

Voisus Cold Start Guide

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Product Name: Voisus

Voisus Cold Start Guide

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Revision history

Date	Revision	Version	Comments
10/7/2016	L	2	Completed internal reorganization and made minor edits for grammar, consistency, and style; moved " (Optional) Media check" after "Basic Input/Output System (BIOS) setup."
7/13/2017	Μ	0	Added download client instructions to "System res- toration" and added new run-time license content to "Voisus in a virtual machine." Updated screenshots of Backup/Restore page.
1/12/2018	Ν	0	Added "Voisus on customer or government equip- ment" appendix.
8/14/2018	Ν	1	Fixed Voisus login credentials in "iSCSI cold-start pro- cedure for Voisus 6.X;" updated screenshot of Down- loads page; updated grammar and style.
9/15/2018	0	0	(7.0.1) Added Red Hat 7.X cold-start procedures for standard Voisus and iSCSI. Moved legacy cold-start procedures to appendices.
10/16/2018	0	1	(7.1.0) Updated required equipment; added note to BIOS. Fixed condition display error in legacy iSCSI cold start instructions; fixed page display error in appendices.
1/22/2019	Ρ	0	Added "BIOS: Q17MX or Q17AX" configuration instructions. Added licensing reminder to "System restoration."
3/13/2019	Р	1	(7.2.0) Removed Second Super IO Configuration interface element from "BIOS: Q17MX or Q17AX."
3/20/2019	Ρ	2	Fixed a condition error resulting in a missing period in "System restoration."
4/26/2019	Ρ	3	Made minor edits to BIOS for clarity and added cross reference to "iSCSI cold-start procedure for Voisus 6.X."
11/6/2019	Ρ	4	Fixed minor condition error in "(Optional) Media check."
12/6/2019	Ρ	5	Clarified media check verification process. Fixed minor errors in "iSCSI cold-start procedure for Voisus 6.X" and "Intel iSCSI boot firmware installation."

Date	Revision	Version	Comments
6/25/2020	Q	0	(7.7.0) Removed "Disable ACENet on the Voisus server" and added boot method to "Minimum host server specifications."
9/16/2020	R	0	Updated screenshots of the Voisus web interface.
2/15/2021	R	1	Updated 2U chassis image(s) throughout document.
3/10/2021	R	2	Removed deprecated BIOS identification instructions in "Basic Input/Output System (BIOS) setup."
8/10/2021	S	0	Updated the 2U hardware chassis diagram in "Required equipment." Updated screenshots of the top-right toolbar. Updated the workflow in "System restoration." Updated all screenshots of table styles.
6/23/2022	S	1	Updated the 2U chassis diagram to include the Power and Hard Drive LEDs.
9/14/2022	S	2	Edited "Minimum host server specifications" and "Voisus in a VM specifications."
10/7/2022	S	3	Removed "license" references from the Red Hat Enterprise Linux export statement in the front matter. Updated the 2U chassis diagram to move the Eth card to the third slot.
3/8/2023	Т	0	Added RHEL 8.X cold-start procedure to "Cold-start Voisus 7.X or 8.X on a Voisus server (VSH-XXXX- XX)." Updated Network Configuration screenshots in "Record network data" and "System restoration." Updated the Downloads screenshot in "System res- toration." Updated the Red Hat Enterprise Linux sub- scription and export statement in the front matter.

Date	Revision	Version	Comments
10/2/2023	U	1	Edited the title of "Legacy cold-start procedures" and classified "ASTi USB cold-start procedure" and "Cold-start procedure for Voisus 6.X" as legacy cold-start procedures.
			Clarified that the "ASTi USB cold-start procedure" is only compatible with RHEL 7.X and earlier. Updated ASTi software versions in the "Basic Input/Output System (BIOS) setup."
			Specified USB drives as acceptable installation media in "Required equipment" and "Cold-start Voisus 7.X or 8.X on a Voisus server (VSH-XXXXX- XX)."
			Added UEFI support to "(Optional) Media check" and "Memory Test (Voisus 7.X and 8.X)."
			Added "Broadcom iSCSI setup and cold start for VSH-XXX8X-XX and VSH-XXX9X-XX" doc- umentation.
			Updated Disk Space to 80 GB in "Minimum host server specifications" and "ESXi virtual machine specifications."
12/14/2023	V	0	Updated a screenshot of the Downloads page in "System restoration." Fixed incorrect network set- tings command and updated the recommended image flash utility in "Cold-start Voisus 7.X or 8.X on a Voisus server (VSH-XXXXX-XX)."
3/11/2024	W	0	Added "BIOS setup for HW-1XXXXX-XXX and HW- 2XXXX-XXX." Fixed chassis number typo in "Broad- com iSCSI setup and cold start for VSH-XXX8X-XX and VSH-XXX9X-XX" and added required equipment to "Intel iSCSI boot process for VSH-XXXXX-XX" for consistency. Added the ASTI-SRV chassis diagram to "Required equipment."
3/12/2024	W	1	Added BIOS HW-1XXXXX-XXXor HW-2XXXXX- XXXto the table in "Basic Input/Output System (BIOS) setup." Fixed blurry image of ASTI-SRV chassis diagram in "Required equipment."
3/13/2024	W	2	Updated the compatible software version for HW- 1XXXXX-XXX and HW-2XXXXX-XXX in "Basic Input/Output System (BIOS) setup."

Date	Revision	Version	Comments
4/3/2024	W	3	Fixed incorrect software version tags in "Revision his- tory." Reverted a screenshot of the Downloads page in "System restoration."
4/9/2024	W	4	Expanded "Voisus iSCSI cold-start procedure" to include a statement about external services and booting from remote drives.
8/21/2024	W	5	Made a minor clarification to a note about resetting the server after reboot in the cold-start procedure. Specified that the minimum LUN size is 80 GB in "Voisus iSCSI cold-start procedure."
10/22/2024	Х	0	(8.5.0) Edited note in "Cold-start Voisus 7.X or 8.X on a Voisus server (VSH-XXXX-XX)" to make Fedora Media Writer required.
11/22/2024	Y	0	Added "Voisus cold-start procedures" and "Cold-start Voisus 8.3.X and later on a Voisus server (HW- 1XXXX-XXX or HW-2XXXX-XXX)." Changed the title of "Cold-start Voisus 7.X or 8.X on a Voisus server (VSH-XXXX-XX)" for consistency and expan- ded the step instructing users to insert or mount the installation media. Reorganized BIOS configuration instructions for the HW-1 and HW-2 chassis naming schema. Made "(Optional) Media check" more gen- eric to other types of installation media.
3/12/2025	Y	1	Changed Q67IX software version to 8.2.X and earlier in "BIOS setup for VSH-XXXXX-XX and earlier con- figurations."

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1.0 Introduction

The cold-start procedure described in this document allow you to build Voisus systems from scratch. There are three main reasons for using the cold-start procedure:

- Installing the latest software version
- Rebuilding a damaged hard drive
- Creating a spare hard drive

The following steps outline the cold-start procedure:

- 1. To back up the Voisus server, go to Section 3.0, "System backups" on page 5.
- 2. To configure the BIOS, ensuring the cold-start procedure runs properly, go to Section 4.0, "Basic Input/Output System (BIOS) setup" on page 7.
- 3. *(Optional)* To perform a media check, go to Section 5.0, "(Optional) Media check" on page 18.
- 4. Complete the Voisus cold-start procedure, erase the hard drive, and install the Red Hat and Voisus software. For cold-start procedure instructions, go to Section 6.0, "Voisus cold-start procedures" on page 20.
- 5. *(Optional)* If applicable, configure a virtual machine (VM) according to the specifications in Appendix B, "Voisus in a virtual machine" on page 35.
- 6. To install Voisus on hardware or a VM, complete the Voisus cold-start procedure in Section 6.2, "Cold-start Voisus 7.X or 8.X on a Voisus server (VSH-XXXXX-XX)" on page 21.
- 7. To restore the Voisus server, go to Section 8.0, "System restoration" on page 29.

2.0 Required equipment

To complete the Voisus cold-start procedure, you will need the following items:

- A Voisus 2U platform with a removable hard drive
- Keyboard
- Monitor



Note: *The keyboard and monitor are required for setup and debugging but not for normal operation.*

- (Optional) Mouse
- Voisus installation media (i.e., DVD, USB drive, ISO)

Figure 1, "Voisus (P/N: TL-AT) 2U chassis" below shows the Voisus (P/N: TL-AT) 2U chassis:



Figure 1: Voisus (P/N: TL-AT) 2U chassis

Figure 2, "Voisus (P/N: ASTI-SRV) 2U chassis" below shows the Voisus (P/N: ASTI-SRV) 2U chassis diagram:



Figure 2: Voisus (P/N: ASTI-SRV) 2U chassis



Note: The chassis and connections shown here are for general representation only; the location(s) of cards, ports, and slots may vary. For specific designations, consult the included engineering drawings and labels on the rear of your chassis.

2.1 Record network data

To record your server's network data, follow these steps:

1. From the top right, go to Manage (>> Network Configuration.



Figure 3: Network Configuration navigation

2. Record your device's IPv4 Address and Subnet Mask for future reference.

Network Devices					
eth0	Device:	eth0			
eth1	Status:	Connected			
eth2	MAC Address:	$10.17\ \mathrm{Me}\ \mathrm{M}\ \mathrm{su}\ \mathrm{M}$			
eth3	Address Mode:	Fixed \$			
	IPv4 Address:	10.2 108.20			
	Subnet Mask:	255.255.0.0			

Figure 4: Voisus server network information

3.0 System backups

The cold-start procedure completely erases the Voisus server's hard drive, including scenarios, system users, and Distributed Interactive Simulation (DIS) settings. To back up your data in the Voisus web interface, follow these steps:

- 1. Open a web browser on a computer or tablet sharing a network with the Voisus server.
- 2. In the address bar, enter the Voisus server's IP address.
- 3. Log into the Voisus server using the following default credentials:

Username	Password
admin	astirules

4. From the top right, go to Manage (> > Backup/Restore.



Figure 5: Backup/Restore navigation

- 5. To create a new backup of your Voisus server, select
- 6. To download the backup to your computer's local hard drive, choose a backup to save.

7. To save your backup, select **Download Selected** ([▶]).

Backup & Resto Last backup restored: vs_0007t Choose file	Dre 10:56:21. Browse			
New 🗹 🖺 🛱				Q Search Backup Files
Name 👻	Date Created \$	Size (Bytes) ≎	Version 🖨	Last Restored?
□ vs_0007b8dc5199	-07-15 10:53:10	9,738,240	v7.11.1	Restore
<pre>vs_0007b8dc5199</pre>	-07-15 10:53:43	9,738,240	v7.11.1	Restore
vs_0007b8dc5199	-07-15 10:53:47	9,738,240	v7.11.1	✓ Restore

Figure 6: Backup & Restore settings

4.0 Basic Input/Output System (BIOS) setup

Before completing the cold-start procedure, you will need to set up your server's BIOS settings. The BIOS settings control the server's foundational behavior, including system boot order, hardware initialization, and essential communication among the server components. Proper BIOS configuration enhances the server hardware's compatibility, stability, and performance, which are critical for successful software installation and operation.

ASTi's BIOS documentation now includes servers using chassis configuration numbers (e.g., HW-1*XXXX-XXX* and HW-2*XXXX-XXX*) and servers that use motherboard models (e.g., Q17MX) for identification. It consists of two main sections: one for HW-1 and HW-2 configurations with the ASTI-SRV part number and another primarily for servers with a VS-SRV part number and VSH chassis configuration. The second section identifies servers by motherboard model and includes some legacy chassis configurations that predate the VSH naming schema. This structure streamlines BIOS setup while supporting all server types.

4.1 BIOS setup for HW-1XXXXX-XXX and HW-2XXXXX-XXX

This section provides BIOS setup instructions for ASTi servers using the HW-based naming schema, identified by configuration numbers such as HW-1*XXXX-XXX* and HW-2*XXXXX-XXX*. To confirm your server's configuration, go to to Table 1, "Voisus BIOS compatibility matrix" below, which maps the configuration number to the applicable Voisus software version:

Chassis Configuration	Voisus Software Version		
HW-1XXXXX-XXX, HW-2XXXXX-XXX	8.2.X and later		

Table 1: Voisus BIOS compatibility matrix

To set up the BIOS for the HW-1*XXXX*-*XXX* and HW-2*XXXX*-*XXX* chassis configurations, follow these steps:

- 1. Reboot the server, and immediately press Del as the system boots to enter the **BIOS Setup Utility**.
- 2. Press F9 to open Load Optimal Defaults?, and select Yes.
- 3. On Main, set System Date and System Time using Greenwich Mean Time.
- 4. Go to Advanced > Power & Performance, and set C states to Disabled.
- 5. To save and reset, press F10. When **Save & reset** appears, select **Yes**. Wait as the server reboots.

4.2 BIOS setup for VSH-*XXXXX*-*XX* and earlier configurations

This chapter covers BIOS setup for ASTi servers identified by their motherboard models; specifically, it refers to servers with a VS-SRV part number and a VSH-*XXXX-XX* chassis configuration, as well as some legacy configurations that differ from these setups.

To determine your server's chassis configuration, part number, and/or motherboard model, first check the label on the rear of the chassis. Next, use Table 2, "Voisus BIOS compatibility matrix" below to identify your server by the motherboard model and ASTi software version, and follow the corresponding BIOS setup instructions:

Motherboard Model	Voisus Software Version	
BIOS: Q17MX or Q17AX	7.1.0–7.16.0, 8 <i>.X</i> .Y	
BIOS: Q67AX 2.02.1205 and earlier	5.6.1–5.34.0, 7.X.Y, 8.2.X and earlier	
BIOS: Q67AX 2.14.1219 and later		
BIOS Q67IX 2.02.1205 and earlier		
BIOS: Q35AX American Megatrends	5. <i>X</i> . <i>Y</i> , 7. <i>X</i> . <i>Y</i>	
Visual BIOS: Intel NUC Board NUC5i3MYBE	5.25.0–5.34.0, 7.X.Y	
Visual BIOS: D33217GKE Intel	5.14.0–5.34.0, 7.X.Y	
BIOS: BLH6710H	5.6.0-5.34.0	
BIOS: JGIBX10J	5.2.0-5.34.0	

Table 2: Voisus BIOS compatibility matrix

4.2.1 BIOS: Q17MX or Q17AX

To set up BIOS version Q17MX or Q17AX, follow these steps:

- 1. Reboot the server, and immediately press Del as the system boots to enter the **BIOS Setup Utility**.
- 2. Press F3 to open Load Optimal Defaults?, and select Yes.
- 3. On Main, set System Date and System Time using Greenwich Mean Time.
- 4. Go to **Chipset** > **PCH-IO Configuration**, and set the following:
 - a. Onboard LAN1 Controller to Enabled
 - b. Onboard LAN2 Controller to Enabled
 - c. System State After Power Failure to Always On

- 5. Press Esc. Go to to Chipset > System Agent (SA) Configuration, and set VT-d to Enabled.
- 6. Press Esc. Go to Advanced > CSM Configuration, and set Network to Legacy.
- 7. To save and reset, press F4. When the "Save configuration and reset?" message appears, select **Yes**. Wait as the server reboots.
- 8. As the system reboots, press Del to return to **BIOS Setup Utility**.
- 9. Go to Advanced > CPU Configuration, and set the following:
 - a. Hyper-threading to Disabled
 - b. Intel Virtualization Technology to Enabled
- 10. Press Esc. Go to Advanced > SATA Configuration, and set SATA Mode Selection to AHCI.
- 11. Press Esc. Go to Super IO Configuration > Serial Port 1 Configuration, and set Serial Port to Disabled.
- 12. Press Esc. Go to Serial Port 2 Port Configuration, and set Serial Port to Disabled.
- 13. Press Esc. Go to Serial Port 3 Port Configuration, and set Serial Port to Disabled.
- 14. Press Esc. Go to Serial Port 4 Port Configuration, and set Serial Port to Disabled.
- 15. Press Esc. Go to Serial Port 5 Port Configuration, and set Serial Port to Disabled.
- 16. Press Esc. Go to Serial Port 6 Port Configuration, and set Serial Port to Disabled.
- 17. Press Esc twice, go to Boot, and set the Boot Option Priorities as follows:
 - a. Boot Option #1 to the *DVD drive* or *USB* option
 - b. Boot Option #2 to the *hard drive* option
 - c. Boot Option #3 to the *network* option
 - d. Boot Option #4 to Disabled



Note: Hardware names and model numbers may vary depending on your hardware type.

18. To save and reset, press F4. When the "Save configuration and reset?" message appears, select **Yes**. Wait as the server reboots.

4.2.2 BIOS: Q67AX 2.14.1219 and later

To set up BIOS Q67AX 2.14.1219 and later, follow these steps:

- 1. Reboot the server, and immediately press Del as the system boots to enter the **BIOS Setup Utility**.
- 2. Press F3, and set "Load Optimized Defaults?" to Yes.
- 3. On Main, set System Date and System Time using Greenwich Mean Time.
- 4. Go to **Chipset** > **PCH-IO Configuration**, and set the following:
 - a. Onboard LAN1 Controller to Enabled
 - b. Onboard LAN2 Device to Enabled
 - c. Restore AC Power Loss to Power On
- 5. Press Esc. Go to Chipset > System Agent (SA) Configuration, and set VT-d to Enabled.
- 6. Press Esc. Go to **Boot** > **CSM parameters**, and set **Launch PXE OpROM policy** to **Legacy only.**
- 7. To save and reset, press F4. A confirmation message requests, "Save configuration and reset?" Select **Yes**.
- 8. As the system reboots, press Del to return to **BIOS Setup Utility**.
- 9. Press Esc. Go to Advanced > CPU Configuration, and set the following:
 - a. Hyper-threading to Disabled
 - b. Intel Virtualization Technology to Enabled
- 10. Press Esc. Go to SATA Configuration, and set SATA Mode Selection to AHCI.
- 11. Press Esc. Go to SMART Settings, and set SMART Self Test to Enabled.
- 12. Press Esc. Go to Super IO Configuration > COM1 Port Configuration, and set Serial Port to Disabled.
- 13. Press Esc. Go to COM2 Port Configuration, and set Serial Port to Disabled.
- 14. Press Esc. Set CIR Controller to Disabled.
- 15. Press Esc. Go to Second Super IO Configuration > COM3 Port Configuration, and set Serial Port to Disabled.
- 16. Press Esc. Go to COM4 Port Configuration, and set Serial Port to Disabled.
- 17. Press Esc. Go to COM5 Port Configuration, and set Serial Port to Disabled.

- 18. Press Esc. Go to COM6 Port Configuration, and set Serial Port to Disabled.
- Press Esc twice, and go to Third Super IO Configuration > COM7 Port Configuration. Set Serial Port to Disabled.
- 20. Press Esc. Go to COM8 Port Configuration, and set Serial Port to Disabled.
- 21. Press Esc. Go to COM9 Port Configuration, and set Serial Port to Disabled.
- 22. Press Esc. Go to COM10 Port Configuration, and set Serial Port to Disabled.
- 23. Press Esc twice, go to Boot, and set Boot Option Priorities as follows:
 - a. Boot Option #1 to the DVD drive option
 - b. Boot Option #2 to the hard drive option
 - c. Boot Option #3 to the *network* option



Note: Hardware names and model numbers may vary depending on your hardware type.

- 24. Press Esc. Go to Network Device BBS Priorities, and set the following:
 - a. Boot Option #2 to Disabled
 - b. Boot Option #3 to Disabled (if present)
 - c. Boot Option #4 to Disabled (if present)
 - d. Boot Option #5 to Disabled (if present)
 - e. Boot Option #6 to Disabled (if present)



Note: *The number of boot options may vary depending on your external Ethernet configuration.*

25. To save and reset, press F4. When the "Save configuration and reset?" message appears, select **Yes**. Wait as the server reboots.

4.2.3 BIOS: Q67AX 2.02.1205 and earlier

To set up BIOS Q67AX 2.02.1205 and earlier, follow these steps:

- 1. Reboot the server, and immediately press Del as the system boots to enter the **BIOS Setup Utility**.
- 2. Press F3, and set "Load Optimized Defaults?" to Yes.
- 3. On Main, set System Date and System Time using Greenwich Mean Time.
- 4. Go to Advanced, and set the following:
 - a. Launch LAN1 PXE OpROM to Enabled
 - b. Launch LAN2 PXE OpROM to Enabled
- 5. Go to **Save & Exit** > **Save Changes and Reset**. A message confirms, "Save configuration and reset?" Select **Yes**, and wait as the server reboots.
- 6. As the system reboots, press F2 to return to **BIOS Setup Utility**.
- 7. Go to Advanced > SATA Configuration, and set the following:
 - a. SATA Mode to IDE Mode
 - b. Serial-ATA Controller 0 to Enhanced
- 8. Press Esc. Go to CPU Configuration, and set the following:
 - a. Hyper-threading to Disabled
 - b. Intel Virtualization Technology to Enabled
- 9. Press Esc, and go to Chipset > North Bridge. Set VT-d to Enabled.
- 10. Press Esc. Go to Boot, and set Boot Option Priorities as follows:
 - a. Boot Option #1 to the DVD drive option
 - b. Boot Option #2 to the *hard drive* option
 - c. Boot Option #3 to the *IBA GE* slot



Note: Hardware names and model numbers may vary depending on your hardware type.

11. Go to **Save & Exit** > **Save Changes and Reset**. A message confirms, "Save configuration and reset?" Select **Yes**, and wait as the server reboots.

4.2.4 BIOS Q67IX 2.02.1205 and earlier

To set BIOS version Q67IX 2.02.1205 and earlier, follow these steps:

- 1. Reboot the server, and immediately press Del as the system boots to enter the **BIOS Setup Utility**.
- 2. Go to Main, and set the date and time using Greenwich Mean Time.
- 3. Go to the Advanced tab, and set the following:
 - a. Launch LAN1 PXE OpROM to Enabled
 - b. Launch LAN1 PXE OpROM to Enabled
- 4. Go to **Save and Exit**, and select **Save Changes and Reset**. When the "Save configuration and reset?" message appears, select **Yes**.
- 5. As the system reboots, press F2 to return to the **BIOS Setup Utility**.
- 6. Go to **Advanced** > **SATA Configuration**, and set the following:
 - a. SATA Mode to IDE Mode
 - b. Serial-ATA Controller 0 to Enhanced
- 7. Press Esc, and go to Advanced > CPU Configuration. Set the following:
 - a. Intel Virtualization Technology to Enabled
 - b. Hyper-threading to Disabled
- 8. Press Esc, and go to Chipset > North Bridge. Set VT-d to Enabled.
- 9. Press Esc, and go to Boot. Set the Boot Option Priorities as follows:
 - a. Boot Option #1 to the *DVD drive* option
 - b. **Boot Option #2** to the *hard drive* option
 - c. Boot Option #3 to the *IBA GE* slot
- 10. Go to **Save and Exit** > **Save Changes and Reset**. When the" Save configuration and reset?" message appears, select **Yes**. Wait as the server reboots.

4.2.5 BIOS: Q35AX American Megatrends

To set up BIOS version Q35AX American Megatrends, follow these steps:

- 1. Reboot the server, and immediately press Del as the system boots to enter the **BIOS Setup Utility**.
- 2. Go to Exit, and select Load Optimal Defaults.
- 3. Go to Main, and set System Date and System Time using Greenwich Mean Time.
- 4. Go to **Advanced** > **CPU Configuration**, and set the following:
 - a. Intel® SpeedStepTM tech to Disabled
 - b. Hardware Prefetcher to Disabled
 - c. Adjacent Cache Line Prefetch to Disabled
- 5. Go to Advanced > IDE Configuration, and set the following:
 - a. SATA#1 Configuration to Enhanced
 - b. Configure SATA#1 to IDE
- 6. Go to Advanced > SuperIO Configuration, and set the following:
 - a. Serial Port 1 Address to Disabled
 - b. Serial Port 2 Address to Disabled
- 7. Go to Chipset > SouthBridge Configuration, and set GbE LAN Boot to Enabled.
- 8. Go to Exit, and select Exit and Save.
- 9. Reboot the server, and immediately press Del as the system boots to enter the **BIOS Setup Utility**.
- 10. Go to **Boot** > **Boot Device Priority**, and set the following:
 - a. 1st Boot Device to the *CD/DVD* option
 - b. 2nd Boot Device to the SATA option
 - c. 3rd Boot Device to the *network* option (e.g., IBA GE SLOT DOC8 V1327)



Note: Hardware names and model numbers may vary depending on your hardware type.

d. 4th Boot Device to Disabled

- 11. Go to **Boot** > **Interrupt 19 Capture**, and select **Enabled**.
- 12. Go to Exit, and select Save Changes and Exit.

4.2.6 Visual BIOS: Intel NUC Board NUC5i3MYBE



Note: *ASTi recommends using a mouse for configuration. The instructions assume the use of a mouse.*

To set up Visual BIOS Intel NUC Board NUC5i3MYBE, follow these steps:

- 1. Reboot the server, and immediately press Del as the system boots to enter the **BIOS Setup Utility**.
- 2. Select Load Defaults, and select Yes to confirm.
- 3. Select Advanced Setup.
- 4. Go to Main, and System Date and System Time using Greenwich Mean Time.
- 5. Go to **Cooling** > **CPU Fan Header**, and set **Fan Control Mode** to **Balanced**.
- 6. Go to Power > Secondary Power Settings, and set After Power Failure to Power On.
- 7. Select **Exit**, and select **Yes** to save changes.

4.2.7 Visual BIOS: D33217GKE Intel



Note: *ASTi recommends using a mouse for configuration. The instructions assume the use of a mouse.*

To set up Visual BIOS D33217GKE Intel, follow these steps:

- 1. Reboot the server, and immediately press Del as the system boots to enter the **BIOS Setup Utility**.
- 2. Select Load Defaults, and select Yes to confirm.
- 3. Select Advanced Setup.
- 4. Go to Main, and System Date and System Time using Greenwich Mean Time.
- 5. Go to **Cooling** > **Settings**, and set **System Fan Control** to **Balanced**.
- 6. Go to **Power > Secondary Power Settings**, and set **After Power Failure** to **Power On**.
- 7. Select **Exit**, and select **Yes** to save changes.

4.2.8 BIOS: BLH6710H

To set up BIOS version BLH6710H, follow these steps:

- 1. Reboot the server, and immediately press Del as the system boots to enter the **BIOS Setup Utility**.
- 2. When the **BIOS Setup Utility** opens, press F9 to **Load Defaults**. Select **Y** to load BIOS defaults.
- 3. Go to Main, and set System Date and System Time using Greenwich Mean Time.
- 4. Go to **Configuration** > **SATA Drives**, and press Enter. Set the following:
 - a. Chipset SATA to Enable
 - b. Chipset SATA Mode to AHCI
 - c. S.M.A.R.T. to Enable
 - d. eSATA Ports to Disable
- 5. To return to **Configuration**, press Esc.
- 6. Go to **Fan Control & Real-Time Monitoring** > **CPU Fan**, and press Enter. Set the following:
 - a. Control Mode to Manual
 - b. Minimum Duty Cycle to 100
- 7. Go to **Security**, and set the following:
 - a. Execute Disable Bit to Enable
 - b. Intel® Virtualization Technology to Enable
- 8. Go to **Power**, and set the following:
 - a. Enhanced Intel SpeedStep® Technology to Enable
 - b. After Power Failure to Last State
- 9. Go to **Boot**, and set the following:
 - a. Boot Device Priority to the optical drive, hard drive, or network
 - b. Boot to Removable Devices to Disable
 - c. USB Boot to Disable
- 10. Go to Exit > Exit Saving Changes, and select Y.

4.2.9 BIOS: JGIBX10J

To set up BIOS version JGIBX10J, follow these steps:

- 1. Reboot the server, and immediately press Del as the system boots to enter the **BIOS Setup Utility**.
- 2. When **BIOS Setup Utility** opens, press F9 to initiate **Load Defaults**. Select **Y** to load BIOS defaults.
- 3. Go to Main, and set System Date and System Time using Greenwich Mean Time.
- 4. Go to **Configuration** > **On-board Drive**, and press Enter. Set **Serial Port** to **Disable**.
- 5. Press Esc. Go to **Configuration** > **SATA Drives**, and press Enter. Set the following:
 - a. Chipset SATA to IDE
 - b. S.M.A.R.T. to Enable
 - c. eSATA Ports to Disable
- 6. Go to **Security**, and set the following:
 - a. **XD Technology** to **Enable**
 - b. Intel® Virtualization Technology to Enable
- 7. Go to **Power**, and set the following:
 - a. Enhanced Intel SpeedStep® Technology to Enable
 - b. After Power Failure to Last State
- 8. Go to **Boot**, and set the following:
 - a. Boot Device Priority to the *optical drive*, *hard drive*, or *network*
 - b. Boot to Removable Devices to Disable
 - c. USB Boot to Disable
- 9. Go to Exit > Exit Saving Changes, and select Y.

5.0 (Optional) Media check

Follow the instructions below to verify the integrity of the Voisus installation media (e.g., USB, DVD, or .iso file). This procedure is useful if you suspect a problem with your media. The verification will fail if a file on the media is unreadable or corrupted. You only need to verify the media contents once, whether you are cold-starting one or several systems with the same media.



Caution: If verification succeeds, the cold-start procedure automatically starts, erasing your hard drive. You cannot perform a media check separately from the cold-start procedure.

To verify your installation media's contents, follow these steps:

- 1. Connect a monitor, keyboard, and mouse to the Voisus server.
- 2. Turn on the server.
- 3. Insert or mount the installation media (i.e., USB, Voisus Software Installation DVD, or .iso file).
- 4. For Basic Input/Output System (BIOS) configurations, do the following:
 - a. Reboot the server.
 - b. Allow the server to boot from the installation media. If it doesn't, reboot the server again, and press F7 at the POST screen to boot from USB or DVD. Alternatively, press Del to enter the BIOS, and set the installation media as the first boot option.



Important: Some systems may not support selecting the boot device with F7.

c. At the prompt, run **mediacheck**.

For Unified Extensible Firmware Interface (UEFI) configurations, do the following:

- a. Reboot the server.
- b. At the POST screen, immediately press F7 to boot via DVD or USB.
- c. In **Please select boot device:**, select **UEFI** *device*, where device is the bootable media's device name or identifier (e.g., HL-DT-ST DVDRAM GH24NSC0).
- d. Select Install Voisus w/ mediacheck, and press Enter.

- 5. The screen displays a progress message indicating "Checking *device*" (where *device* is the hardware device's name), along with a percentage that gradually increases until it reaches 100 percent. To abort, press Esc. This process typically takes five to ten minutes to complete.
- 6. If the media check passes, the cold-start procedure automatically begins. If it fails, the screen displays a "System halted" message. Try creating new installation media, or contact <u>support@asti-usa.com</u> for assistance.

6.0 Voisus cold-start procedures

This section details cold-start procedures for installing Voisus software on a Voisus server. Specifically, it covers installation of Voisus 7.X or 8.X on the HW-1XXXX-XXX, HW-2XXXX-XXX, and VSH-XXXX-XX chassis configurations.

This chapter discusses how to:

- Cold-start Voisus 8.3.X and later on a Voisus server (HW-1XXXXX-XXX or HW-2XXXXX-XXX)
- Cold-start Voisus 7.X or 8.X on a Voisus server (VSH-XXXXX-XX)

6.1 Cold-start Voisus 8.3.*X* and later on a Voisus server (HW-1*XXXXX-XXX* or HW-2*XXXXX-XXX*)



Note: Voisus supports cold-starting with USB media in addition to a DVD. To install Voisus software on a USB, flash the .iso image using Fedora Media Writer at <u>git-hub.com/FedoraQt/MediaWriter</u> before beginning the cold-start procedure. To learn how to install Voisus software on a USB, go to "Prepare a USB Drive for ASTi Software Install-ation (#139)" at <u>support.asti-usa.com/appnotes/139.html</u>.



Caution: Performing a cold-start procedure will completely erase the system hard drive.

To cold-start Voisus 8.3.*X* and later on a Voisus server (HW-1*XXXX*-*XXX* or HW-2*XXXXX*-*XXX*), follow these steps:

- 1. Connect a monitor, keyboard, and mouse to the Voisus server.
- 2. Turn on the server.
- 3. Insert or mount the installation media (i.e., USB, Voisus Software Installation DVD, or .iso file).
- 4. Reboot the server.
- 5. At the POST screen, immediately press F7 to boot via DVD or USB.
- 6. In **Please select boot device:**, select **UEFI** *device*, where device is the bootable media's device name or identifier (e.g., HL-DT-ST DVDRAM GH24NSC0).
- When the Voisus welcome screen appears, press Enter to begin installing the software. Wait 10–15 minutes for installation to complete. Depending on your network configuration, iSCSI installation may take 20–25 minutes to complete.

- 8. Eject or unmount the installation media (i.e., USB, Voisus Software Installation DVD, or .iso file).
- 9. Reboot the server.



Important: If the system hangs after installation or during reboot, press the RESET button on the front of the chassis.

10. Log into the system using the following default credentials:

Username	Password
root	abcd1234

- 11. *(Optional)* To set the IP address and subnet mask, run **ace-net-config -a** *xxx.xxx.xxx -n yyy.yyy.yyy.yyy*, where *xxx.xxx.xxx* is the IP address and *yyy.yyy.yyy.yyy.yyy* is the netmask. This configuration sets the IP address and netmask for Eth0, which you can use to access the Voisus web interface via a browser to complete the network setup.
- 12. *(Optional)* To view help text for the command options, enter **ace-net-config -h**, and press Enter.
- 13. To activate the changes, enter **reboot**, and press Enter.

6.2 Cold-start Voisus 7.X or 8.X on a Voisus server (VSH-XXXXX-XX)



Note: Voisus supports cold-starting with USB media in addition to a DVD. To install Voisus software on a USB, flash the .iso image using Fedora Media Writer at <u>git-hub.com/FedoraQt/MediaWriter</u> before beginning the cold-start procedure. To learn how to install Voisus software on a USB, go to "Prepare a USB Drive for ASTi Software Install-ation (#139)" at <u>support.asti-usa.com/appnotes/139.html</u>.



Caution: Performing a cold-start procedure will completely erase the system hard drive.

To cold-start Voisus 7.X or 8.X on a Voisus server (VSH-XXXXX-XX), follow these steps:

- 1. Connect a monitor, keyboard, and mouse to the Voisus server.
- 2. Turn on the server.
- 3. Insert or mount the installation media (i.e., USB, Voisus Software Installation DVD, or .iso file).

- 4. Reboot the server.
- 5. Allow the server to boot from the installation media. If it doesn't, reboot the server again, and press F7 at the POST screen to boot from USB or DVD. Alternatively, press Del to enter the BIOS, and set the installation media as the first boot option.



Important: Some systems may not support selecting the boot device with F7.

- 6. When the Voisus welcome screen appears, press Enter to begin installing the software. Wait 10–15 minutes for installation to complete. Depending on your network configuration, iSCSI installation may take 20–25 minutes to complete.
- 7. Eject or unmount the installation media (i.e., USB, Voisus Software Installation DVD, or .iso file).
- 8. Reboot the server.



Important: If the system hangs after installation or during reboot, press the RESET button on the front of the chassis.

9. Log into the system using the following default credentials:

Username	Password
root	abcd1234

- (Optional) To set the IP address and subnet mask, run ace-net-config -a
 xxx.xxx.xxx -n *yyy.yyy.yyy.yyy*, where *xxx.xxx.xxx* is the IP address and
 yyy.yyy.yyy.yyy is the netmask. This configuration sets the IP address and netmask for
 Eth0, which you can use to access the Voisus web interface via a browser to complete
 the network setup.
- 11. *(Optional)* To view help text for the command options, enter **ace-net-config -h**, and press Enter.
- 12. To activate the changes, enter reboot, and press Enter.

7.0 Voisus iSCSI cold-start procedure

The iSCSI cold-start procedure involves installing Voisus software on a Voisus server equipped with either a Broadcom Ethernet Adapter or Intel Network Adapter. Voisus's diskless solution enables system booting from a network iSCSI storage target rather than a local drive, streamlining Voisus's configuration management. This approach enables you to switch between remote logical unit numbers (LUNs), which eliminates the need for physical drive swaps. Voisus requires a minimum LUN size of 80 GB.



Important: External services like Dynamic Host Configuration Protocol (DHCP), Trivial File Transfer Protocol (TFTP), iSCSI Target, or Domain Name System (DNS) must be available on the network. Voisus does not provide these services.

The following instructions explain how to configure and initialize the Voisus server's network settings, ensuring seamless connection to remote storage resources. This chapter guides you through the setup process for both network interface card options, enabling your server to efficiently leverage Voisus software with remote storage.

This chapter discusses the following topics:

- Intel iSCSI boot process for VSH-XXXXX-XX
- Broadcom iSCSI setup and cold start for VSH-XXX8X-XX and VSH-XXX9X-XX

7.1 Intel iSCSI boot process for VSH-XXXXX-XX

In this section, you'll learn how to install and configure iSCSI boot firmware and cold-start Voisus software on an iSCSI server using an Intel Ethernet adapter. The following instructions are based on version 20.0 of the INTEL Ethernet Connections Bootutil, reboot images, and EFI drivers. Earlier or later versions of the INTEL Bootutil program may require minor modifications to the process. Refer to INTEL documentation as needed. Required equipment includes a VSH-*XXXXX*-*XX* system and a Voisus Software Installation DVD.



Important: Some INTEL ET cards require a slightly different process than is outlined in Section 7.1.1, "Intel iSCSI boot firmware installation" on the next page and Section 7.1.2, "Intel iSCSI boot firmware setup" on page 24. If these instructions fail to complete for your ET card, please contact ASTi for additional instructions.

This section discusses the following topics:

- Intel iSCSI boot firmware installation
- Intel iSCSI boot firmware setup

7.1.1 Intel iSCSI boot firmware installation



Important: To identify the Ethernet port for iSCSI, enter ethtool **-p** ethN, where N is the Ethernet port number. Press Enter. Check the rear panel of the server, and note which Ethernet port is blinking.

If you previously installed Intel's iSCSI boot firmware, skip to Section 7.1.2, "Intel iSCSI boot firmware setup" on page 24. To install the iSCSI boot firmware, follow these steps:

- 1. Download the Intel Ethernet Flash Firmware Utility program (i.e., BootUtil) from the Intel download center. For more information, go to <u>www.intel.com</u>.
- 2. Follow the Intel instructions to start up BootUtil on the Voisus server, or contact ASTi for a prebuilt image.
- 3. Enter **bootutil** -**FE** -**NIC**=*X*, where *X* is the iSCSI NIC interface. Press Enter.
- 4. When the prompt asks you to reboot, instead enter **bootutil** -**UP**=**ISCSI** -**NIC**=*X*, where *X* is the NIC interface for iSCSI. Press Enter.
- 5. When the prompt asks if you would like to create a restore image of NIC X, enter N.
- 6. The prompt confirms, "Continue restore image of NIC X before proceeding?" Enter Y.
- 7. The prompt confirms again, "Would you like to continue?" Enter Y.
- 8. Eject and/or remove the media inserted in Step 2, and reboot the Voisus server.

7.1.2 Intel iSCSI boot firmware setup

To set up Intel's iSCSI boot firmware, follow these steps:

- 1. To enter the setup, press Ctrl+D at the Boot Firmware prompt.
- 2. The number of entries shown varies based on the motherboard and NIC interface quantity flashed for iSCSI. From the off-board NIC interface, choose a MAC address.
- 3. The screen displays two MAC addresses. To set a MAC address to **Primary**, follow the instructions shown on the bottom of the screen.
- 4. Ensure that the other MAC addresses are set to **Disabled**.



Important: Do not use Eth1, which is for ACENet traffic only.

- 5. To open the iSCSI Port Selection, press Enter.
- 6. Set the configuration for the iSCSI initiator and Voisus server settings.

- 7. Save the changes and exit.
- 8. To boot the Voisus server, press Esc.
- 9. The Intel iSCSI cold-start procedure for Voisus 7.*X* and 8.*X* is identical to the standard Voisus cold-start procedure. Complete the Voisus cold-start procedure in Section 6.2, "Cold-start Voisus 7.X or 8.X on a Voisus server (VSH-XXXXX-XX)" on page 21.



Important: If you're unable to boot from the DVD during an iSCSIcold-start procedure for Voisus 7.X, ensure the DVD is set to the first boot device, as described in Section 4.2.1, "BIOS: Q17MX or Q17AX" on page 8. Some Voisus 8.X configurations (e.g., non-UEFI ASTi systems with Intel NIC cards) may support cold-starting iSCSI with a DVD or USB, and you may set either option as the first boot device.



Important Do not connect Keyboard Video Mouse (KVM) switches to the system during the cold-start procedure. If you run into an issue with the procedure while using a KVM, disconnect it, and repeat the cold-start procedure with a dedicated keyboard, monitor, and mouse.

7.2 Broadcom iSCSI setup and cold start for VSH-XXX8X-XX and VSH-XXX9X-XX

In this section, you will learn how to configure Broadcom Ethernet Adapter Basic Input/Output System (BIOS) and ROM settings and install Voisus software on an iSCSI server using a Broadcom Ethernet adapter. Required equipment includes a VSH-*XXX8X-XX*, VSH-*XXX9X-XX* system and a Voisus Software Installation DVD. The Broadcom Ethernet Adapter iSCSI cold-start procedure does not support USB media.

This section discusses the following topics:

- BIOS additions for iSCSI with Broadcom
- Voisus ROM configurations for iSCSI with a Broadcom Ethernet Adapter
- Broadcom iSCSI cold-start procedure

7.2.1 BIOS additions for iSCSI with Broadcom

For Voisus to communicate with an iSCSI server via a Broadcom Ethernet Adapter, you'll need to make a few changes to Voisus's Basic Input/Output System (BIOS) settings. This section explains how to configure Voisus's BIOS so that it boots from the Broadcom Ethernet Adapter option.

To modify Voisus's BIOS for iSCSI with a Broadcom Ethernet Adapter, follow these steps:

- 1. Reboot the server, and immediately press Del as the system boots to enter the **BIOS Setup Utility**.
- 2. Ensure your BIOS settings are configured according to Section 4.2.1, "BIOS: Q17MX or Q17AX" on page 8.
- 3. Go to **Boot** > **Network Devices** > **BBS Priorities**, and press Enter. Set the following:
 - a. Boot Option #1 to the Broadcom Ethernet adapter option
 - b. Boot Option #2 to Disabled
 - c. Boot Option #3 to Disabled
- 4. To return to the **Boot** tab, press Esc.
- 5. Under Boot Option Priorities, set the following:
 - a. Boot Option #1 to the *network* option
 - b. Boot Option #2 to the *DVD drive* option



Important: If available, do not select the Unified Extensible Firmware Interface (UEFI) option for DVD or USB.



Note: *Hardware names and model numbers may vary depending on your hardware type.*

6. To save and reset, press F4. When the "Save configuration and reset?" message appears, select **Yes**. Wait as the server reboots.

7.2.2 Voisus ROM configurations for iSCSI with a Broadcom Ethernet Adapter

To configure the Voisus's read-only memory (ROM) settings for iSCSI a Broadcom Ethernet Adapter, follow these steps:

- 1. Reboot the Voisus server.
- 2. When the following screen appears, press Ctrl+S to enter the ROM configuration menu:

```
Broadcom NetXtreme Ethernet Boot Agent
Copyright (C) 2000-2025 Broadcom Limited
All rights reserved.
Press Ctrl-S to enter Configuration Menu
```

- 3. Under Device List, choose a device from which to boot.
- 4. Under Main Menu, select MBA Configuration, and set the following:
 - a. Option ROM to Enabled
 - b. Boot Protocol to iSCSI
- 5. Go to **iSCSI Boot Configuration** > **General Parameters**, and set the following:
 - a. Boot to iSCSI Target to Enabled
 - b. Target as First HDD to Disabled
- 6. Press Esc to go back.
- 7. Go to **Initiator Parameters**, and configure your iSCSI server's network configuration, if applicable.
- 8. Press Esc to go back.
- 9. Go to **1st Target Parameters** to set your iSCSI server's network and configuration settings.
- 10. Press Esc and Enter to save and exit.

7.2.3 Broadcom iSCSI cold-start procedure

To complete the Broadcom Ethernet Adapter iSCSI cold-start procedure, follow these steps:

- 1. Turn on the Voisus server.
- 2. Insert the Voisus Software Installation DVD.



Note: If the read-only memory (ROM) option does not detect and connect to the iSCSI server during boot, go to Section 7.2.2, "Voisus ROM configurations for iSCSI with a Broadcom Ethernet Adapter" on the previous page to verify your con-figuration.

- 3. When the "Press CTRL + D within 4s to stop booting" message appears, press Ctrl+D.
- 4. Wait for the Voisus server to boot from the Voisus Software Installation DVD, and remove the DVD when it ejects from the drive. If the Voisus server does not boot from the DVD, reboot the Voisus server, and repeat Steps 2–3.
- 5. Complete the Voisus cold-start procedure in Section 6.2, "Cold-start Voisus 7.X or 8.X on a Voisus server (VSH-XXXX-XX)" on page 21.

8.0 System restoration

To restore the data saved in Section 3.0, "System backups" on page 5, follow these steps:

- 1. Open a web browser on a computer or tablet sharing a network with the Voisus server.
- 2. In the address bar, enter the Voisus server's IP address.
- 3. Log into the Voisus server using the following default credentials:

Username	Password
admin	astirules

4. From the top right, go to Manage (>> Backup/Restore.



Figure 7: Backup/Restore navigation

5. Select Browse, and find the backup on your local system.

Backup & Resto Last backup restored: vs_0007	Dre /b8dc5199 on 10:56:21.			
New 🕑 🖺 🖮				Q Search Backup Files
Name 👻	Date Created 🗢	Size (Bytes) ≎	Version \$	Last Restored?
<pre>vs_0007b8dc5199</pre>	2021-07-15 10:53:10	9,738,240	v7.11.1	Restore
□ vs_0007b8dc5199	2021-07-15 10:53:43	9,738,240	v7.11.1	Restore
✓ vs_0007b8dc5199	2021-07-15 10:53:47	9,738,240	v7.11.1	✓ Restore

Figure 8: Find backup on local system

- 6. Select Restore.
- In Restore Web Interface Accounts?, select Yes to overwrite user accounts and credentials. Select to keep current account information.
- 8. In **Overwrite Network Settings?**, select Yes to overwrite network settings or No to keep the current network settings.
- 9. When prompted, reboot the Voisus server.
- 10. Following reboot, log back into the web interface.
- 11. In the top right, go to **Scenario** > **Restart**.

ტ - 🧳 Example Scenario -	
Restart	
Stop	
< Start	

Figure 9: Restart scenario

12. On each client computer or tablet, download the latest version of the Voisus client. On the login page, go to **Downloads**.

Username		
Password		
Password		
Login		

Figure 10: Downloads



Figure 11: Downloads navigation

On **Downloads**, choose the download link that applies to your client.

Downloads			
To download software, click on a li contact ASTi at support@asti-usa. For help with installing and using th	nk below. If you are interested in support for operating com. re clients, go to the Voisus Client User Guide.	systems, serious games, or other unlisted applications,	
Filter Results	Voisus Client		
Software	A communications client with calling, access contro	I settings, remote configuration, and dark mode.	
Hex Client MCAP	Operating System		
TOCNET® CAU VBS Manager Voirous Client	Windows 😝	Download 🛓	
Operating System	Red Hat Enterprise Linux 7	64-bit Download	
RHFL 6	Voisus Client for Desktops &	Tablets	
RHEL 7 SLES 12	Communications client for desktop & tablet computers. Includes radio skins for: PRC-117F, PRC-117G, PRC-119 ASIP, PRC-148, PRC-152, PRC-355 and Icom M330 radios.		
L) windows	Operating System		
	Windows 🔿	Download 🛓	
	Red Hat Enterprise Linux 6	File not found File not found	
	Red Hat Enterprise Linux 7	64-bit Download 🛓	
	SUSE Linux Enterprise Server 12	File not found	
Flex Client A communications client with a configurable mobile radios (LMR), simulated radios, priva		erface that provides streamlined access to military and land com calls, and public switched telephone network (PSTN) lines.	
	Operating System		
	Windows 0	Download 🛓	
	VBS Manager Manage Voisus and Simscribe integration with VBS		
	Operating System		
	Windows O	Download 🛓	
	MCAP		
	Telephonics® Medium Control Audio Panel (MCAP)	simulation.	
	Operating System		
	Windows	Download 🛓	
	TOCNET® CAU TOCNET® Crew Access Unit (CAU) panel simulation	n.	
	Operating System		
	Windows 0	Download 🛓	
	Red Hat Enterprise Linux 7	64-bit Download + 32-bit Download +	

Figure 12: Downloads page

9.0 (Optional) Licensing

After cold-starting the Voisus server and restoring your system configuration, you may wish to verify your license is still active. The Voisus server requires an active license to function properly. While you don't have to reinstall your license after a cold start, it's a good idea to check its status in the Voisus web interface. This section explains how to ensure your license is active and operational. To learn more about USB License Keys, go to "Licenses" in the *Voisus Quick Start Guide*.

To verify the Voisus server's license, follow these steps:

1. From the top right, go to **Manage** () > Licensing.



Figure 13: Licensing navigation

- 2. From the top navigation bar, go to **System** > **LICENSING**.
- 3. Verify an active license appears under Licenses:

Licenses (1)					
License ID	Туре	Revision	Error	Info	
 1010157914135923480	Software	202103		Show Info	• Î

Figure 14: Active license

Appendix A: Memory Test (Voisus 7.X and 8.X)

The Memory Test is a useful troubleshooting tool if you are experiencing problems such as system lockup, freezing, random rebooting, or graphics/screen distortion. ASTi recommends running this test several times to ensure that the memory is fully functional. You may wish to run the test overnight.

To perform a Memory Test, follow these steps:

- 1. Turn on the Voisus server.
- 2. Insert the Voisus Software Installation DVD, and reboot the Voisus server.
- 3. Depending on your configuration, do one of the following:
 - a. Basic Input/Output System (BIOS): at the prompt, run memtest86.
 - b. Unified Extensible Firmware Interface (UEFI): select Memtest, and press Enter.



Note: Voisus 8.X and later supports UEFI boot.

For best results, let the Memory Test run overnight.

- 4. The Memory Test will run indefinitely until you manually stop it. To stop the Memory Test, press the Esc key. If the Memory Test failed, contact ASTi for assistance.
- 5. To restore the Voisus server to service, remove the DVD, restart the server, and wait for it to reboot.

Appendix B: Voisus in a virtual machine

User requirements and/or deployment needs may require you to install the Voisus software run-time license in a virtual machine (VM) using customer or government-furnished equipment. Virtual servers and cloud implementation offer the following benefits:

- Always-on training capability
- Service delivery to the point of need
- Fast access to operator endpoints
- A quick adaptation and cost-efficient response to training environment changes
- An expedited launch of new products and functions

Voisus in a VM runs on multiple operating systems, including Windows and Linux. This configuration can also run multiple versions of Voisus on the same computer, which reduces the cold-start procedure time.

Intended for customers using Voisus in a VM, this appendix supplements the *Voisus Cold Start Guide* with virtualization requirements and setup. The first component to Voisus runtime license virtualization must include an enterprise-class virtualization stack (i.e., Type-1 and/or bare-metal hypervisor). In most cases, ASTi virtualizes VM run-time licenses using ESXi from VMware. However, other Type-1 options (e.g., Hyper-V, Xen, etc.) are available. Consult alternate vendor documentation as needed for setup.

A variety of factors can impact a deployed Voisus software run-time license:

- Host hardware specification
- Virtualization technology
- VM instance definition for a license
- Other VM instances running on the host
- Network operation and conditions
- Simulation software
- Radio communications

For best results, purchase an ASTi support contract to help with installation and/or post deployment tasks. The scope of this contract depends on your program's size and requirements. To discuss your virtualized deployment needs, contact ASTi at support@asti-usa.com.

B-1 Minimum host server specifications

Minimum host server specifications depend on many factors, such as the hardware platform's location. In some cases, the platform may already exist and be running multiple virtual machines (VMs); in other cases, no VM infrastructure or hardware may exist. At a minimum, the host server must be able to run the required number of virtual Voisus instances for this application. To avoid starving the virtual Voisus for CPU time and/or other resources, do not fully provision or over-provision the host server.

Other relevant factors include the VM software (e.g., ESXi, KVM) you are using and the current host system loading (i.e., other VM instances, network load). Before running the Voisus cold-start procedure, ensure your host server meets the VM software's recommended minimum requirements. Consult VM host software documentation for additional guidance.

B-2 Voisus in a VM specifications

vCPUs:	Four dedicated
Memory:	8,192 MB or 8 GB
Disk Space:	80 GB (application specific)
NIC Count:	1 or greater (application specific)
NIC Speed:	Gigabit

Ensure your virtual Voisus server meets the following minimum requirements:

Many factors contribute to the above set of requirements, including but not limited to the following:

- Host hardware performance
- Parallel virtual machine (VM) processing
- Network operation and conditions
- Software and hardware operator endpoints
- Record-and-replay capability
- Other enabled Voisus Live Virtual Constructive (LVC) simulation features

Each environment comes with its own set of unique requirements and dependencies based on the aforementioned metrics. ASTi recommends using the above settings as a starting point for virtualization. Additional tuning may be required once you begin deployment, testing, and run-time operations.

You may need additional disk space if you're installing the Simscribe record-and-replay feature, a Terrain database, or a large disk, image-based application .

B-3 Cold-start Voisus in a virtual machine

After configuring the above host server requirements, run the Voisus cold-start procedure in Section 6.2, "Cold-start Voisus 7.X or 8.X on a Voisus server (VSH-XXXXX-XX)" on page 21.

Appendix C: Voisus on customer or government equipment

User requirements and/or deployment needs may require you to install the Voisus software run-time license on customer-furnished equipment (CFE) or government-furnished equipment (GFE). Intended for customers using Voisus on CFE/GFE, this appendix supplements the *Voisus Cold Start Guide* with CFE/GFE requirements and setup.

The CFE/GFE hardware selection must support Voisus's run-time requirements. A variety of factors can impact a deployed Voisus license:

- CFE/GFE hardware specification
- Basic Input/Output Settings (BIOS) settings
- Network operation and conditions
- Simulation software
- Radio communications

ASTi strongly recommends that you purchase an ASTi support contract to help with installation and/or post deployment tasks. The scope of this contract depends on your program's size and requirements. ASTi may use this contract to evaluate provided CFE or GFE. To discuss your deployment needs, contact ASTi Support at <u>support@asti-usa.com</u>.

C-1 Minimum host server specifications

Ensure your host server meets the following minimum requirements:

CPU Speed	2.4 GHz i7 or better; nonmobile
CPU Cores	4x or greater
Memory	8 GB RAM
Disk Space	80 GB solid-state drive (SSD) or nonvolatile memory express (NVMe) drive
NIC Count	1 or greater
NIC Speed	Gigabit
Boot Method	Unified Extensible Firmware Interface (UEFI) or Legacy Basic Input/Out- put System (BIOS)
	<i>Note:</i> Voisus 8.X and later supports UEFI boot.

Additionally, ensure the Red Hat Enterprise Linux (RHEL) operating system (OS) compatible with your Voisus software version also supports the host server hardware. To check Voisus software and OS compatibility, go to **Voisus Release Notes** at <u>support.asti-usa.com/voisus/-notessupport.asti-usa.com/logger/notes</u>.

C-2 Set up and install Voisus on customer or government equipment

To install Voisus on customer-furnished equipment (CFE) or government-furnished equipment (GFE), follow these steps:

- 1. At a minimum, configure the following Basic Input/Output System (BIOS) or Unified Extensible Firmware Interface (UEFI) settings on the CFE or GFE:
 - a. Disable hyperthreading (i.e., logical processors).
 - b. Limit the CPU core count to four cores.
 - c. If multiple physical CPUs exist, limit the server to one physical CPU in the BIOS or UEFI.
 - d. Disable C-States.

- e. Disable C1E.
- f. Disable E-Cores.



Note: Voisus 8.X and later supports booting from UEFI.

2. Run the cold-start procedure for the Voisus software version applicable to your configuration.

Appendix D: Legacy cold-start procedures

This appendix discusses the following legacy cold-start procedures:

- ASTi USB cold-start procedure
- Cold-start procedure for Voisus 6.X
- iSCSI cold-start procedure for Voisus 6.X
- iSCSI cold-start procedure for Red Hat 5.X

D-1 ASTi USB cold-start procedure



Important: The ASTi USB cold-start procedure is compatible with Voisus 7.X and earlier.

To cold start a MicroServer, follow these steps:

- 1. Turn off the MicroServer.
- 2. Insert the ASTi USB.
- 3. Turn on the MicroServer.
- 4. To access the Boot Disk menu, press the F10 key.
- 5. Choose an option to boot from the ASTi USB, and then press Enter.
- 6. At the prompt, enter **usb**, and press Enter.
- 7. When prompted, remove the ASTi USB.
- 8. Press Enter to complete the installation. The MicroServer turns off.
- 9. Turn on the MicroServer again.
- 10. Log into the system using the following default credentials:

Username	Password
root	abcd1234

11. *(Optional)* To set the IP address and subnet mask, run **ace-net-config -a** *xxx.xxx.xxx -n yyy.yyy.yyy.yyy*, where *xxx.xxx.xxx* is the IP address and *yyy.yyy.yyy.yyy* is the netmask. This configuration sets the IP address and netmask for Eth0, which you can use to access the Voisus web interface via a browser to complete the network setup.

- 12. *(Optional)* To view help text for the command options, enter **ace-net-config -h**, and press Enter.
- 13. Reboot the server.

D-1 Cold-start procedure for Voisus 6.X

To complete the Voisus cold-start procedure for Voisus 6.X, follow these steps:

- 1. Turn on the server.
- 2. Insert the Voisus Software Installation DVD, and reboot the server.
- 3. At the boot prompt, press Enter.
- 4. Remove the Voisus Software Installation DVD when it ejects from the drive.
- 5. Insert the Red Hat 6 Installation DVD, and select **OK**. Wait 10–15 minutes for the installation to complete.
- 6. When the Red Hat 6 Installation DVD ejects from the drive, insert the Voisus Software Installation DVD. Press Enter.
- 7. Wait several minutes for the installation to complete, and press Enter.
- 8. Remove the Voisus Software Installation DVD when it ejects from the drive.
- 9. Reboot the server.
- 10. Log into the system using the following default credentials:

Username	Password
root	abcd1234

- 11. *(Optional)* To set the IP address and subnet mask, run **ace-net-config -a** *xxx.xxx.xxx -n yyy.yyy.yyy.yyy*, where *xxx.xxx.xxx* is the IP address and *yyy.yyy.yyy.yyy* is the netmask. This configuration sets the IP address and netmask for Eth0, which you can use to access the Voisus web interface via a browser to complete the network setup.
- 12. *(Optional)* To view help text for the command options, enter **ace-net-config -h**, and press Enter.
- 13. To activate the changes, enter **reboot**, and press Enter.

D-2 iSCSI cold-start procedure for Voisus 6.X

Before proceeding, install and set up the iSCSI boot firmware, as described in Section 7.0, "Voisus iSCSI cold-start procedure" on page 23. To complete the iSCSI cold-start procedure for Voisus 6.X, follow these steps:

- 1. Turn on the Voisus server.
- 2. Insert the Voisus iSCSI Software Installation DVD, and reboot the Voisus server.
- 3. At the boot prompt, press Enter, and wait for initialization to complete.
- 4. From the menu options, select the interface that is connected to the network hosting your iSCSI drive.

Welcome to Red Hat	Enterprise Linux for x86_64
	Networking Device
You Whi	have multiple network devices on this system. ch would you like to install through?
et et	<mark>h0 - Ethernet device eth0 - 08:00:27:11:2e:94</mark> h1 - Ethernet device eth1 - 08:00:27:62:12:5c h2 - Ethernet device eth2 - 08:00:27:c4:10:b7
	OK Identify Back
<tab>/<alt-tab></alt-tab></tab>	between elements <space> selects <f12> next screen</f12></space>
	💿 🛃 🖉 🗐 🖉 🖉 Right Ctrl

Figure 15: Networking Device

5. Enter the appropriate network information, or select Use Dynamic IP Configuration (if applicable). Select OK.



Figure 16: Configure TCP/IP

6. Remove the Voisus iSCSI Software Installation DVD when it ejects from the drive.

7. A "Disc Not Found" message appears. Select **OK** to continue.



Figure 17: "Disc Not Found"

- 8. Insert the Red Hat 6 Installation DVD, and select **OK**.
- 9. The Voisus iSCSI Coldstart welcome message appears. Select <Ok> to continue.



Figure 18: Voisus iSCSI Coldstart welcome message

10. Enter the client initiator name, and select **<Ok>**.

lvanced Simula	ition Technology, inc
	Uoisus iSCSI Coldstart Enter the Initiator Name (Client): Voisus
	<0k>
	🔞 🛃 🌽 🗔 🖳 🚱 Right Ctrl

Figure 19: Enter the Initiator Name (Client)

11. Enter the iSCSI Target IP address, and select <Ok>.

Advanced Simulat	tion Technology, inc Uoisus iSCSI Coldstart Enter the iSCSI Target Hostname/IP (Server): 192.168.1.1
	💿 🛃 🖉 🗐 🔛 🖉 🔂 Right Ctrl

Figure 20: Enter the iSCSI Target Hostname/IP (Server)

12. Enter the iSCSI port number, and select <Ok>.

Advanced Simulat	ion Technology, inc
	Uoisus iSCSI Coldstart Enter the iSCSI Target Port (Server): 3260
	③ 浸 🖉 🗐 🗑 🖉 🔍 🥥 🖲 Right Ctrl

Figure 21: Enter the iSCSI Target Port (Server)

13. Confirm your settings, and select <Yes>.

Advanced Simulatio	n Technology, inc
	Voisus iSCSI Coldstart Please confirm your settings before we continue, select (Yes) to proceed with the installation or (No) to adjust the settings : Initiator Name : voisus
	Target Address : 192.168.1.1 Target Port : 3260 KYes> <no></no>
	💿 🛃 🖉 🚍 🖳 🖉 🔞 Right Ctrl

Figure 22: Settings confirmation

- 14. Wait approximately 10–15 minutes for the installation to complete. When prompted, insert the Voisus iSCSI Software Installation DVD. Press Enter.
- 15. Wait for confirmation that the software installation is complete, and press Enter.
- 16. Remove the Voisus iSCSI Software Installation DVD. The server automatically turns off.
- 17. Turn on the server.
- 18. Log into the server using the following credentials:

Username	Password
astiadmin	admin

- 19. (Optional) To set the IP address and subnet mask, run ace-net-config -a xxx.xxx.xxx -n yyy.yyy.yyy, where xxx.xxx.xxx is the IP address and yyy.yyy.yyy.yyy is the netmask. This configuration sets the IP address and netmask for Eth0, which you can use to access the Voisus web interface via a browser to complete the network setup.
- 20. *(Optional)* To view help text for the command options, enter **ace-net-config -h**, and press Enter.
- 21. To activate the changes, enter **reboot**, and press Enter.

D-3 iSCSI cold-start procedure for Red Hat 5.X



Caution: Performing a cold-start procedure will completely erase the system hard drive.

To perform the iSCSI cold-start procedure for Red Hat 5.X, follow these steps:

- 1. Turn on the Voisus server.
- 2. Insert the Voisus Software Installation DVD, and reboot the Voisus server.
- 3. At the Boot prompt, press Enter.
- 4. Remove the Voisus Software Installation DVD when it ejects from the drive.
- 5. Insert the Red Hat 5 Installation DVD, and select **OK**.
- 6. Select +Advanced Storage Configuration.

7. A dialog box appears, prompting "How would you like to modify your drive configuration?" Select Add iSCSI target, and then select +Add drive.

0 0	Voisus 5.22.5 iSCSI	
ED HAT NTERPRISE		
Installation requires partitio By default, a partitioning la	ning of your hard drive. yout is chosen which is	
reasonable for most users. to use this or create your or	You can either choose vn.	
Remove all partitions on	Advanced Storage Options	
Encrypt system	How would you like to modify your drive configuration?	
	Add <u>i</u> SCSI target	
Select the drive(s) to	O Disable gmraid device	
🗹 sda 20473 Mi .	Zancel ♣ Add drive	
dvanc	ed storage configuration	
Review and modify parti	tioning layout	
<u>] R</u> elease Notes	da Back	₩ <u>N</u> ext

Figure 23: Advanced Storage Options

8. Enable network interface opens. From the Interface list, choose the interface that is connected to the network hosting your iSCSI drive.

		Voisus 5.22.5 iSCSI					
RED HA	AT RPRISE						
le la		Enable network Interface					
Installa By defa reasona to use t		This requires that you have an active network connection during the installation process. Please configure a network interface.					
Remov	Interface:	eth2 - Advanced Micro Devices, Inc. [AMD] 79c970 [PCnet32 LANCE]					
	Use gynamic IP configuration (DHCP)						
	✓ Enable IPv <u>4</u> s	upport					
£€ B	IPv4 Address:	x.x.x.x / (x.x.x.x					
	Gateway:	x.x.x.x					
	Nameserver:	x.x.x.x					
		X Cancel					
Re <u>v</u> ice	n ana maany para	coming-rayouc					
<u>R</u> elease	Notes	⊉ <u>B</u> ack ⇒ <u>N</u> ext					

Figure 24: Enable Network Interface

9. Enter the appropriate network information, or select Use Dynamic IP Configuration if applicable. Select OK.

- 10. **Configure iSCSI Parameters** appears. In **Target IP** Address, enter the target IP address of the iSCSI server on your network.
- 11. In **iSCSI Initiator Name**, enter the iSCSI initiator name, which is determined by the party responsible for the server hosting the iSCSI Virtual Hard Drive (VHD). Select +Add Target.

		Voisus 5.22.5 iSCSI
RED HA ENTE	T RPRISE LINU	x 5 —
	Co	onfigure ISCSI Parameters
Installa By defa reasona to use t	To use ISCS of your ISC you've con	il disks, you must provide the address SI target and the ISCSI initiator name figured for your host.
Remov	Target IP Address:	x.x.x.x
Encr	ISCSI Initiator <u>N</u> ame:	lqn.1994-05.com.rhel:01.253ff6
	CHAP <u>U</u> sername:	
Se	CHAP Password:	
Ľ	Reverse CHAP U <u>s</u> ername:	
	Reverse CHAP Password:	
Re <u>v</u> iew	and modify partitioning layout	Zancel 🖗 Add target
<u>B</u> elease	Notes	⊉ Back ₽ Next

Figure 25: Configure iSCSI Parameters screen

12. From the list, select **Remove all Partitions**, and then select **Next**. When the warning message appears, select **Yes**.

13. Turn on the interface used to connect to the iSCSI VHD. Additionally, turn on any additional interfaces that must remain active (i.e., eth0, eth1, eth2, etc.). Enter the host-name, and select **Next**.

••				🔮 Voisu	s 5.22.5 iS0	CSI				
ED H NTI	AT ERP	PRIS	E LINU	JX 5	11-	-	Ļ	-1	1	
Networ	k Devic	es	D. (Blackson el	ID (CO-office						
Active	on Boot	oth0	10.2.127.120/16	Auto		ait				
		eth1	DHCP	Auto	=					
		eth2	10.3.101.110/16	Auto	H					
• <u>m</u> an Miscella	ually a	5-000C2	947F310		e.g., hos	t.domain	.com)			
Gatewa	v:	x.x.x.x	-							
Primary	DNS:	x.x.x.x				_				
Seconda	ary DNS:					_				
<u>B</u> elea	se Note:	5						Back	⇒ <u>N</u>	ext

Figure 26: Miscellaneous Settings

- 14. Select the time zone appropriate to your location, and then select Next.
- 15. Select **Next** on the **Root Account**, **GNOME**, and **Red Hat** installation pages that appear. Wait 10 to 15 minutes for the connection to the iSCSI VHD and formatting to complete.
- 16. Remove the Red Hat 5 Installation DVD, and insert the Voisus Software Installation DVD when prompted.
- 17. When installation is complete, remove the Voisus Software Installation DVD.

	Voisus 5.22.5 iSCSI
Complete! Finished installing Voisus Server Press [ENTER] to continue	
Disabling user login notification Disabled user login notification. Disabling rhsmcertd service rhsmcertd not found, this is ok. Cleaning up install repositories Cleaned up install repositories	about RHEL subscriptions
== Installation logs saved in new anaconda-ks.cfg install.log inst	system's /root == all.log.syslog kickstart-presh-0-log
== System will automatically powe == t!! REMOUE INSTALLATION D == (To power off immediatly, pr	

Figure 27: System Power-Down notification

- 18. When the server automatically turns off, restart the server.
- 19. Log into the server using the following credentials:

Username	Password
astiadmin	admin

- 20. (Optional) To set the IP address and subnet mask, run **ace-net-config -a** xxx.xxx.xxx **-n** yyy.yyy.yyy, where xxx.xxx.xxx is the IP address and yyy.yyy.yyy.yyy is the netmask. This configuration sets the IP address and netmask for Eth0, which you can use to access the Voisus web interface via a browser to complete the network setup.
- 21. *(Optional)* To view help text for the command options, enter **ace-net-config -h**, and press Enter.
- 22. To activate the changes, enter reboot, and press Enter.