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# **SERA Cold Start Guide**

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Product Name: SERA

SERA Cold Start Guide

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# Revision history

Date	Revision	Version	Comments
9/19/2017	A	0	Initial baseline version.
11/15/2017	B	0	Adds "(Optional) Configure network settings via the web interface," "Back up the SERA server," and "Restore a backup of the SERA server." Changed "Configure network settings via the terminal" to an appendix at the end of the document.
12/18/2017	B	1	Addresses uploading a .tgz file for restoration in "Back up the SERA server."
1/30/2018	B	2	Fixes minor typo in "Configure network settings via the terminal."
3/14/2017	C	0	Adds BIOS instructions to cold start procedure.
3/15/2018	D	0	Adds SERA Data Drive installation instructions to the cold start procedure; adds new "(Optional) Verify the SERA Data Drive" section.

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# 1.0 Introduction

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

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

The following steps outline the SERA cold start procedure:

1. To create a backup of the SERA server, see Section 3.0, "Back up the SERA server" on page 4.
2. To cold start the SERA server, see Section 4.0, "Cold start the SERA server" on page 5.
3. To restore your backup of the SERA server, see Section 5.0, "Restore a backup of the SERA server" on page 6.
4. To configure the server's IP address and subnet mask, see Section 6.0, "(Optional) Configure network settings via the web interface" on page 7.

## 1.1 Required equipment

The following equipment is required for the SERA cold start procedure:

- Power cord
- SERA server
- USB license key
- Monitor
- Keyboard
- CAT5e cable or better
- Network connection
- *(Optional)* SERA Data Drive

## 2.0 Configure the BIOS settings

To configure BIOS Q67AX 2.14.1219 and higher, follow these steps:

1. Reboot the server, and immediately press the Delete key as the system boots to enter the BIOS Setup Utility.
2. Navigate to the **Exit** tab, and select **Load Optimal Defaults**.
3. On the **Menu** tab, set the **System Date** and **System Time** using Greenwich Mean Time.
4. Navigate to **Chipset > PCH-IO Configuration**, and set the following configurations:
  - a. **Onboard Lan1 Controller** to **Enabled**
  - b. **Onboard Lan2 Device** to **Enabled**
  - c. **Restore AC Power Loss** to **Power On**
5. To return to the **Main** tab, press Esc. Navigate to **Chipset > System Agent (SA) Configuration**, and set **VT-d** to **Enabled**.
6. To return to the **Main** tab, press Esc. Navigate to **Boot > CSM Parameters**, and set **Launch PXE OpROM policy** to **Legacy only**.
7. To save and reset, press the F4 key. A confirmation message requests, "Save configuration and reset?" Select **Yes**.
8. As the system reboots, press the Delete key to return to the BIOS Setup Utility.
9. To return to the **Main** tab, press Esc. Navigate to **Advanced > CPU Configuration**, and set the following configurations:
  - a. **Hyper-Threading** to **Disabled**
  - b. **Intel Virtualization Technology** to **Enabled**
10. To return to the **Main** tab, press Esc. Navigate to **Advanced > SATA Configuration**, and set **SATA Mode Selection** to **AHCI**.
11. To return to the **Main** tab, press Esc. Navigate to **Advanced > SMART Settings**, and set **SMART Self Test** to **Enabled**.
12. To return to the **Main** tab, press Esc. Navigate to **Advanced > Super IO Configuration > Com1 Port Configuration**, and set **Serial Port** to **Disabled**.
13. To return to the **Main** tab, press Esc. Navigate to **Com2 Port Configuration**, and set **Serial Port** to **Disabled**.
14. To return to the **Main** tab, press Esc. Set **CIR Controller** to **Disabled**.

15. To return to the **Main** tab, press Esc. Navigate to **Second Super IO Configuration > Com3 Port Configuration**, and set **Serial Port** to **Disabled**.
16. To return to the **Main** tab, press Esc. Navigate to **Com4 Port Configuration**, and set **Serial Port** to **Disabled**.
17. To return to the **Main** tab, press Esc. Navigate to **Com5 Port Configuration**, and set **Serial Port** to **Disabled**.
18. To return to the **Main** tab, press Esc. Navigate to **Com6 Port Configuration**, and set **Serial Port** to **Disabled**.
19. Press Esc twice, and navigate to **Third Super IO Configuration > Com7 Port Configuration**. Set **Serial Port** to **Disabled**.
20. To return to the **Main** tab, press Esc. Navigate to **Com8 Port Configuration**, and set **Serial Port** to **Disabled**.
21. To return to the **Main** tab, press Esc. Navigate to **Com9 Port Configuration**, and set **Serial Port** to **Disabled**.
22. To return to the **Main** tab, press Esc. Navigate to **Com10 Port Configuration**, and set **Serial Port** to **Disabled**.
23. Press Esc twice, navigate to the **Boot** tab, and 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 *network* option



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

24. Navigate to **Boot > Network Device BBS Priorities**, and set the following configurations:
  - a. **Boot Option #2** to **Disabled**
  - b. **Boot Option #3** to **Disabled** (if present)
  - c. **Boot Option #4** to **Disabled** (if present)
25. To save and reset, press the F4 key. When the “Save configuration and reset?” confirmation message appears, select **Yes**. Wait as the server reboots.

## 3.0 Back up the SERA server

To back up the SERA server, follow these steps:

1. Open a web browser on a computer sharing the same network as the SERA server.
2. In the address bar, enter the SERA server's IP address.
3. Log into the SERA web interface using the following admin credentials:

Username	Password
site-admin@asti-usa.com	astirules

4. From the top navigation bar, click **System**, and then click **Backup/Restore**.
5. On the **Backup & Restore** page, click **+ Create Backup**. The **System Backup** window opens.
6. In the **Backup Name:** box, type a name for your backup.
7. *(Optional)* To include network settings in the backup, select **Include network settings in backup**.

*Figure 1: System Backup window*

8. Click **Create Backup**, and wait for the backup to complete. When finished, the new backup displays as an archive (.tgz) file on the **Backup & Restore** page.

Name	Date Created	Size (MB)	Version
example_backup.tgz	14 Nov 17 15:23 EST	110.30	Restore
localhost.localdomain_backup.tgz	27 Sep 17 17:55 EDT	41.73	Restore

*Figure 2: New SERA backup*

9. Next to the backup, click **Download**, and save the .tgz file to a USB drive or your local computer.

## 4.0 Cold start the SERA server

To complete the SERA cold start procedure, follow these steps:

1. *(Optional)* Insert the SERA Data Drive into a USB port on the side of the server. This drive provides SERA with map, elevation, and customer-specific data. It is marked with the following tag:



*Figure 3: SERA Data Drive tag*

2. Insert the Red Hat 7 Installation DVD for SERA, and press the Reset button.
3. To install Red Hat, wait five seconds for the disc to mount, and press Enter.
4. Wait several minutes for installation to complete. When the disc automatically ejects, remove it from the drive.
5. Insert the SERA Core Software Installation DVD, wait five seconds, and press Enter.
6. Wait several minutes for installation to complete. When the disc ejects, remove it from the drive.
7. Insert the SERA Speech Software Installation DVD, wait five seconds, and press Enter. Wait several minutes for installation to complete.
8. When the SERA Speech Software Installation DVD ejects, remove the disc from the drive. The system automatically reboots, and the screen displays, “Installing SERA, this may take a while.”



**Important:** *If the system hangs after reboot, press the Reset button.*

Wait 20–25 minutes for installation to complete, and the system automatically reboots.



**Note:** *The SERA Data Drive increases installation time to approximately 45 minutes.*

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

Username	Password
root	abcd1234

## 5.0 Restore a backup of the SERA server



*Caution: Only restore a backup on a freshly cold-started server. Otherwise, previous configurations may interfere with the new restoration, causing errors.*

To restore a backup of the SERA server in the SERA web interface, follow these steps:

1. From the top navigation bar, click **System**, and then click **Backup/Restore**.
2. On the **Backup & Restore** page, click  **Upload Backup**.
3. Open the backup you created in Section 3.0, "Back up the SERA server" on page 4. Click  **Restore**.
4. In the **Restore Archive** window, click  **Restore**.
5. When restoration is complete, a pop-up window prompts you to reboot the system. Click  **Reboot**.
6. Wait four to five minutes for the system to reboot. When the reboot is complete, the **Backup & Restore** page refreshes.

## 6.0 (Optional) Configure network settings via the web interface

If your network facilitates Dynamic Host Configuration Protocol (DHCP), then the SERA server should automatically receive an IP address, allowing you to connect to the SERA web interface. However, if the SERA server cannot establish an automatic DHCP connection, you must manually set the IP address via the terminal. For manual configuration instructions, see Appendix A, "Configure network settings via the terminal" on page 10.

To change the default network settings in the SERA web interface, follow these steps:

1. Open a web browser on a computer sharing the same network as the SERA server.
2. In the address bar, enter the SERA server's IP address.
3. Log into the SERA web interface using the following admin credentials:

Username	Password
site-admin@asti-usa.com	astirules

4. From the top navigation bar, click **System**, and then click **Network Settings**.
5. On the **General Networking** page, click .
6. Under **Network Devices**, in the **IP Address** box, type xxx.xxx.xxx.xxx, where xxx.xxx.xxx.xxx represents the SERA server's IP address.
7. In the **Subnet Mask** box, type yyy.yyy.yyy.yyy, where yyy.yyy.yyy.yyy represents the SERA server's subnet mask.



Network Devices

Select a device name to view and edit its settings:

eno1

Device Name eno1

Status ↑ Up

MAC Address 00:07:b8:de:16:b4

Mode Fixed

IP Address 10.2.120.13

Subnet Mask 255.255.0.0

\* IP Address and Subnet Mask are required when device is in Fixed mode.

*Figure 4: Network device settings*

- Under **Pending Changes**, verify the new settings are correct:



	Old Value	New Value
eno1_ipaddr	10.2.120.13	10.2.120.14

\* Indicates a required field

*Figure 5: Pending Changes*

- Click .
- To reboot the SERA server, press the Reset button on the front of the chassis. Wait for the system to reboot.

## 7.0 (Optional) Verify the SERA Data Drive

If you are using the SERA Data Drive, check that SERA can correctly read the map data in the SERA web interface. To verify the data drive, follow these steps:

1. Open a web browser on a computer sharing the same network as the SERA server.
2. In the address bar, enter the SERA server's IP address.
3. Log into the SERA web interface using the following admin credentials:

Username	Password
site-admin@asti-usa.com	astirules

4. From the top navigation bar, click **Database**.
5. Click **Edit Airports**.
6. In the **Airport** combo box, type the desired airport code (e.g., KLAX for the Los Angeles International Airport).
7. Click the **Map** tab.
8. Verify that a map appears on the page, as shown below:

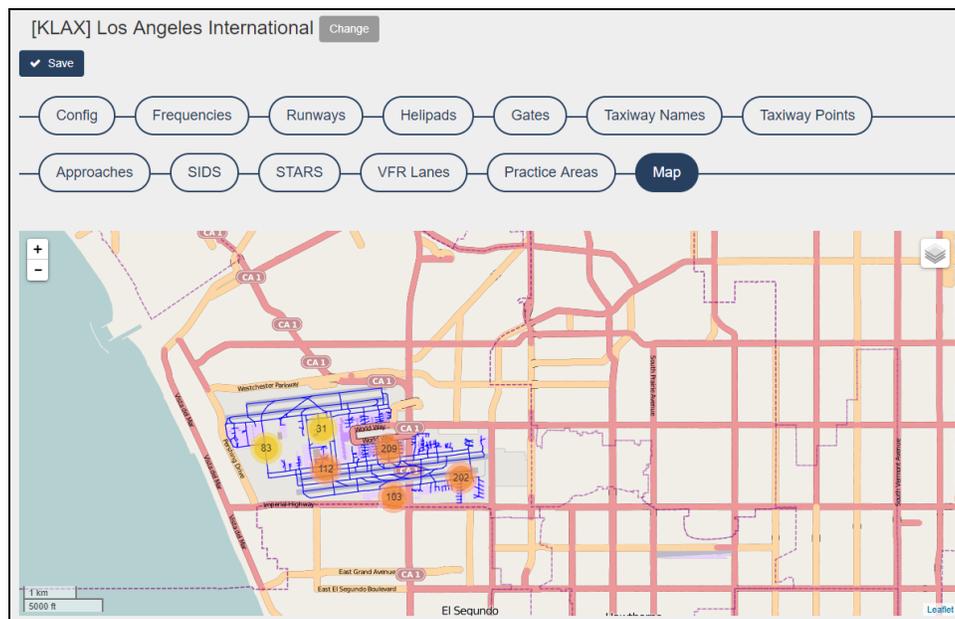


Figure 6: Airport map data

## Appendix A: Configure network settings via the terminal



*Note:* These configuration instructions are intended for IT administrators who are familiar with Linux terminology and commands.

Without a Dynamic Host Configuration Protocol (DHCP) network connection, the SERA server is not configured with a default IP address. As a result, you must manually set the network configurations for the following interfaces:

Interface Name	Description
en01	This interface is designated to the SERA web interface network configuration.
enp2s0	(Optional) As needed, use these interfaces for Distributed Interactive Simulation (DIS) and visual system network configurations.
enp2s1	
enp2s2	



*Important:* The SERA system runs on a Red Hat 7 operating system. As a result, the interface names differ from those in Red Hat 5 and 6.

To configure an interface's network, follow these steps:

1. To identify the correct interface, at the terminal prompt, type **sudo ethtool -p interface**, where *interface* represents the name of the interface you want to identify (e.g., en01, enp2s0). Press Enter.
2. Identify which interface is blinking on the SERA server, and insert an Ethernet cable into the interface.
3. To view current interface settings, type **cat /etc/sysconfig/network-scripts/ifcfg-interface**, and press Enter.
4. Ensure the following settings match:

```
TYPE=Ethernet
BOOTPROTO=static
DEFROUTE=yes
IPV4_FAILURE_FATAL=no
ONBOOT=yes
```

5. Navigate to **/etc/sysconfig/network-scripts**.
6. Using the text editor of your choice, open the file corresponding with the interface you want to configure.

7. In the **IPADDR** field, type *xxx.xxx.xxx.xxx*, where *xxx.xxx.xxx.xxx* represents the server's IP address. Press Enter.
8. In the **NETMASK** field, type *yyy.yyy.yyy.yyy*, where *yyy.yyy.yyy.yyy* represents the server's subnet mask. Press Enter.
9. Save and exit the file. To configure the other interfaces for your DIS and/or visual system networks, repeat Steps 1–8 if applicable.
10. At the prompt, type **reboot**, and press Enter. Wait for the server to reboot.