metal part of the chassis.

1.4 Recommended Reading

This document assumes that you have a clear understanding of the installation of the equipment described in this document and have been trained to work with the equipment. If you have any technical questions, TelcoBridges TB Support (technical support team) can be reached at the following numbers or an email can be sent to: support@telcobridges.com.

- Americas & Europe Technical Support Centre (GMT-05:00, Montreal):
Telephone: +1-450-655-8993 x131 or x102
- Asia Technical Support Centre (GMT +08:00, Hong Kong)
Telephone: +852-3749-9818
- 24/7 International Support
Telephone: +1-866-438-4703
- Documents exploring various aspects of the product are available on the TB Wiki:
<http://docs.telcobridges.com>

Section 2 Installation Preparation

This section provides information about the following topics:

- Section 2.1 “Package Contents”
- Section 2.2 “Rack Mounting the TSBC-HW Equipment”

2.1 Package Contents

Depending on your system requirements, you may receive one or more of the following items:

- Section 2.1.1 “TSBC-HW-SRV-HIGH” on page 10.
- Section 2.1.2 “TSBC-HW-SRV-MID” on page 10.
- Section 2.1.3 “TSBC-HW-TRANS1372/TBSC-HW-TRANS-2744” on page 11.

The contents of these devices are described in the following sections.

2.1.1 TSBC-HW-SRV-HIGH

In the box, you will find the following items:

- One Dell PowerEdge R630, (<http://www.dell.com/support/home/us/en/19/product-support/product/poweredge-r630/manuals>)
- One TelcoBridges Important Notice (pertinent product serial numbers and other important information).
- One set of static rails and associated installation hardware.
- One packing slip.
- Two AC power cables (optional), or two DC power cables.

2.1.2 TSBC-HW-SRV-MID

In the box, you will find the following items:

- One Dell PowerEdge R330, (<http://www.dell.com/support/home/us/en/04/product-support/product/poweredge-r330/manuals>)
- One TelcoBridges Important Notice (pertinent product serial numbers and other important information).
- One set of static rails and associated installation hardware.
- One packing slip.
- Two AC power cables (optional).

2.1.3 TSBC-HW-TRANS1372/TBSC-HW-TRANS-2744

In the box, you will find the following items:

- One TSBC-HW-TRANS unit (TSBC-HW-TRANS-1372 or TSBC-HW-TRANS-2744). See figure 1.3 on page 4.
- One set of mounting brackets and screws, used to mount the TSBC-HW-TRANS unit to a 19" rack.
- One serial adapter to interface the serial port of your computer with the RJ-45 port of the TSBC-HW-TRANS unit.
- Three CAT5 Ethernet (blue) straight cables (male-male), 3 meters in length.
- One Important Notice (two-sided document containing pertinent product serial numbers, and other important information).
- One Product Warranty.
- One packing slip.
- Two AC power cables (optional), or two DC power cables.

Not included

- A 19" equipment rack. The TSBC-HW-TRANS unit must be installed on a 19" wide equipment rack.
- USB-Type B cable. This can be used as an alternative way to connect to the serial port of the transcoding unit.

2.2 Rack Mounting the TSBC-HW Equipment

The TSBC-HW equipment is mounted on a customer provided equipment rack using the mounting hardware packaged in each box.

2.2.1 Prerequisites

To rack mount the equipment, you will need:

- One customer-provided equipment rack, measuring 19" in width and 29.7" in depth. The rack must be solidly anchored to the floor with appropriate support at the top of the racks.
- Climate controlled room: 0 to +50 Celsius, 0 to 95% non-condensing humidity.

2.2.2 Vertical Placement of the Equipment

The TSBC-HW-SRV and TSBC-HW-TRANS are each housed in 1U chassis, as tabulated in table 2.1 on page 12. It is important that you provide for enough room on the equipment rack to allow for the installation of the equipment.

Consider the available space on your equipment rack and the height of each piece of equipment.

Due to the rear-exhaust heat vents and the efficient heat dissipation design, there is no need to leave any physical vertical space above or below the TSBC-HW-SRV or TSBC-HW-TRANS.

Table 2.1 TSBC-HW Physical Height

TSBC-HW Model Number	Vertical Height
TSBC-HW-SRV-HIGH	1U (1.68 inches or 42.80 mm)
TSBC-HW-SRV-MID	1U (1.68 inches or 42.80 mm)
TSBC-HW-TRANS	1U (1.75 inches or 44.45 mm)

2.2.3 Installing the TSBC-HW-SRV on an Equipment Rack

The TSBC-HW-SRV and TSBC-HW-TRANS are mounted on a 19" equipment rack using the angle brackets and screws provided in the box.

2.2.3.1 TSBC-HW-SRV

To install the TSBC-HW-SRV-HIGH or TSBC-HW-SRV-MID on the equipment rack, refer to either the static or sliding rails installation Instructions in the following Dell documents:

- TSBC-HW-SRV-HIGH: Dell PowerEdge R630, (<http://www.dell.com/support/home/us/en/19/product-support/product/poweredge-r630/manuals>)
- TSBC-HW-SRV-MID: Dell PowerEdge R330, (<http://www.dell.com/support/home/us/en/04/product-support/product/poweredge-r330/manuals>)

2.2.3.2 TSBC-HW-TRANS

Mounting the TSBC-HW-TRANS

1. Using four metal screws, attach one angle bracket to the front, left-hand side of the TSBC-HW-TRANS, when viewed from the front. Do the same for the angle bracket on the right-hand side.
2. Start mounting equipment beneath the TSBC-HW-SRV, keeping in mind the space required on the equipment rack as described in Section 2.2.2 "Vertical Placement of the Equipment" on page 12

Section 3 Installing the TSBC-HW-SRV

This section covers the following procedures:

- Section 3.1 “Connecting to the TSBC-HW-SRV Management Interface” on page 16.
- Section 3.2 “Connecting to the Control Network” on page 17.
- Section 3.3 “Connecting to the Data Network” on page 18.
- Section 3.4 “Powering Up” on page 22.

3.1 Connecting to the TSBC-HW-SRV Management Interface

The TSBC-HW-SRV management interface enables administrators to perform management tasks on a TSBC-HW-SRV. To learn about the network capabilities of the TSBC-HW-SRV, refer to <https://docs.telcobridges.com/tbwiki/TSBC-SW:Networking>.

Prerequisites

To communicate with the management interface, the following is needed:

- Two CAT5 Ethernet cable with RJ45 male-male terminations.

Note Ethernet cables are not supplied with the TSBC-HW-SRV.

To communicate with the Management Interface:

1. Connect an RJ45 cable from the TSBC-HW-SRV to a Gigabit Ethernet switch.
2. Connect an RJ45 cable from the TSBC-HW-SRV to a second Gigabit Ethernet switch.

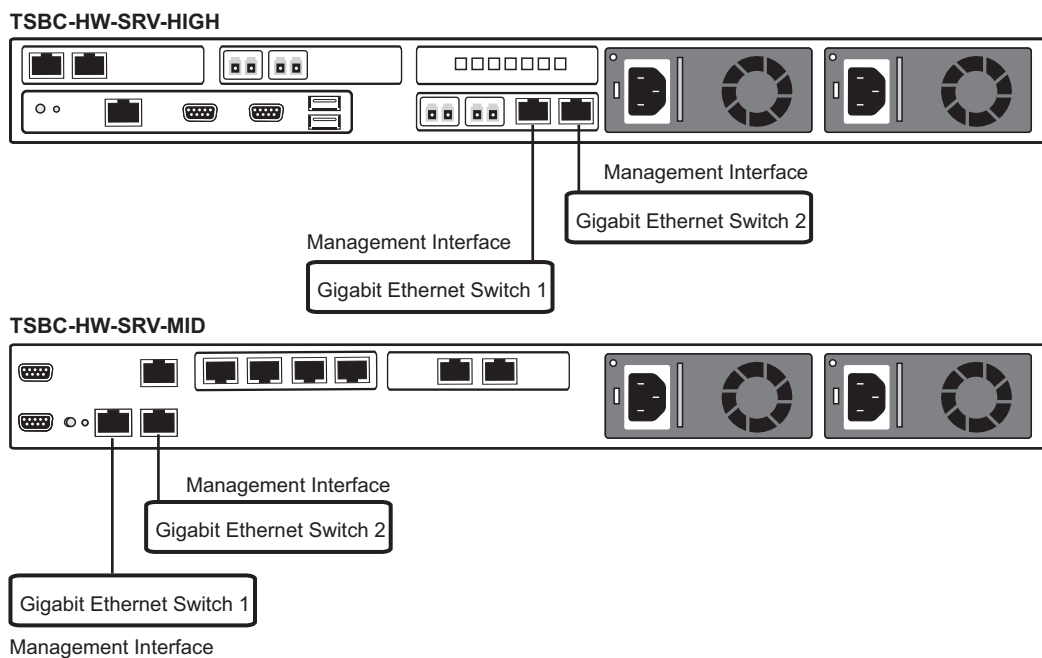


Figure 3.1 TSBC-HW-SRV System Management Interface

3.2 Connecting to the Control Network

Connection to the TSBC-HW-SRV control network is required only if your system includes a second TSBC-HW-SRV for high availability, or because of required transcoding sessions provided by TBSC-HW-TRANS unit(s).

Note If you do not have any transcoding units, connect the TSBC-HW-SRV units back to back.

Prerequisites

To connect the TSBC-HW-SRV to the control network, you will need:

- Two CAT5 Ethernet cables with RJ45 male-male terminations.

Connections

The TSBC-HW-SRV is connected to the control network using two CAT5 Ethernet cables, as shown in figure 3.2 on page 17.

To connect to the control network:

1. Connect the ETH0 connector on the TSBC-HW-SRV to the Control network switch one.
2. Connect the ETH1 connector on the TSBC-HW-SRV to the Control network switch two.

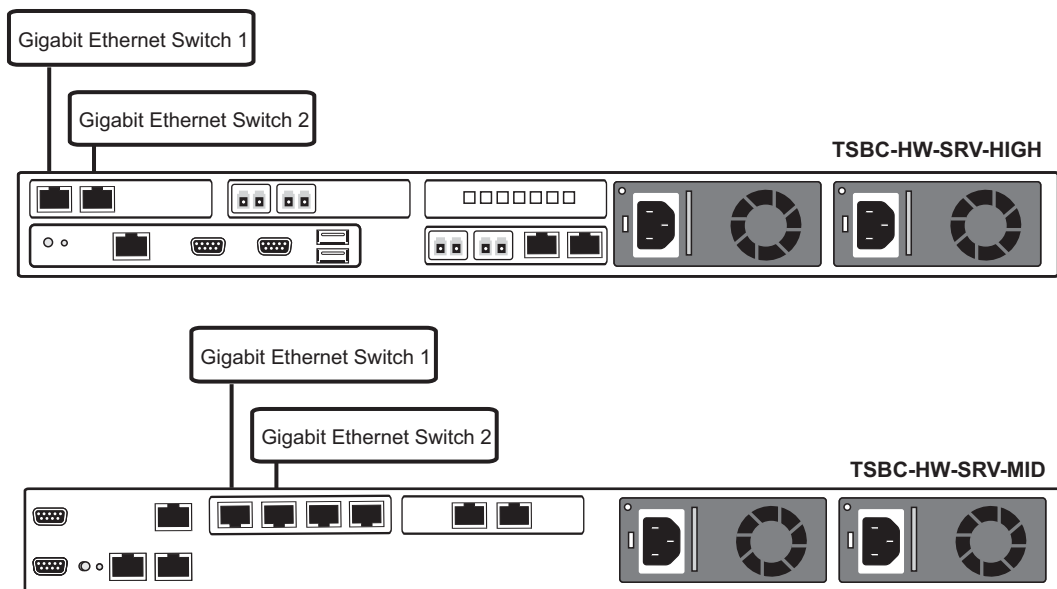


Figure 3.2 Connecting to the Control Network

3.3 Connecting to the Data Network

The TSBC-HW-SRV-HIGH and TSBC-HW-SRV-MID feature dual GigE ports for connection to multiple VoIP networks. Both server models feature dual 1Gb and 10 Gb ports.

The data Ethernet ports can be used for either WAN or LAN networks or for the transcoding network. Your network design will dictate which Ethernet ports are needed. For more information about the TSBC data networks, refer to <https://docs.telcobridges.com/tbwiki/TSBC-SW:Networking>

The IP address of the VoIP ports are configured using the Web Portal.

Note If you do not have any transcoding units, connect the TSBC-HW-SRV units back to back.

Connection to the data network will vary based upon your server model and port configurations. The following configurations are described:

- TSBC-HW-SRV-HIGH: 1Gb
- TSBC-HW-SRV-HIGH: 10Gb
- TSBC-HW-SRV-MID: 1Gb
- TSBC-HW-SRV-MID: 10Gb

3.3.1 TSBC-HW-SRV-HIGH: 1Gb

Prerequisites

To connect the TSBC-HW-SRV-HIGH to the data network using a 1Gb connection, you will need:

- Gigabit layer 2 Ethernet switch. A second one is required to support redundancy of the VoIP interface.
- CAT5 Ethernet cables with RJ45 male-male terminations for connection to the 1Gb ports.

Connections

The TSBC-HW-SRV-HIGH is connected to the data network by one or optionally two 1Gb Ethernet network links.

- To connect the TSBC-HW-SRV-HIGH to the data network, refer to figure 3.3 on page 19.

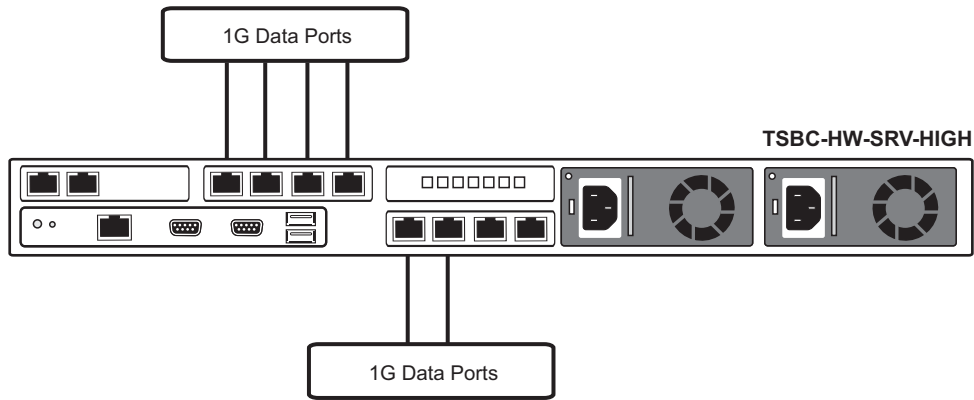


Figure 3.3 TSBC-HW-SRV-HIGH: Connecting to the Data Network

3.3.2 TSBC-HW-SRV-HIGH: 10G

Prerequisites

To connect the TSBC-HW-SRV-HIGH to the data network using a 10Gb connection, you will need:

- Gigabit layer 2 Ethernet switch. A second one is required to support redundancy of the VoIP interface.
- Fiber optic cables for connection to the 10Gb ports.

Connections

The TSBC-HW-SRV-HIGH is connected to the data network by one or optionally two 10Gb Ethernet network links.

- To connect the TSBC-HW-SRV-HIGH to the data network, refer to figure 3.4 on page 19.

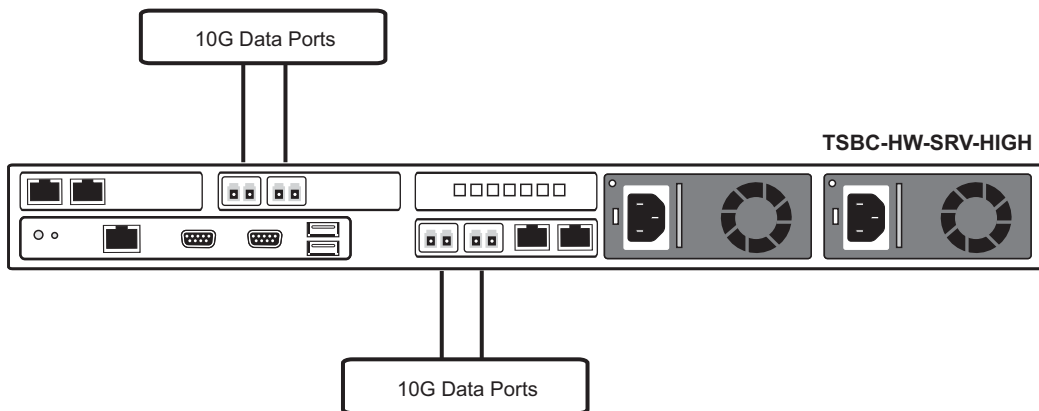


Figure 3.4 TSBC-HW-SRV-HIGH: Connecting to the Data Network

3.3.3 TSBC-HW-SRV-MID: 1G

Prerequisites

To connect the TSBC-HW-SRV-MID to the data network using a 1Gb connection, you will need:

- Gigabit layer 2 Ethernet switch. A second one is required to support redundancy of the VoIP interface.
- CAT5 Ethernet cables with RJ45 male-male terminations for connection to the 1Gb ports.

Connections

The TSBC-HW-SRV-MID is connected to the data network by one or optionally two 1Gb Ethernet network links.

- To connect the TSBC-HW-SRV-MID to the data network, refer to figure 3.5 on page 20.

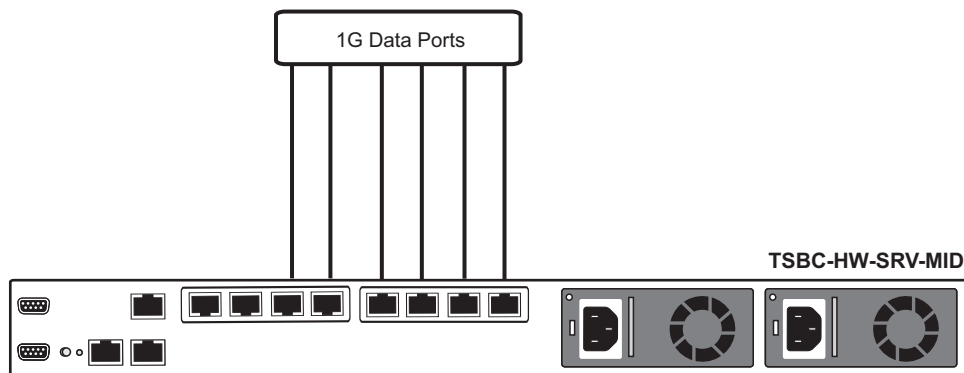


Figure 3.5 TSBC-HW-SRV-MID: Connecting to the Data Network

3.3.4 TSBC-HW-SRV-MID: 10G

Prerequisites

To connect the TSBC-HW-SRV-MID to the data network using a 10Gb connection, you will need:

- Gigabit layer 2 Ethernet switch. A second one is required to support redundancy of the VoIP interface.
- CAT7 Ethernet cables with RJ45 male-male terminations for connection to the 1Gb ports.

Connections

The TSBC-HW-SRV-MID is connected to the data network by one or optionally two 1Gb Ethernet network links.

- To connect the TSBC-HW-SRV-MID to the data network, refer to figure 3.6 on page 21.

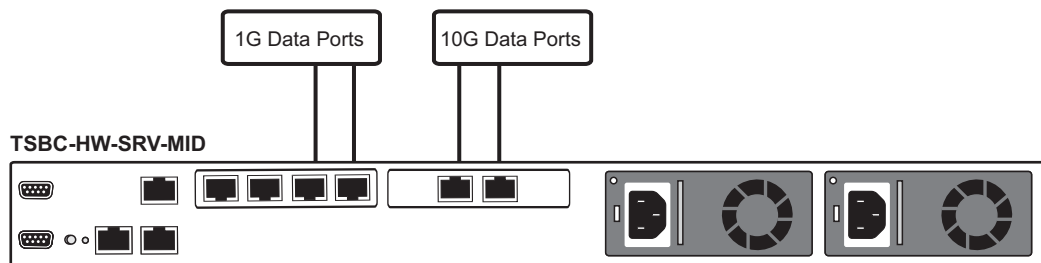


Figure 3.6 TSBC-HW-SRV-MID: Connecting to the Data Network

3.4 Powering Up

The TSBC-HW-SRV is furnished with two AC or two DC power connections. Only once all other equipment installation work has been completed should the equipment be powered up.

Prerequisites

To power the TSBC-HW-SRV, you will need:

- Two independent AC or DC power sources.
- Two power cables.

3.4.1 Connecting to AC Power

The TSBC-HW-SRV is furnished with two AC power supplies.

To connect the TSBC-HW-SRV to AC Power:

1. Connect the first power connector of the TSBC-HW-SRV to the first power source. See Figure 3.7.
2. Connect the second power connector of the TSBC-HW-SRV to the second power source.

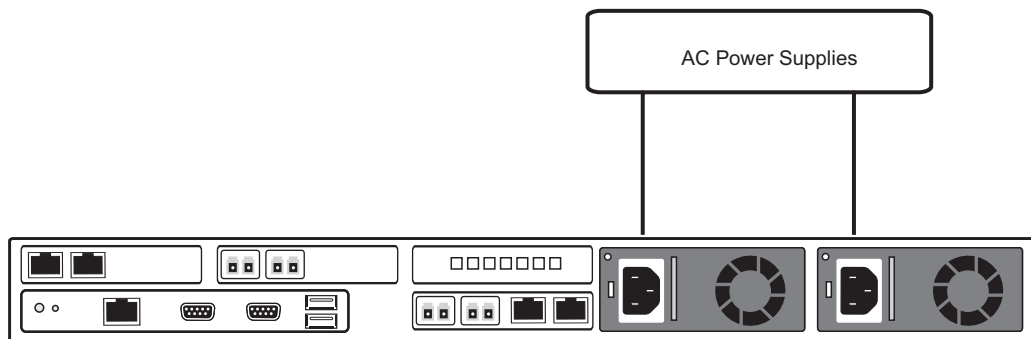


Figure 3.7 TSBC-HW-SRV AC Power Connections

3.5 Connecting to DC Power

The TSBC-HW-SRV-HIGH is furnished with two DC power supplies. See Figure 3.8.

To connect the TSBC-HW-SRV-HIGH to DC power, refer to the Wiring instructions for a DC power supply unit in the Dell PowerEdge R630 Owner's Manual:

http://topics-cdn.dell.com/pdf/poweredge-r630_owner's%20manual_en-us.pdf

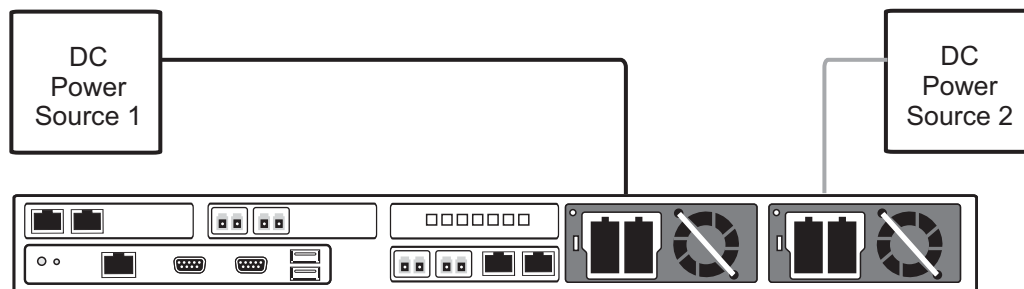


Figure 3.8 TSBC-HW-SRV DC Power Connections

Section 4 Installing the TSBC-HW-TRANS

This section covers the following procedures:

- Section 4.1 “Connecting to the Control Network” on page 26.
- Section 4.2 “Connecting to the Transcoding Network” on page 27.
- Section 4.3 “Grounding the Equipment Chassis” on page 28.
- Section 4.4 “Powering Up” on page 29.

4.1 Connecting to the Control Network

The TSBC-HW-TRANS Control network enables communication between the TSBC-HW-SRV and the TSBC-HW-TRANS.

Prerequisites

To connect the TSBC-HW-TRANS, you will need:

- Two CAT5 Ethernet cables with RJ45 male-male terminations.

Connections

The TSBC-HW-TRANS is connected to the control network using two CAT5 Ethernet cables, as shown in figure 4.1 on page 26.

To connect to the control network:

1. Connect the ETH0 connector on the TSBC-HW-TRANS to the control network switch one.
2. Connect the ETH1 connector on the TSBC-HW-TRANS to the control network switch two.

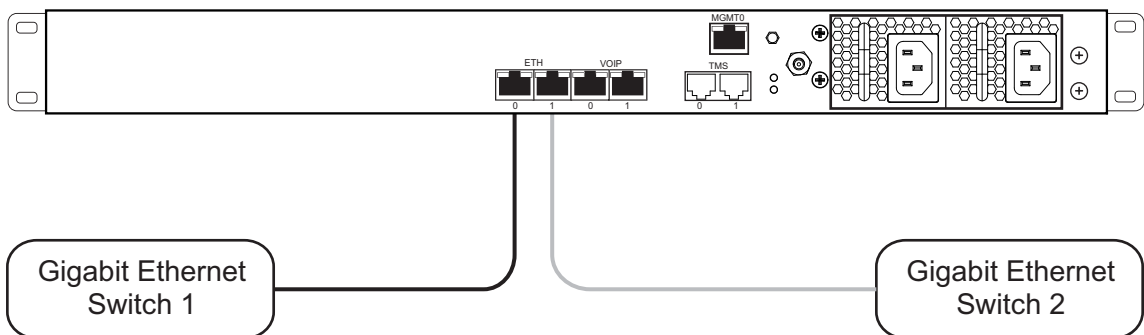


Figure 4.1 Connecting to the Control Network

4.2 Connecting to the Transcoding Network

The TSBC-HW-TRANS features dual GigE ports for connection to the transcoding networks. Should one of the IP networks fail, the TSBC-HW-TRANS will continue to manage VoIP traffic using the alternate network.

The IP address of the VoIP ports can be modified using the web portal.

Note: The TSBC-HW-TRANS requires two (2) gigabit layer 2 Ethernet switches.

Prerequisites

To connect the TSBC-HW-TRANS to the transcoding network, you will need:

- Two gigabit layer 2 Ethernet switches. A second one is required to support redundancy of the VoIP interface.
- Two CAT5 Ethernet cables with RJ45 male-male terminations.

Connections

The TSBC-HW-TRANS is connected to the transcoding network through two Ethernet GigE network links, as shown in figure 4.2 on page 27.

To connect to the Transcoding network:

1. Connect the VoIP0 connector from the TSBC-HW-TRANS to the first Ethernet switch.
2. Connect the VoIP1 connector from the TSBC-HW-TRANS to the second Ethernet switch.

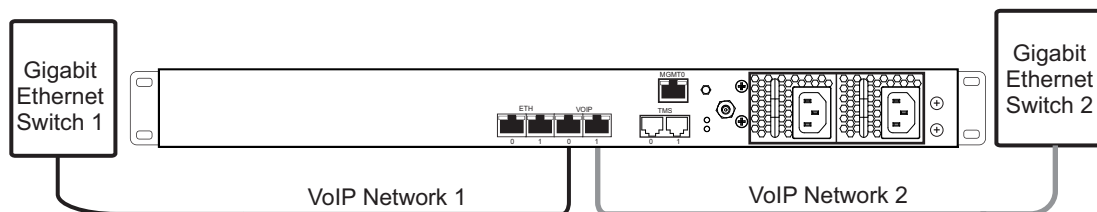


Figure 4.2 Connecting to the Transcoding Network

4.3 Grounding the Equipment Chassis

As a standard safety practice, the chassis of the TSBC-HW-TRANS must be properly grounded to protect against any contact with an electrical fault condition. It is recommended that the chassis be connected to earth ground. When the TSBC-HW-TRANS is installed in an equipment rack, connect the ground wire between the ground lug of the Transcoding unit and the equipment rack ground bar.

Guidelines

- Use 10 AWG (minimum) stranded ground wire.
- Terminate equipment side of ground wire with a #10 ring terminal.
- Keep the length of the ground wire as short as possible.
- Do NOT daisy chain the ground between equipment. Use a ground bus bar, as show in figure 4.3 on page 28.
- Do not over tighten ground lug connections.

To connect the TSBC-HW-TRANS to ground:

1. Connect one end of a ground wire to the ground lug of the TSBC-HW-TRANS. See figure 4.3 on page 28.
2. Connect the other end of the ground wire to a ground bar of the equipment rack. If the TSBC-HW-TRANS is not installed in an equipment rack, connect the ground wire to earth ground.
3. Verify that the resistance of the ground path is less than 0.5 ohms.

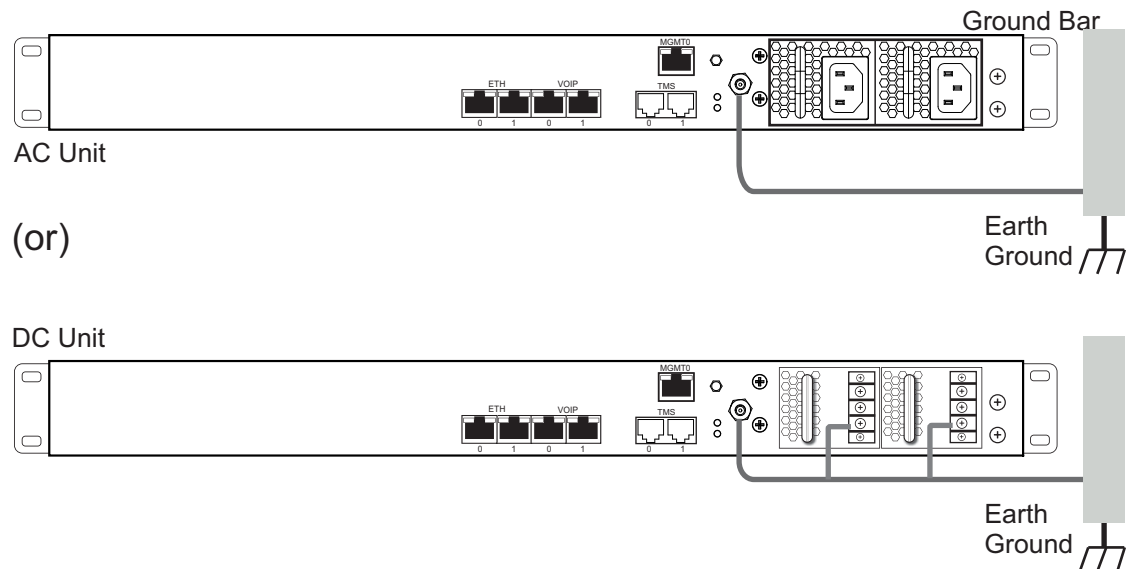


Figure 4.3 Chassis Ground Connection

4.4 Powering Up

The TSBC-HW-TRANS is furnished with two AC or DC power connections. Only once all other equipment installation work has been completed should the TSBC-HW-TRANS be powered up.

4.4.1 Connecting to AC Power

Prerequisites

To power the TSBC-HW-TRANS, you will need:

- One to two power sources.
- Two power cables.

The TSBC-HW-TRANS model is furnished with two AC power connectors.

To connect the TSBC-HW-TRANS to AC Power:

1. Connect an AC power cable between the AC connector of the TSBC-HW-TRANS and an AC supply. See figure 4.4 on page 29.

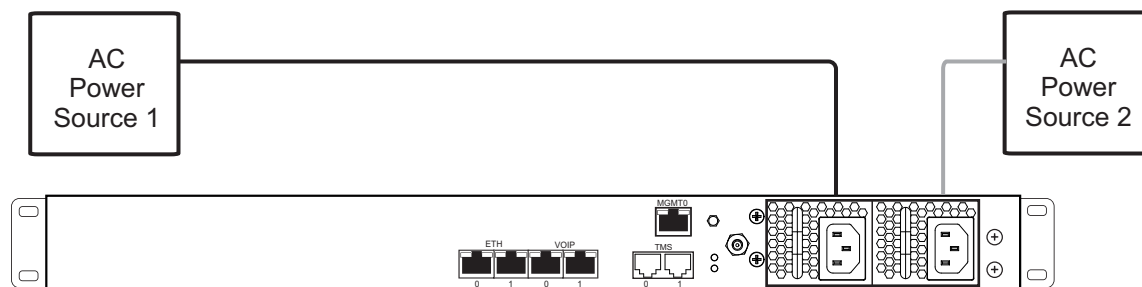


Figure 4.4

AC Power Connection

4.4.2 Connecting to DC Power

The TSBC-HW-TRANS DC model is furnished with two DC power connection ports. In addition, each DC powered unit is supplied with two DC power cables.

Fuse and Cabling Requirements

16 AWG wiring must be used and the 48V supply must be protected with a customer provided 5A 48V fuse.

To connect to DC power:

1. Connect one wire from the positive terminal of the TSBC-HW-TRANS to the return side of DC power source one, as shown in figure 4.5 on page 30.
2. Connect another wire from the negative terminal of the TSBC-HW-TRANS to the -48V side of DC power source one.
3. Connect a ground wire from the ground terminal of the TSBC-HW-TRANS to earth ground.
4. Repeat steps 1-3 for the second power DC power source.

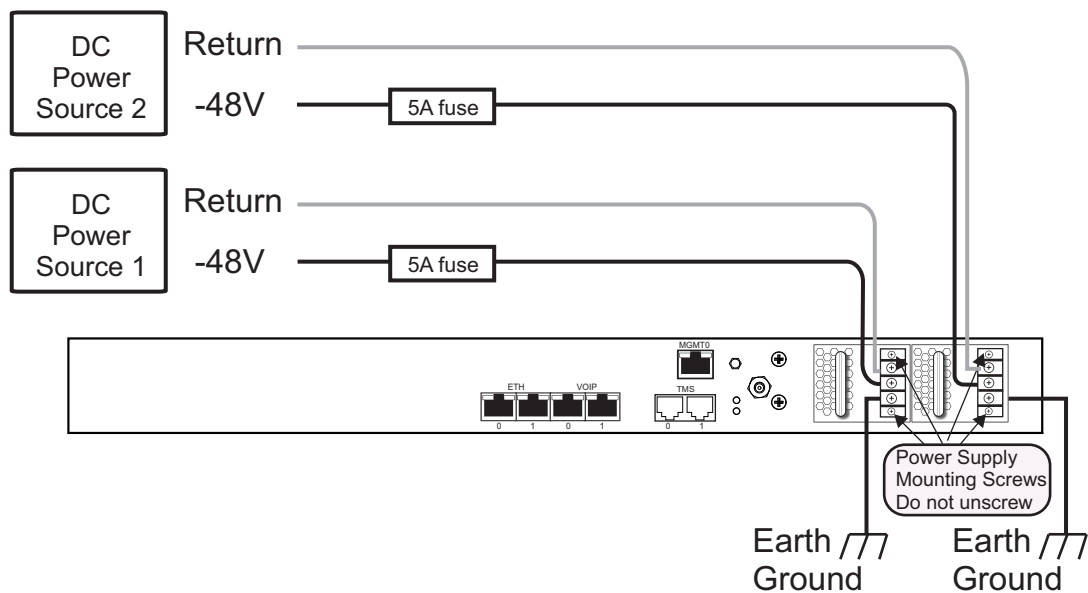


Figure 4.5 DC Power Connection

Section 5 Start Up and Verification

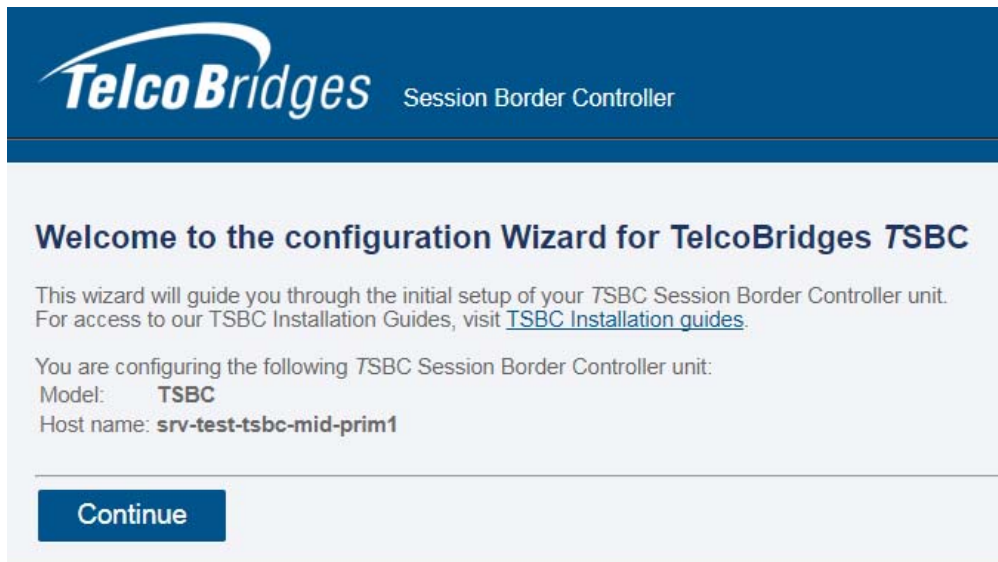
This section provides information about the following topics:

- Section 5.1 “Start Up”
- Section 5.2 “Verifying the LED Status Indications”

Note To learn about the IP address for your system or how to change it, refer to Section 7.3 “Changing the TSBC-HW-SRV Management Port IP Address” on page 43.

5.1 Start Up

1. Connect to the web portal of the TSBC-HW-SRV.



2. Follow the web portal instructions to configure your unit.
3. Before clicking the “yes, it is connected like that already” button, make sure that the physical connections have been properly done.

5.2 Verifying the LED Status Indications

When the TSBC-HW has been powered up, verify the LEDs of each unit to determine that all indications are normal.

5.2.1 TSBC-HW-SRV

To determine the operating health of the TSBC_HW_SRV, verify the LED statuses at the front and the rear of the unit, Refer to the Dell documentation for information that is displayed at the front and the rear of the unit:

- TSBC-HW-SRV-HIGH, refer to Dell's documentation:
<http://www.dell.com/support/home/us/en/19/product-support/product/poweredge-r630/manuals>
- TSBC-HW-SRV-MID, refer to Dell's documentation:
<http://www.dell.com/support/home/us/en/04/product-support/product/poweredge-r330/manuals>

5.2.2 TSBC-HW-TRANS

Front of unit

When the equipment is powered, verify the front panel to determine that the LED indication is normal. See Table 5.1 on page 33.

Table 5.1 Front Panel Displays

LED	Description
Green - Steady	<ul style="list-style-type: none"> • Ready
Green - Blinking	<ul style="list-style-type: none"> • Starting up • Shutting down
Orange - Steady	<ul style="list-style-type: none"> • Shut down (stopped)
Red - Blinking	<ul style="list-style-type: none"> • Fault condition

Note An alarm will sound if one of the power supplies is faulty. There is no alarm button to disable the alarm. To stop the alarm, you must remove the faulty power supply.

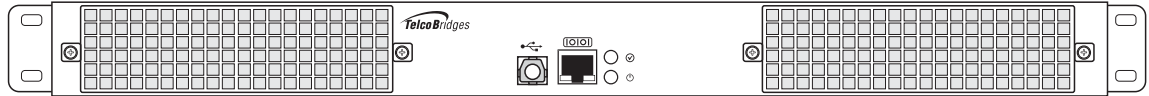


Figure 5.1 Front display and LEDs

Section 6 Powering Down the Equipment

This section provides the following power-down topics:

- Section 6.1 “TSBC-HW-SRV”
- Section 6.2 “TSBC-HW-TRANS”

6.1 TSBC-HW-SRV

Attention DO NOT TURN OFF the power to the TSBC-HW-SRV unless the Linux host has been properly shut down beforehand. Use the reset button display, or manually use the shutdown command.

Allow enough time for the Linux host to shut down before turning off the power (example, 1 minute). Be aware that the shutdown procedure of the unit is logged and traceable for support and warranty purposes.

6.1.1 Local Method

To power down the TSBC-HW-SRV, refer to the Dell documentation:

- TSBC-HW-SRV-HIGH: <http://www.dell.com/support/home/us/en/19/product-support/product/poweredge-r630/manuals>
- TSBC-HW-SRV-MID: <http://www.dell.com/support/home/us/en/04/product-support/product/poweredge-r330/manuals>

6.1.2 Remote Method

To power down, you must connect to the management interface using SSH, and enter:

```
shutdown -hP now
```

6.2 TSBC-HW-TRANS

Unplug the power cord from the unit. The unit can be restarted using restart button on the front of the unit.

Note As an alternate method to this procedure, refer to Section 5.2.2 “TSBC-HW-TRANS” on page 33, to power down the TSBC-HW-TRANS with the reset button.

Section 7 Initial System Configuration

This section provides information about the following topics:

- Section 7.1 “TSBC-HW-SRV SSH Connection”
- Section 7.2 “TSBC-HW-SRV Serial Connection”
- Section 7.3 “Changing the TSBC-HW-SRV Management Port IP Address”
- Section 7.4 “Retrieving TSBC-HW-SRV Information”
- Section 7.5 “Changing TSBC-HW-SRV Management Port Passwords”
- Section 7.6 “Configuring the TSBC-HW-SRV Using the Web Portal”

7.1 TSBC-HW-SRV SSH Connection

The TSBC-HW-SRV is shipped with the TSBC-SW software preinstalled. In order to make changes to the system configuration, you must connect the port labelled MGMT0 at the front of the TSBC-HW-SRV to a terminal.

To access the TSBC-HW-SRV, you must use an SSH connection. The password is set at the factory and is indicated on the shipment sheet.

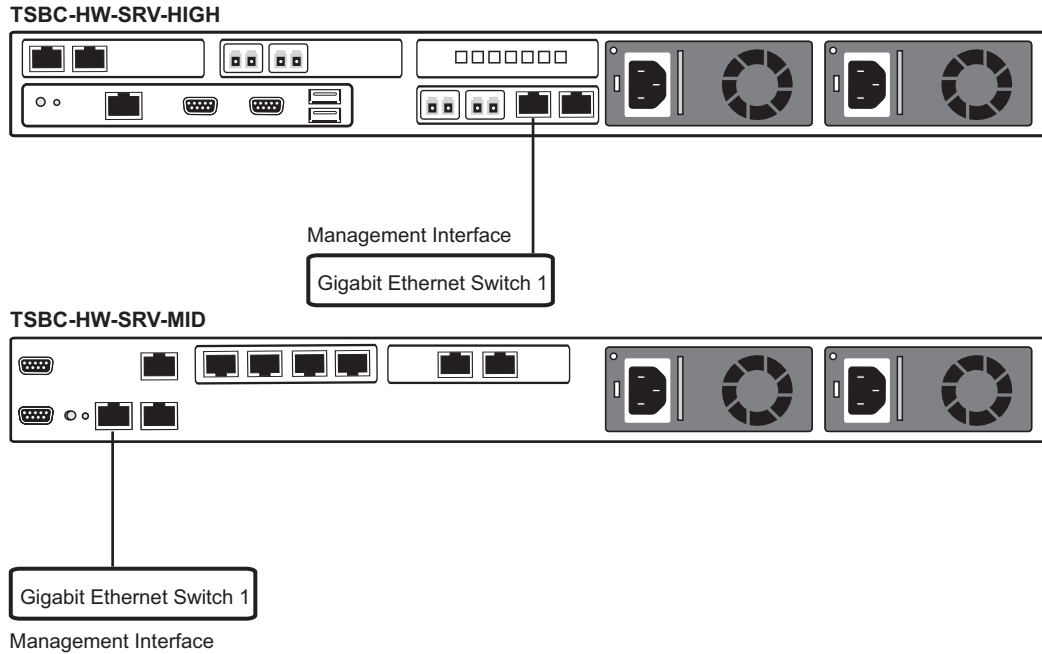


Figure 7.1 TSBC-HW-SRV Management Interface

Note See Section 7.3 on page 43 to learn how to change the IP address of the MGMT0 port.

7.2 TSBC-HW-SRV Serial Connection

7.2.1 Connecting to the TSBC-HW-SRV Console

Note The default IP addresses for the management ports are located in the “Important Notice” sheet received with the shipment. MGMT ports are configured in bonding.

If you do not know the default IP address, go to Section 7.3 “Changing the TSBC-HW-SRV Management Port IP Address” on page 43.

The serial port interface enables administrators to perform management tasks on the TSBC-HW-SRV. You can connect to the serial port of a TSBC-HW-SRV, using one of the following three methods.

Method 1: Null modem DB9 female-female cable

1. Connect a null modem DB9 female-female cable between the DB9 serial port of your computer and the DB9 serial port of the TSBC-HW-SRV. See figure 7.2 on page 39.

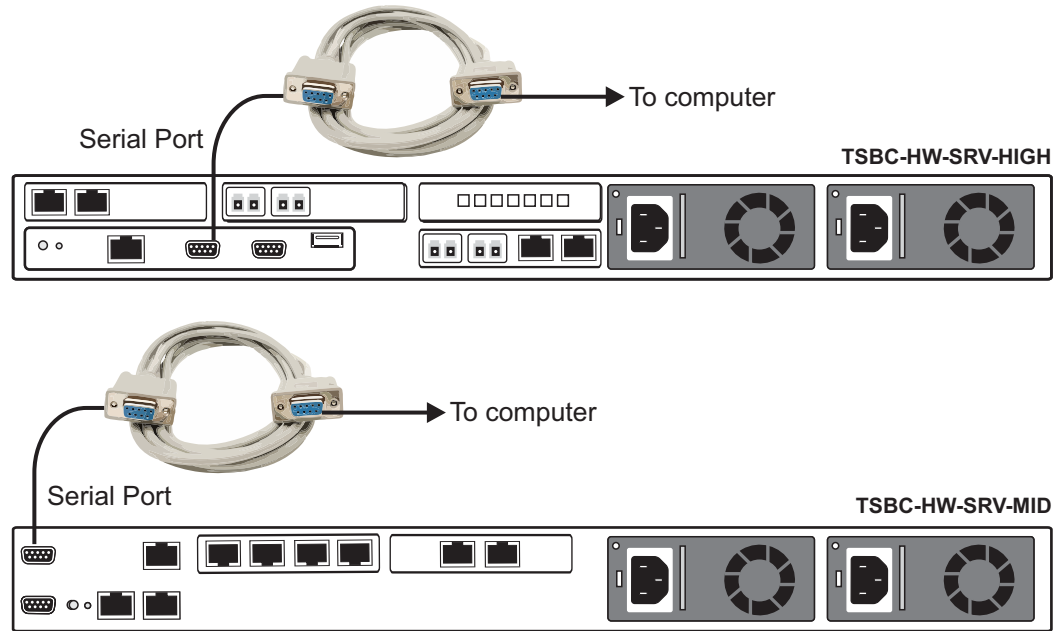


Figure 7.2 TSBC-HW-SRV Serial Port Connection

Method 2: USB to DB9 adapter

1. Connect the USB connector of the cable to a USB port on your computer and the DB9 male connector of the cable to one end of a null modem DB9 female-female cable. Connect the other end of the null modem DB9 female-female cable to the DB9 serial port of the TSBC-HW-SRV. See figure 7.3 on page 40.

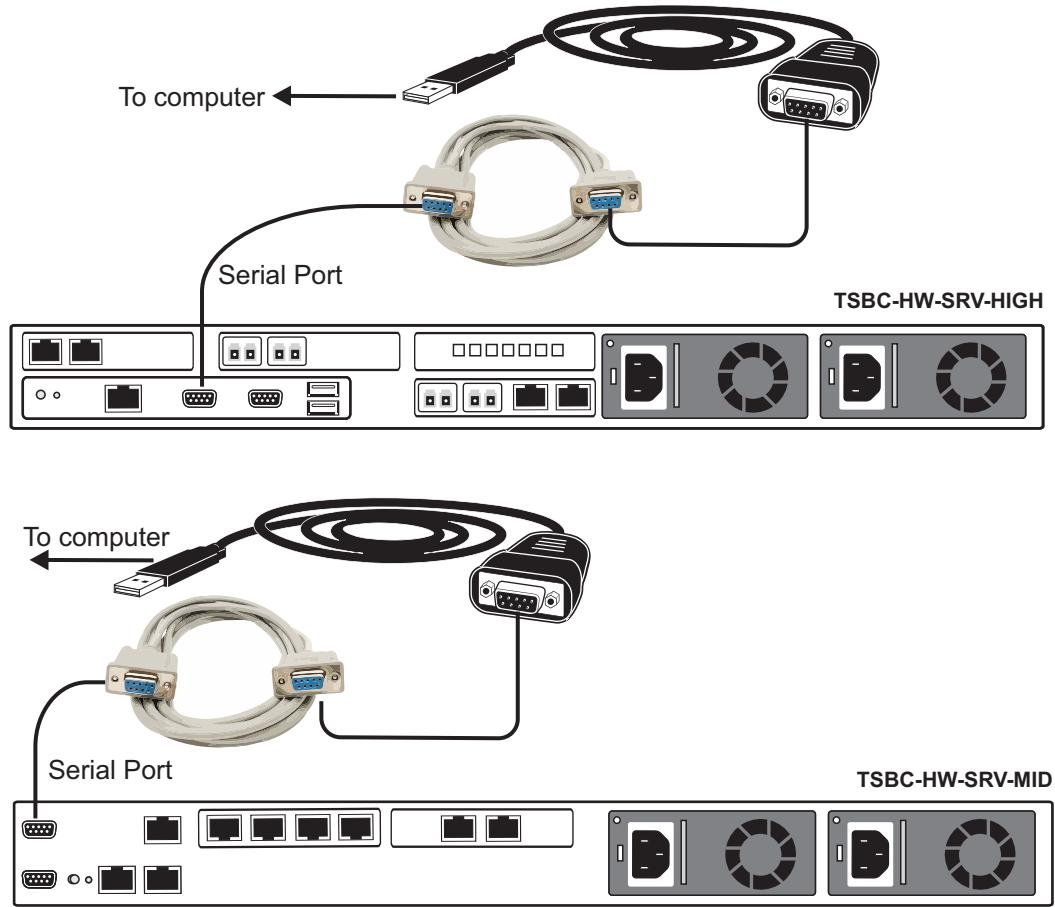


Figure 7.3 USB to DB9 Adapter

Method 3: VGA Monitor, USB Keyboard, and USB Mouse

1. Connect a VGA monitor to the VGA port of the TSBC-HW-SRV. Connect a USB keyboard to an available USB port on the TSBC-HW-SRV. Do the same for a USB mouse See figure 7.4 on page 41.

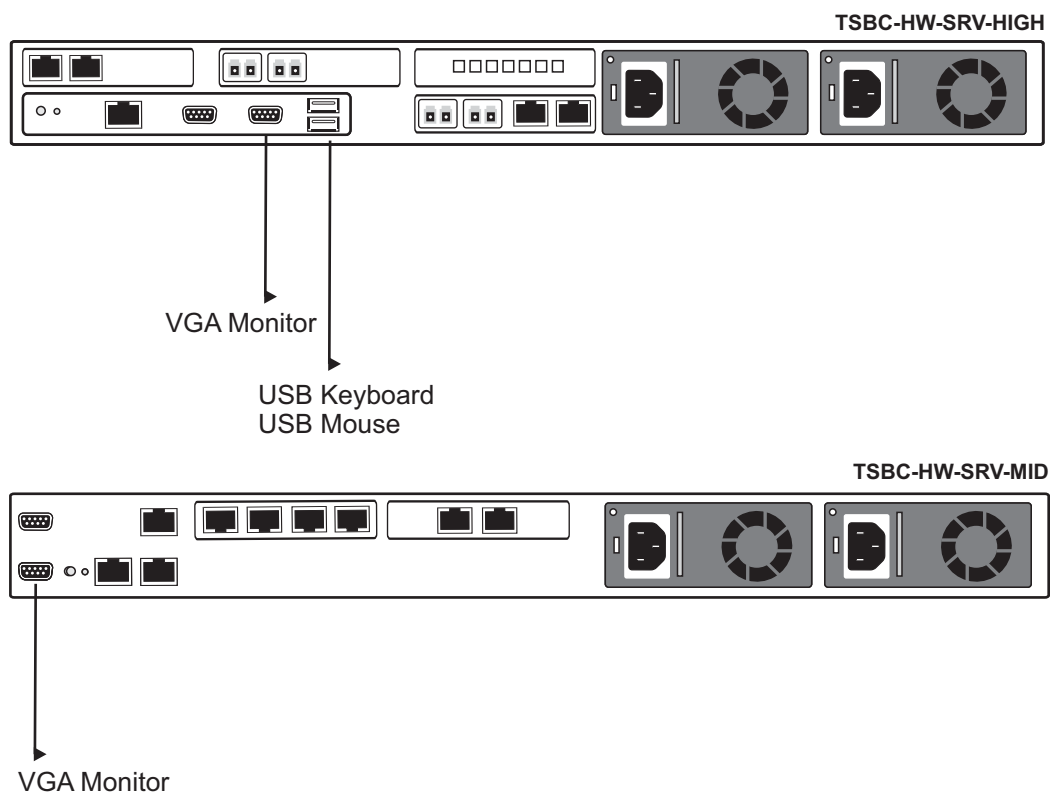


Figure 7.4 USB to DB9 Adapter

7.2.2 Configuring the Terminal Emulator Application

Before initiating communication with the management interface, you must first configure a terminal emulator or console application to communicate with the TSBC-HW system in order to configure initial settings. Available terminal emulation software includes:

- SecureCRT
- Putty
- Minicom

To configure the terminal emulator application:

1. Set the baud rate (bits per second) to **9600**
2. Set the data rate to **8 bits**
3. Set the parity to **None**
4. Set the stop bits to **1**

5. Set the flow control to **None**

Note See Section 7.3 on page 43 to learn how to change the IP address of the MGMT0 port.

7.3 Changing the TSBC-HW-SRV Management Port IP Address

The management port of the TSBC-HW-SRV (MGMT0 and MGMT1) are configured in bonding by default and the values are located on the “Important Notice” sheet.

The values can be modified using the following shell script:

tbchangeip

Note If you do not have the “Important Notice” sheet, the default IP address and netmask are set as follows:

MGMT0

- IP address: 172.24.0.2
- Netmask: 255.255.255.0

MGMT1

- IP address: 172.24.0.3
 - Netmask: 255.255.255.0
-

7.4 Retrieving TSBC-HW-SRV Information

The TSBC-HW-SRV enables you to retrieve system information with the following shell commands:

- `tbproduct` (retrieve the TSBC-HW-SRV product type). See http://docs.telcobridges.com/tbwiki/Get_Product_Type, for further information.
- `tbserial` (retrieve the TSBC-HW-SRV serial number). See http://docs.telcobridges.com/tbwiki/Get_Serial_Number, for further information.

7.5 Changing TSBC-HW-SRV Management Port Passwords

Once logged you are logged on to the TSBC-HW-SRV, type “passwd”, to change the password being used. The following information will be displayed:

```
[root@TB003540 ~]# passwd

Changing password for user root.
New UNIX password:
Retype new UNIX password:
passwd: all authentication tokens updated successfully.
```

7.6 Configuring the TSBC-HW-SRV Using the Web Portal

Note: The first time that you connect to the web portal, you will need to configure the role of the TSBC-HW-SRV. See Section 5.1 “Start Up” on page 31

Use the Web Portal to configure the TSBC-HW-SRV. Follow the steps described in the Web Portal System Configuration Tutorial Guide, found on the TBWiki:

<http://docs.telcobridges.com>

The Web Portal can be accessed with a Web browser.

The default url is: `http://[SRV-HW_SRV MGMT0 IP address]:12358`

The default login information to access the Web Portal application is:

- Username: root
- Password: root

Section 8 System Backups

This section provides information about the following topics:

- Section 8.1 “Creating a Database Backup”
- Section 8.2 “Downloading a Database Backup”
- Section 8.3 “Uploading a Database Backup”
- Section 8.4 “Restoring a Database Backup”

For more detailed information with regard to any of the points described in this section, please refer to the TBWiki: <http://docs.telcobridges.com>

8.1 Creating a Database Backup

It is important that backups be made of system configuration settings in the event of a system failure. It is recommended that a backup be made once the system has been configured. Backups are performed using the web portal.

8.2 Downloading a Database Backup

A backup of system data is stored on the hard drive of the TSBC-HW. It is important that system backups be downloaded to an external storage device.

8.3 Uploading a Database Backup

An external backup of your database can be uploaded to your TSBC-HW.

8.4 Restoring a Database Backup

In the event of a system failure requiring the replacement of a TSBC-HW, a previously saved backup of system settings can be restored to the new unit.