



**Net-Net OS-E**

**Release 3.6.0**

# **USB Creation and Commissioning Instructions**

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400-1000-36  
Revision 1.22  
May 30, 2013

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# Preface

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## About Net-Net OS-E® Documentation

The Net-Net OS-E references in this documentation apply to the Net-Net OS-E operating system software that is used for the following Acme Packet and third-party SBC products:

- Net-Net Application Session Controller (ASC)
- Net-Net OS-E Session Director (SD) Session Border Controller (SBC)
- Net-Net 2600 Session Director (SD) Session Border Controller (SBC)
- Third-party products that license and use Net-Net OS-E software on an OEM basis.

Unless otherwise stated, references to Net-Net OS-E in this document apply to all of the Acme Packet and third-party vendor products that use Net-Net OS-E software.

The following documentation set supports the current release of the OS-E software.

- *Net-Net OS-E – Net-Net 2610/2620 Quick Installation*
- *Net-Net OS-E – Network Interface Card Installation*
- *Net-Net OS-E – USB Creation and Commissioning Instructions*
- *Net-Net OS-E – Slide Rail Kit Installation Instruction*
- *Net-Net OS-E – Virtual Machine Information Guide*
- *Net-Net OS-E – System Installation and Commissioning Guide*
- *Net-Net OS-E – Management Tools*
- *Net-Net OS-E – System Administration Guide*
- *Net-Net OS-E – Session Services Configuration Guide*

- *Net-Net OS-E – Objects and Properties Reference*
- *Net-Net OS-E – System Operations and Troubleshooting*
- *Net-Net ASC — Web Services SOAP/REST API*
- *Net-Net ASC — Web Services Samples Guide*
- *Net-Net OS-E – Release Notes*

## Revision History

This section contains a revision history for this document.

Date	Revision Number	Description
December 1, 2009	Revision 1.00	<ul style="list-style-type: none"><li>• FCS release of OS-E 3.6.0 software.</li></ul>
December 14, 2009	Revision 1.01	<ul style="list-style-type: none"><li>• GA release of OS-E 3.6.0 software.</li></ul>
December 3, 2010	Revision 1.02	<ul style="list-style-type: none"><li>• Updates Acme Packet contact information.</li></ul>
June 24, 2011	Revision 1.10	<ul style="list-style-type: none"><li>• Changes references to the software from Net-Net 2600 and NN2600 to Net-Net OS-E and OS-E.</li><li>• Adds 3.6.0m4 adaptations.</li></ul>
August 3, 2012	Revision 1.20	<ul style="list-style-type: none"><li>• Adds 3.6.0m5 adaptations</li></ul>
April 30, 2013	Revision 1.21	<ul style="list-style-type: none"><li>• Adds a list of BMC supported OSs.</li></ul>
May 30, 2013	Revision 1.22	<ul style="list-style-type: none"><li>• Updates hardware-specific steps for booting and licensing new systems.</li></ul>

# Conventions used in this manual

## Typographical conventions

Key Convention	Function	Example
KEY NAME	Identifies the name of a key to press.	Type <b>abc</b> , then press [ENTER]
CTRL+x	Indicates a control key combination.	Press <b>CTRL+C</b>
brackets [ ]	Indicates an optional argument.	[ <i>portNumber</i> ]
braces { }	Indicates a required argument with a choice of values; choose one.	{ <i>enabled</i>   <i>disabled</i> }
vertical bar	Separates parameter values. Same as “or.”	{TCP   TLS}
Monospaced bold	In screen displays, indicates user input.	config> <b>config vsp</b>
Monospaced italic	In screen displays, indicates a variable—generic text for which you supply a value.	config servers> <b>config lcs</b> <i>name</i>
bold	In text, indicates literal names of commands, actions, objects, or properties.	...set as the secondary directory service (with the <b>unifier</b> property)...
bold italic	In text, indicates a variable.	...set the <b>domain</b> property of the <b><i>directory</i></b> object.

## Acronyms

The OS-E manuals contain the following industry-standard and product-specific acronyms:

AAA	Authentication, authorization, and accounting
ALI	Automatic location identifier
ANI	Automatic number identification
ANSI	American National Standards Institute
AOR	Address of record
API	Application programming interface
ARP	Address Resolution Protocol
AVERT	Anti-virus emergency response team
B2BUA	Back-to-back user agen
BOOTP	Bootstrap Protocol
CA	Certificate authority
CAP	Client application protocol
CBC	Cipher block chaining
CBN	Call back number
CCS	Converged Communication Server
CDR	Call detail record
CIDR	Classless interdomain routing
CLI	Command line interface
CMOS	Comparison mean opinion score
CNAME	Canonical name record
CNI	Calling number identification
CODEC	Compressor/decompressor or coder/decoder
CPE	Customer-premise equipment
CRL	Certificate revocation list
CSR	Certificate signing request
CSTA	Computer-supported telecommunications applications
CSV	Comma-separated values
DDDS	Dynamic delegation discovery system
DHCP	Dynamic Host Configuration Protocol



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DMZ	Demilitarized zone
DN	Distinguished name
DNIS	Dialed number identification service
DNS	Domain name service
DOS	Denial of service
EIM	Enterprise instant messaging
ESD	Electrostatic discharge
ESGW	Emergency services gateway
ESQK	Emergency services query key
ESRN	Emergency services routing number
FQDN	Fully qualified domain name
GUI	Graphical user interface
HTTP	Hypertext Transfer Protocol
HTTPS	Hypertext Transfer Protocol Secure
I2	National Emergency Number Association defined VoIP solution
ICAP	Internet Calendar Access Protocol
ICMP	Internet Control Message Protocol
IM	Instant messaging
IP	Internet Protocol
JDBC	Java database connectivity
JMX	Java management extensions
JRE	Java runtime environment
LATA	Local access and transport area
LCS	Live Communications Server
LCR	Least-cost routing
LDAP	Lightweight Directory Access Protocol
LIS	Location information service
MAC	Media access control
MCS	Multimedia Communications Server
MIB	Management information base
MOS	Mean opinion score
MSAG	Master street address guide

MTU	Maximum transmission unit
NAPTR	Naming authority pointer
NAT	Network address translation
NENA	National Emergency Number Association
NIC	Network interface card
NS	Name server
NSE	Named signaling events
NTLM	NT Lan Manager
NTP	Network Time Protocol
OC	Office Communicator
OCI	Open Client Interface
ODBC	Open database connectivity
OTP	Over temperature protection
OVP	Over voltage protection
PBX	Private branch eXchange
PEM	Privacy-enhanced mail
PERL	Practical Extraction and Reporting Language
PING	Packet internet groper
PKCS#12	Public Key Cryptography Standard #12
PKI	Public Key Infrastructure
PSAP	Public safety answering point
PSCP	PuTTY secure copy
PSTN	Public switched telephone network
QOP	Quality of protection
QOS	Quality of service
RADIUS	Remote Authentication Dial-in User Service
RTC	Real-time collaboration
RTCP	Real-time Control Protocol
RTP	Real-time Transport Protocol
RTT	Round-trip time
SATA	Serial ATA
SCSI	Small computer system interface

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SDK	Software development kit
SDP	Session Description Protocol
SFTP	Secure Shell File Transfer Protocol
SIMPLE	SIP Instant Messaging and Presence Leveraging Extension
SIP	Session Initiation Protocol
SIPS	Session Initiation Protocol over TLS
SLB	Server load balancing
SMB	Server message block
SNMP	Simple Network Management Protocol
SOA	Server of authority
SOAP	Simple Object Access Protocol
SQL	Structured Query Language
SRTP	Secure Real-time Transport Protocol
SRV	Server resource
SSH	Secure Shell
SSL	Secure socket layer
SSRC	Synchronization source
STUN	Simple Traversal of UDP over NATs
TCP	Transmission Control Protocol
TDM	Time division multiplexing
TGRP	Trunk group
TLS	Transport Layer Security
TOS	Type of service
TTL	Time to live
UPS	Uninterruptable power supply
US	User agent
UAC	User agent client
UAS	User agent server
UDP	User Datagram Protocol
UID	Unique identifier
URI	Uniform resource identifier
URL	Uniform resource locator

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UTC	Universal coordinated time
VoIP	Voice over IP
VLAN	Virtual local area network
VPC	VoIP positioning center
VRRP	Virtual Router Redundancy Protocol
VSP	Virtual system partition
VXID	Virtual router interface ID
WAR	Web application resource
WAV	Waveform audio
WM	Windows Messenger
WSDL	Web Services Description Language
XML	Extensible Markup Language
XSL	Extensible Stylesheet Language

## Product Support

### Contacting Acme Packet, Inc.

Acme Packet, Inc.  
100 Crosby Drive  
Bedford, MA 01730 USA  
t: 781-328-4400  
f: 781-275-8800

[www.acmepacket.com](http://www.acmepacket.com)

### Product and Technical Support

Toll: +1-781-756-6920

Online: <https://support.acmepacket.com>

E-mail: [support@acmepacket.com](mailto:support@acmepacket.com)

For existing Acme Packet customers, product information, software updates, and documentation are available from the Acme Packet support web site. If you have difficulty logging on to the web site using your existing account, call Acme Packet at 781-756-6920 for assistance.

## **Product Damage**

If you receive Acme Packet products that are damaged in shipping, contact the carrier immediately and notify Acme Packet for return shipping information and product replacement. Do not return any products until you receive instructions from Acme Packet.



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# Chapter 1. Creating Net-Net OS-E USB Installation Sticks

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This chapter provides information on creating OS-E USB software installation sticks for commissioning third-party servers. Using the Internet and secure Web URLs, Acme Packet provides all necessary software downloads for USB creation, product licensing, and commissioning of the OS-E on your selected hardware.

As part of each download, and depending on your actual requirements, Acme Packet can provide the following:

- USB Boot Media Creator (BMC) with the OS-E software.
- Feature licenses
- Documentation on how to create a USB stick and commission the OS-E software on your selected hardware
- Standard set of Acme Packet OS-E technical publications

See the section, “Download Processes and Expiration Timers,” for specific information on feature licensing and what you will need to do if you are running third-party hardware or the OS-E Virtual Machine (OS-E-VM).

In addition to the Acme Packet NN2610 and NN2620 hardware, Chapter 2 covers USB commissioning information for installing OS-E software on supported third-party hardware platforms and servers.

## Supported USB Sticks

You will need to provide a USB stick with at least 1GB storage, and up to 4 GB storage, to handle OS-E software downloads. Acme Packet has tested a variety of USB sticks available from current suppliers and manufacturers. Most 1GB USB sticks manufactured today will work.

## USB Stick Restrictions

If you are upgrading an existing OS-E system from a USB stick, check the /cxc directory for *.cfg* and *.xml* files that are larger than 2 MB. Files that are larger than 2 MB will not be backed up to the USB stick and restored during the upgrade process.

All \*.cfg and \*.xml files in the current working directory (/cxc) that are less than 2 MB in size are backed up to the stick and restored during the upgrade.

In the event that Internet access is unavailable, use the **show system-info** command to display the box identifier, then e-mail the box identifier to [licenses@acmepacket.com](mailto:licenses@acmepacket.com). After your customer information has been verified, Acme Packet will send the license(s) to you via e-mail. You can then use the OS-E Management System **Upload License** function or **WinSCP** to place the license files on the system.

- **Downloads for the OS-E Virtual Machine**—Includes the VM for running the OS-E/ASC software on x86-based hardware running VMware Player, VMware Workstation, VMware Server, ESX Server, or XEN Server. The OS-E and ASC technical documentation download is also included.

For complete information on the VM, refer to the *Net-Net OS-E – Virtual Machine Information Guide*.

## Getting Started

Once you have contacted Acme Packet for software downloads, you will receive an e-mail from [download@acmepacket.com](mailto:download@acmepacket.com). This email provides an Internet link to the download(s) you requested.



The image below illustrates a sample e-mail response page.

You have received this email in response to a request you submitted to Acme Packet. When you click on the link provided below you will be taken to a download page where you can access the information/trial you requested.

The download page may contain one or more of the following:

- *Boot Media Creator* - An executable file that will create a bootable USB commissioning stick for the installation of the Acme Packet Net-Net OS-E.
- *USB Documentation* - Documentation describing the steps needed to create a USB stick for installing the Acme Packet Net-Net OS-E software and applying a license.
- *Licenses* - Feature license files or license keys for the Net-Net OS-E software.

**NNOS-E Release 3.5 Download**

[Download Page](#)   [Alternative Link\( Direct IP \)](#)

The Download Page will expire 24 hours after you select this link.  
You are granted 3 Download Page opportunities, with each opportunity expiring after 24 hours.

Perform the following steps:

1. Click **Download Page** to display the Download Description, Available Downloads, and Available Licenses page, illustrated in the image below. Use the **Alternate Link (Direct IP)** selection if your network is preventing access to this page.



The screenshot displays the 'acmc packet' interface. It features three main sections: 'Download Description', 'Available Downloads', and 'Available Licenses'.

**Download Description**

Download Name :	JD test
Description :	JD test
Created :	2009-06-18T00:00:00.000-05:00

**Available Downloads**

Name	Description	Download Link	Created
R3.5.1-Docs.zip	3.5.1 Release Documentation	<a href="#">click to download</a>	2009-03-13T00:00:00.000-05:00
MMC-R3.5.1-42542.exe	USB Installer file for 3.5.1	<a href="#">click to download</a>	2009-03-13T00:00:00.000-05:00
3.5 USB Setup and Installation Doc	Read Me First	<a href="#">click to download</a>	2009-03-13T00:00:00.000-05:00

**Available Licenses**

Description	License Key/Link	Box Id	Serial Number
No licenses are associated with this download			

2. After reviewing the information on this page, click on the **click to download** link from the Available Downloads section of the page. You will have the option to either run or save the download to a specified download location.

3. Proceed to save the file(s) to a location on your PC. A series of standard Window dialog boxes will display the download progress, as this may take a few minutes.
4. If you ordered Acme Packet NN2610/2620 hardware, the **click to download** function appears in the Available Licenses portion of the screen. Use the **click to download** function to save the license to a specified location.
5. If you are using third-party hardware, the **request a license** function will appear in the Available Licenses portion of the screen, as illustrated in the image below. Select **request a license** to have Acme Packet send you to the OS-E features license over e-mail rather than over an Internet connection.

Available Licenses			
Description	License Key/Link	Box Id	Serial Number
Sample Doc License	a34ca214-6568-4225-987f-7c9b3f9d7230 <a href="#">(request a license)</a>		

From the License Request page, enter the Box Identifier in the supplied field. If unknown, you will need to install the OS-E software (minus the features license), and then use the OS-E **show system-info** command to get the Box Identifier.

Enter up to four box identifiers and three destination e-mail addresses and select **Mail the license**. When you have received the license (named `<productKey>.xml`), use the OS-E Management System **Upload License** function or WinSCP to install the license on your OS-E system.

**Acme Packet Net-Net OS-E License Request Page**

Complete the fields on this page to allow the Acme Packet license server to e-mail a system license to you or to allow you to download the license from the download page. Prior to completing this page, you will need to have access to the BoxID of the Net-Net OS-E system. If you don't have the BoxID information, you can obtain it by running the "show system-info" command from the Net-Net OS-E CLI. If you need to get this information from the CLI, you must have previously installed the Net-Net OS-E software on the server you are trying to license. This page also requests the server Serial Number. This field is optional and only relevant for Net-Net 2600 series servers. You can enter in up to three destination e-mail addresses.

Once complete, select the "Mail the license" button. When you receive and download the license from e-mail, use the Net-Net OS-E GUI Tools function or WinSCP to upload the license to your Net-Net OS-E platform. Refer to the USB Creation and Commissioning Instructions for information on these procedures.

If you do not have the ability to receive the license via email, you can download the license manually by returning to the download page and selecting the "click to download" option. This will allow you to save the license.xml file directly to your PC from the main download page.

License Key:

	Box Id example (018b-ad92-1edb-00fa)	Serial Number example (409-12345), (optional)
Box 1:	<input type="text"/>	<input type="text"/>

Email Address 1:

Email Address 2:

Email Address 3:

## Download Processes and Expiration Timers

There are three types of downloads associated with OS-E software, described below. A download page has an expiration timer that allows a specific period of time for you to perform the downloads. This expiration timer starts when you select the **Download Page** link (shown in the graphic below).

You will also be granted multiple opportunities to select the **Download Page** link. You will need to contact Acme Packet for a new download page if you exceed the granted number of opportunities. Information about the expiration timer is provided on the e-mail response page.

- **Downloads for Net-Net 2600 and earlier systems**—Includes NN 2610 and NN2620 systems as well as the earlier models (CXC-350/354 and CXC-550/554).

The downloads include the USB Boot Media Creator, OS-E technical documentation and appropriate feature licenses associated with the download. Use the OS-E Management System **Upload License** function to place the license files on the system.

- **Downloads for third-party hardware**—Downloads for third-party hardware also include the USB Boot Media Creator and OS-E technical documentation.

This download process creates a USB stick that allows you to initially install the OS-E software, but will require that you to run the **license fetch** command from the CLI or the OS-E Management System to acquire the proper feature licenses over an Internet connection.

In the event that Internet access is unavailable, use the **show system-info** command to display the box identifier, then email the box identifier to [licenses@acmepacket.com](mailto:licenses@acmepacket.com). After your customer information has been verified, Acme Packet sends the license(s) to you via email. You can then use the OS-E Management System **Upload License** function or **WinSCP** to place the license files on the system.

- **Downloads for the OS-E Virtual Machine**—Includes the VM for running the Net-Net OS-E and ASC software on x86 based hardware running VMware Player, VMware Workstation, VMware Server, or Xen. OS-E and ASC technical documentation is also included.

## Running the Boot Media Creator

The Boot Media Creator (BMC) is the program that creates the OS-E software installation USB stick. Before using the **bmc.exe** program you will need to extract the program executable, as the program is distributed in a ZIP file.

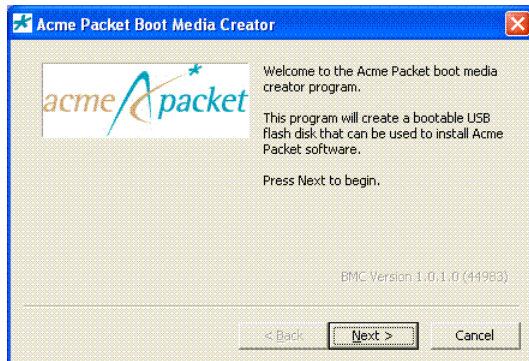
**Note:** The BMC supports the following OS types:

- Windows XP
- Windows Vista
- Windows 7

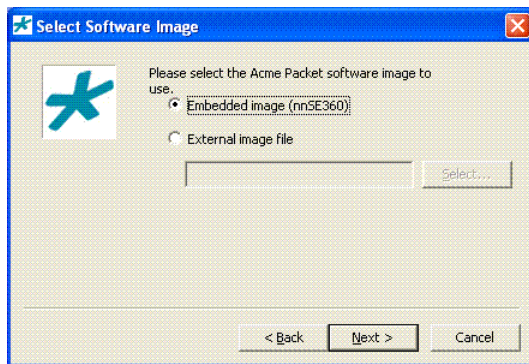
To extract the BMC:

1. Click on the file named **nnSE#####-bmc.exe**.
2. Click **Run**, then **Next** to start the BMC.

The image below illustrates the Boot Media Creator page.



3. Click **Next** to display the Select Software Image page.

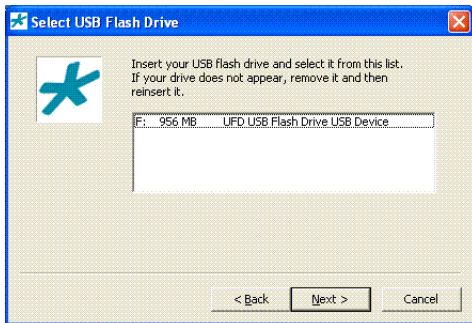


4. For this type of download, select **Embedded image**.

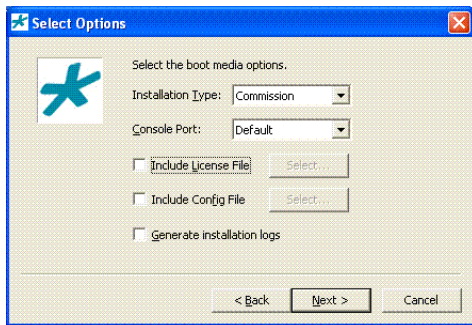
Use the **External image file** selection only if you are creating a USB stick from a valid software image that is not embedded with the BMC. If you received a software image from Acme Packet and if you have it on your computer desktop, for example, select **External image file** and then locate the file using the **Select** button. A valid image will have the text "usb" in the filename and in the format: **nnSE360-usb.img.gz**.

5. Click **Next** to validate the software image.

6. Insert a USB stick into a USB drive on your PC or workstation.



7. Select the USB stick from the list and click **Next** to display the Select Options page.



8. For new installations, set the following:

- **Installation Type:** Commission
- **Console Port:** COM2 (serial1)

**Installation Type options:**

- **Rescue**—Creates a USB rescue stick. This will boot the system to the Rescue menu. See Chapter 3 for information.
- **Commission**—Copies the system license and configuration file from the OS-E system to the stick, commissions the system, and then reinstalls the license and configuration file. After commissioning the system, the USB stick becomes a rescue stick.
- **Decommission**—Do not use; Acme Packet use only.
- **Manufacturing**—Do not use; Acme Packet use only.

**Console Port** options to sets the destination for local management of the system.

- **Default**—VGA port
- **COM1 (serial 0)**—Serial port 0
- **COM2 (serial 1)**—Serial port 1



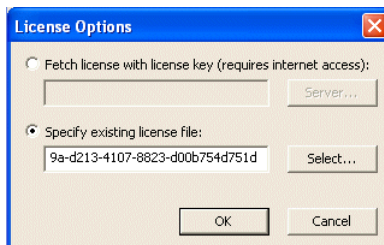
**Note:** If you are commissioning the Net-Net 2610 or 2620 (as well as the older CXC-350 and CXC-550 series systems) and you want to use the RJ-45 serial port on the rear of the chassis for your console output, choose the COM2 (serial 1) option”

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If you are unsure about this setting, see Chapter 2 for detailed information on each platform or third-party server.

During commissioning (covered in Chapter 3), when the GNU GRUB window appears, you will have the opportunity to change the port where your console device is connected, if necessary. If you made the correct selection during this step, simply wait 10 seconds for the installation to begin. If you need to make a new console port selection, follow the instructions on the menu to direct management output to the desired console port.

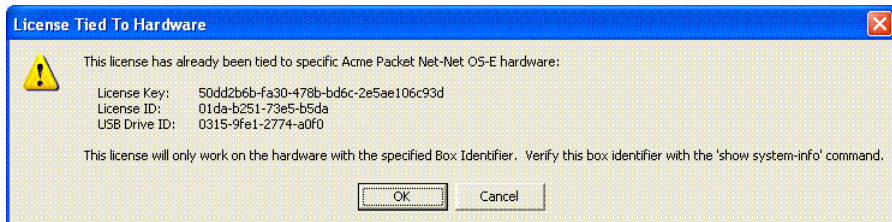
9. Check off the **Generate installation logs** box if you want to generate detailed installation-related messages for troubleshooting purposes. These messages are stored on the USB device in the /logs directory.
10. Check the box next to **Include License File** and click **Select** to display the License Options page.



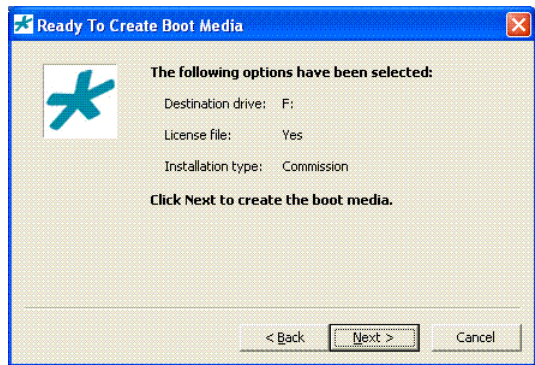
11. Browse and choose the appropriate license file and click **OK**.



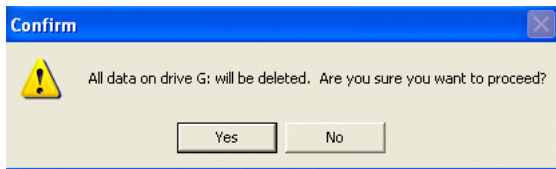
12. Click **Next** to display the License Tied to Hardware page.



13. Click **OK** to display the Ready to Create Boot Media page.



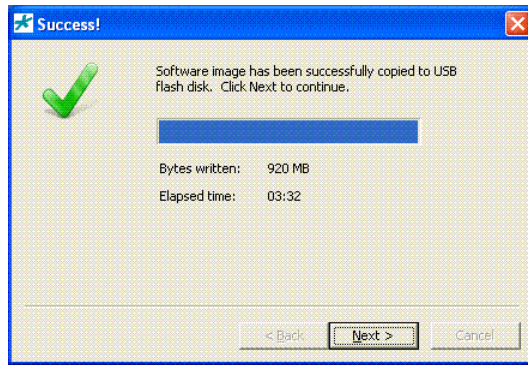
14. Click **Next** to display the confirmation page.



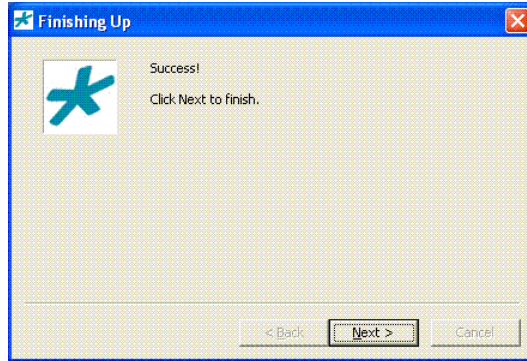
15. Click **Yes** to display the Creating USB Flash Boot Disk page.



16. Click **Next** from the Success! page.



17. Click **Next** from the Finishing Up page.



18. Click **Next** to display the Finished page.



19. Click **Finish**.
20. Remove the USB drive from your PC.

21. Reinsert the USB drive into the PC and browse the USB drive to verify that the software and license files are present.

## Ensuring the USB Contents For Existing Systems

If you are running the BMC to create a USB stick to commission an existing system, (a system with an existing configuration file and license), you will need to follow the steps in this section to ensure that the system will be commissioned with the current configuration file and license, covered in Chapter 3.

1. Insert the USB stick into the PC and open an Explorer window to view the contents of the USB.
2. Open the `\setup\cxc` directory. You should see the **License** folder in this directory.
3. Copy the `cxc.cfg` file into the `\setup\cxc` directory so that the directory contains the **License** folder and the `cxc.cfg` file.
4. Open the **License** folder to ensure that a license file is present.

**Note:** If the license folder is not present, create the directory named **License** and copy the OS-E license file to this location.

5. Remove the USB stick from the PC.

## About the New USB Stick — Please Read!

The OS-E USB stick provides three important functions:

- **Commissioning**—Boots and licenses a new third-party server using the OS-E software.
- **Rescue utilities**—After you have successfully commissioned the system (booted and licensed), the system automatically rewrites the USB stick so that you can use it to run system utilities in the event of a catastrophic failure. You will not be able to use this USB again to license another system. The USB can only be used at the specific system from which it was originally written.

Additionally, licensing information is rewritten to the USB, directly associating the license with the system. Use the **show system-info** action to display the box identifier (box-id) to which this USB is associated. The USB also contains log and debug files that you can use to help diagnose problems associated with the USB licensing process.

- **Rescue stick creation**—With the original USB commissioning stick, use the **restore-stick-create full-backup** action to capture the current software, certificates, and operating system image to the USB stick. Acme Packet recommends that you use **restore-stick-create full-backup** to preserve the image prior to performing a system software upgrade, or whenever you have made significant and reliable changes to the system configuration.

See Chapter 3 of this guide for information on these functions.

## Running the License Fetch Program

If you are installing OS-E software on a third-party server, you will need to get a features license using the **license fetch** command (requiring a connection to the Internet), or Acme Packet will send you the features license via e-mail upon receipt of the box identifier. Use the **show system-info** command to get the box-identifier from the hardware that you are running.

### License Fetch Procedures

Before you execute the **license fetch** command, ensure that

1. You have a connection to the public Internet, and
2. Port 616 is available and not blocked by any firewalls. This allows OS-E connectivity to the license server.



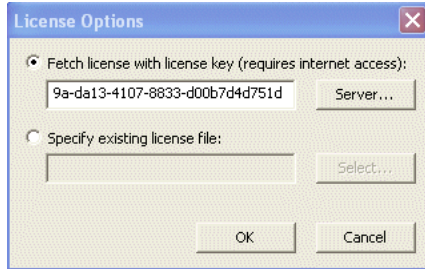
**Note:** If you do not run the **license fetch** command to successfully unlock your customer-specific features, you will not be able to configure the system with any of the licensed options provided by Acme Packet.

---

### Fetching the Signed License from the BMC

From the BMC Select Options page, check off the **Include License file** box and click **Select**. Then, from the License Options page, select the **Fetch license with license key** option.

Copy and paste the license key provided by Acme Packet into the license key field. The BMC will contact the licensing server, authenticate your unique key, and then install a license on your USB stick. Make sure that the system reports “Success!”



### Fetching the Signed License from the CLI

From the NNOS-E prompt, run the following command:

```
NNOS-E> license fetch <license-key-text>  
Success!
```

Where **<license-key-text>** is the private key provided to you by Acme Packet. This command will first contact the licensing server to authenticate your unique key before installing a license on your system. Make sure that the system reports “Success!”



**Note:** If you are unable to fetch an encrypted license using the Acme Packet key and cannot access the licensing server, or if you receive a message other than “Success!”, contact Acme Packet Technical Support immediately for assistance.

### Fetching the Signed License From the OS-E Management System

If you are using the OS-E Management System, go to the **Actions** tab and select **license->fetch** and paste the key into the key field, as illustrated in the image below. Click **Invoke** to install the signed license.

The screenshot shows the Acme Packet web interface. The top navigation bar includes links for Home, Configuration, Status, Call Logs, Event Logs, Actions, Services, Keys, and Access. The 'Actions' tab is selected. On the left, a sidebar lists various actions like 'file-play-verify', 'file-transfer-delete', etc. The main content area is titled 'license' and 'apply or revoke a license'. It contains a form with the following fields:

- \* action**: A dropdown menu with 'fetch' selected, with a tooltip that says '(fetch a license)'.
- \* key**: A text input field.
- server**: A text input field containing 'https://216.41.24.54:443/'.
- Invoke**: A button at the bottom right of the form.

You can also manage licenses using the **Tools** tab by selecting the **Retrieve License** and the **Upload License** functions. **Retrieve License** operates the same as the **license fetch** command by contacting the Acme Packet license server over the Internet.

If for some reason you are unable to access the license server, and if Acme Packet then e-mails the license file to you, place the license on your local PC, then use the **Tools\ Upload License file function** to browse for the file. Select **Apply License**, then click **Upload**.

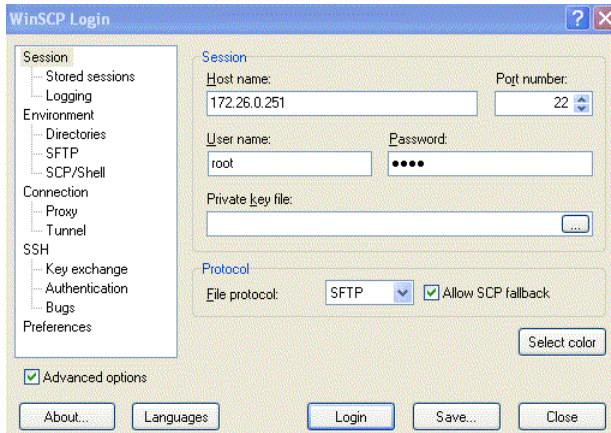
## Using WinSCP to Transfer the License

If you do not have access to the OS-E Management System, Acme Packet recommends that you use WinSCP to transfer the license file to the OS-E system. WinSCP is an open source free SFTP client and FTP client for Windows and is available as a free download from the following URL:

<http://winscp.net/eng/index.php>

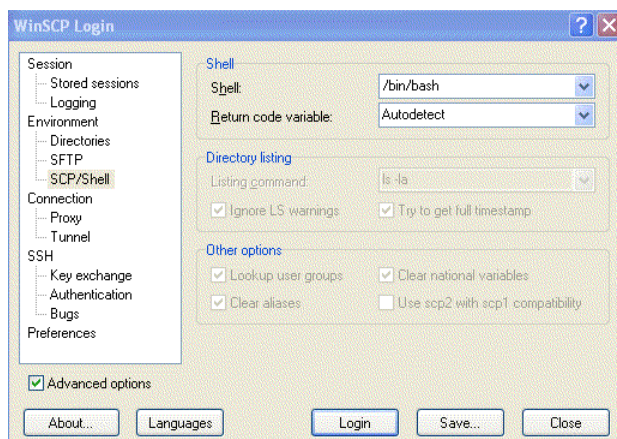


The image below illustrates the WinSCP login window.

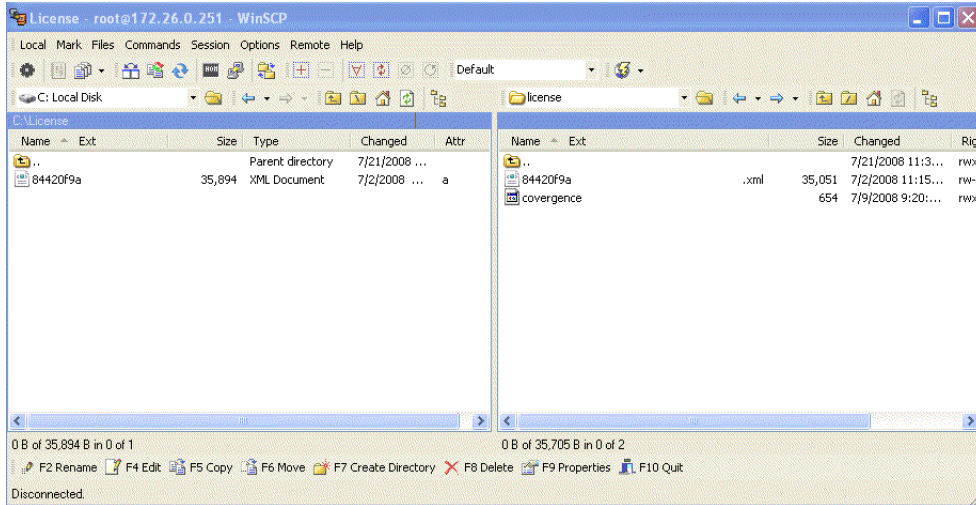


Perform the following steps:

1. At the **Hostname** field, enter the IP address that you assigned to the management interface at the OS-Esystem. Port **22** is the default port number for SSH sessions.
2. At the **Username** and **Password** fields, type *root* for the username and *sips* for the password.
3. At the Environment menu, select **SCP/Shell** and select **/bin/bash** from the pull-down menu, as illustrated in the image below. Leave all other fields at their default settings.



4. Click **Login**. A series of progress message will appear as the connection is established.
5. From the left pane, browse and locate the license file, then drag the license to the *cxc/license* directory, as illustrated in the image below. In this example, the file is copied from the *c:\license* directory to the *cxc/license* directory OS-E.



6. Once the license file is present in the *cxc/license* folder, you will need to do one of the follow tasks for the OS-E license to take effect:

- Perform a physical restart of the OS-E system, or
- From a CLI session to the device, execute the **license apply** action, as follows:

```
NNOS-E> license apply /cxc/license/
84420g9a-da13-3007-8853-z00a7a4d771d.xml
Success!
```

```
NNOS-E> show licenses
```

```
name: LICENSE for Company.com
description: LICENSE for Company.com
key: 84420g9a-da13-3007-8853-z00a7a4d771d
expires:
file: 84420g9a-da13-3007-8853-z00a7a4d771d.xml
```



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## Chapter 2. USB Commissioning on Net-Net OS-E

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This chapter provides information on commissioning OS-E software on supported third-party hardware devices from a USB stick.

- For Net-Net 2600 series systems, use the instructions in this chapter with the quick installation card provided with the hardware.

— *Net-Net OS-E — Net-Net 2610/2620 Quick Installation*

- For third-party platforms and servers listed in Chapter 2, ensure that you have followed the vendor-supplied instructions for initial setup, followed by any changes to BIOS and other important settings prior to OS-E commissioning.

### Net-Net OS-E Commissioning Steps

You will need to perform the steps in this section to properly boot and license new NN2600 series systems and third-party servers.



**Caution:** Before starting, make sure that you have an operating terminal/console attached to the system. Refer to Chapter 2 for the appropriate console serial port for the platform or third-party server you are commissioning. Perform any pre-installation tasks that may involve insertion and removal of the USB stick prior to beginning this sequence of steps.

If you are installing IBM X3550 or X3650 servers, see Chapter 2 for information on initializing RAID drives in the event that you have new factory servers delivered with uninitialized RAID configurations.

1. Insert the USB drive into one of the USB ports on the device you are commissioning.
2. Restart or reboot the platform or third-party server.

Refer to the documentation supplied with the platform for specific information on restarting and rebooting the device.

3. The USB and disk lamps will blink during the boot-up process followed by a series of system messages. **Press any key to continue**, or perform the appropriate action below for specific hardware.
  - **IBM X3550 and HS21** — Press **F12**.
  - **Dell 1950 and 2950** — Press **F11**.
  - **Dell R220** — Press **F11**.
4. When the GNU GRUB window appears, you will have the opportunity to select the port where your console device is connected. If you made the correct selection when you originally created the USB stick with the BMC (covered in Chapter 1), simply wait 10 seconds for the installation to begin. If you need to make a selection that is now different, follow the instructions on the menu to direct management output to the desired console port.

```
GNU GRUB  version 0.97  (639K lower / 1045376K upper memory)
```

```
+-----+
Acme Packet USB Setup (Default)
Acme Packet USB Setup (force VGA console)
Acme Packet USB Setup (force 1st serial Port @115200,n,8,1)
Acme Packet USB Setup (force 2nd serial port @115200,n,8,1)
+-----+
Use the ^ and v keys to select which entry is highlighted.
Press enter to boot the selected OS, 'e' to edit the
commands before booting, or 'c' for a command-line.
```

The highlighted entry will be booted automatically in 10 seconds.

5. If a stick needs to be removed because the system will not reboot after the initial installation, reinsert the stick into the system at any point during the following sequence.

```
Loading Stage 1.5...
Grub Loading Please Wait...
Press any key to continue
Press any key to continue
```

6. Wait for the series of messages to complete over several minutes.



**Note:** If using a VGA console, you will be presented with **login** prompt. Type *root* and press **Enter**.

7. At the username: and password: prompts, press **Enter** at each prompt to bypass the login and to display the NNOS-E prompt. Later, you will be able to configure users with appropriate user names and passwords.

```
Acme Packet, Inc.  
Copyright (c) 2004-2009 Acme Packet, Inc.
```

```
username: <Enter>  
password: <Enter>
```

```
Access granted since there are no configured users  
Type 'config setup' to configure your system.
```

8. Execute the **show licenses** command to display licensing information. The information includes the name, description, key, file name, and the expiration date of the license.

```
NNOS-E> show licenses  
  
      name: CUSTOMER ONE LICENSE  
description: LICENSE FOR CUSTOMER ONE  
      key: 84420f9a-da13-4107-8833-d00b7d4d751d  
expires:  
      file: 84420f9a-da13-4107-8833-d00b7d4d751d.xml
```

If **show licenses** does not display any information, make sure that the USB stick is inserted and perform a **restart warm**.

9. At the NNOS-E prompt, type **umount usb** to properly dismount the USB stick. Physically remove the USB stick from the USB port. This is now your utility USB device. Refer to Using the Rescue Utility USB for information.
10. If the platform contains additional drives to be used for data (physical or a logical due to RAID) then they need to be added to the system before they can be used. To format and attach the first data drive to the system formatted with the XFS file system format, enter the following command:

```
>format data-1 xfs
```

Use **data-2** if there is a second data driver to be formatted and added, and so on.

If an existing data drive is being added to the system, for example when commissioning an existing system, use the OS-E **add-device** to attach drives.

Note that this only applies to data drives formatted from an existing OS-E system and not an arbitrarily formatted drive. Ensure you specify the correct file-system type as what the drive was originally formatted.

To attach the first data drive to the system formatted with the XFS file system format, enter the following command:

**>add-device data-1 xfs**

11. Configure the OS-E software for your network. Run the setup script to configure basic IP connectivity and services. See Using the Setup Script.

## Using the Setup Script

An optional configuration setup script called *exc.setup* is included with the OS-E software. After installing a new system, you can run the script directly from the NNOS-E> prompt, as shown in the example session below.

The script presents a set of questions to help you with the initial system configuration. The information in the script includes the following:

- Local hostname
- IP interface names and addresses
- SSH and Web access
- Default route and any additional static routes per interface for remote management
- User-defined OS-E

Acme Packet OS-E systems have a minimum of two Ethernet interfaces. Any Ethernet interface on the system can be used for management traffic, however, Acme Packet recommends the use of eth1, as eth0 is reserved for fault-tolerant clustering with other OS-E systems. Management traffic is also supported on any interface that is carrying private or public network traffic. This means that it would be possible to use eth1 to carry SIP traffic and management traffic.

## CLI Session

```
NNOS-E> config setup
set box\hostname: <name>
config box\interface: eth1
set box\interface eth1\ip a\ip-address: <ipAddress/mask>
config box\interface eth1\ip a\ssh (y or n)? y
config box\interface eth1\ip a\web (y or n)? y
config box\interface eth1\ip a\routing\route: <routeName>
set box\interface eth1\ip a\routing\route localGateway\gateway:
<ipAddress>
set box\cli\prompt: <newPrompt>
Do you want to commit this setup script (y or n)? y
Do you want to update the startup configuration (y or n)? y
```

## Creating a New USB Rescue Stick

The **restore-stick-create full-backup** action allows captures the current OS-E software and the operating system image and creates a new USB rescue stick. Acme Packet recommends that you use **restore-stick-create full-backup** to preserve the image prior to performing a system software upgrade, or whenever you have made significant and reliable changes to the system configuration.

Perform the following steps:

1. At the NNOS-E prompt, type **umount usb**.  
Ignore the warning about the USB stick not being mounted.
2. Remove the USB stick and wait at least five seconds before reinserting the stick.
3. Invoke the **restore-stick-create full-backup** action. The resulting USB is a boot device from which you can restart and restore the OS-E.



**Note:** The log event indicating that the operation has completed successfully appears while data is being written to the stick. DO NOT immediately remove the USB stick when you see this log event. Instead, issue the **umount usb** command again, and wait for it to complete.

4. Remove the restore USB when the **restore-stick-create** action has completed.



**Note:** PostgreSQL database, media recordings, system tar files(.gz) are not written to the restore stick with the **restore-stick-create** action.



**Note:** Use the **restore-stick-create config-backup** action to create a restore stick containing the current configuration file only.

---

## Using the Rescue Utility USB

To use the rescue utility USB, perform the following steps:

1. Insert the rescue utility USB into one of the USB slots.
2. At the NNOS-E prompt, if available, enter **restart cold** to do a full restart.
3. The USB and disk lamps will blink during the boot-up process followed by a series of system messages. Press any key to continue, or perform the appropriate action below. On the
  - **CXC-350** — Press the **ESC** key.
  - **Sun x4150** — Press **F8**.
  - **IBM X3650, X3550, X-3350** — Press **F12**.
  - **Dell 1950 and 2950** — Press **F11**.
  - **Dell R220** — Press **F11**.
  - **IBM HS20 and HS21** — Press **F12**.
  - **Fugitsu Siemens RX200 S5** — Press **F12**.
  - **Fugitsu Siemens RX300 S4** — Press **F12**.
  - **ATCA MCLB0040** — Press **F8**.
4. The system enters utility mode and the following menu appears:

```
MAIN MENU
```

```
=====
```

```
Please select from the following menu below:
```

- ```
1) Save config, install to system drive, restore config
2) Expert mode
3) Debug mode
4) Reboot
```

```
Choice:
```

The choices (by number) are as follows:

1). **Save config, install to system drive, restore config**

This function saves the current configuration file (*cxr.cfg*), license, and related files to the USB stick, reinstalls the OS-E software, and then restores the saved configuration files to the OS-E system.

2). **Expert mode** — Displays the following menu:

```
EXPERT MENU
=====
```

Please select from the following menu below:

- 1) Do not format and install to partition 4
- 2) Commission only the system drive
- 3) Save configs, license, certs and secrets
- 4) Restore configs, license, certs and secrets
- 5) Decommission box (VERY dangerous)
  
- q) Return to main menu

Choice:

See Using the Expert Mode.

3). **Debug mode** — Displays the debug menu.



**Caution:** The selections in the debug menu are diagnostic functions and should only be used with assistance from Acme Packet Technical Support.

```
DEBUG MENU
=====
```

Please select from the following debug menu below:

- 1) Shell
- 2) Disable debug mode
- 3) Disk repair (fsck)
- 4) Filesystem repair (fsck --rebuild-tree)
- 5) Check for disk errors (bad blocks)
- 6) Mount drives (1st system drive - partition 3)
- 7) Mount drives (2nd system drive - partition 4)
- 8) Unmount all drives
- 9) Fix MBR on system drive (ie GRUB)
  - a) Set default GRUB boot title item
  - b) Make USB stick bootable
  - c) Make USB stick un-bootable

q) Return to main menu

Choice:

- 4). **Reboot** — Performs a **restart cold** action.

## Using the Expert Mode

The Expert mode provides utilities that allow you to recover from system failures where there is apparent damage to the software and configuration file, and where recovery is necessary to return the OS-E to normal operation. The Expert mode functions are provided below:

### 1. Do not format and install to partition 3/4

With Release 3.5.0 and later, this function reinstalls the OS-E to partition 3 (System 1) or partition 4 (System 2) on the system disk drive. Using partitions, you can install more than one release and use the **set-chassis-config-boot** action to select the system (and release) to run at system startup. No formatting of the system drive will occur under this function.

### 2. Commission only the system drive

If used in conjunction with the “Do not format and install to partition 3/4” option above, this function installs the OS-E software and leaves the current configuration file and licenses intact. See Net-Net OS-E Commissioning Steps.



**Warning:** If you did not choose the “Do not format and install to partition 3/4” option first, the system drive WILL BE formatted and all configuration and related data will be lost.

---

### 3. Save configs, license, certs and secrets

This function saves the current configuration file(s), license, certificates, and secrets from the current partition to the USB rescue stick. Acme Packet recommends that you use this function on a frequent basis to create an up-to-date rescue stick.

### 4. Restore configs, licenses, certs, and secrets



This function copies the configuration file(s), license, certificates, and secrets from the USB rescue stick to the current OS-E partition. Use this function, for example, to replace the current configuration file with a previous version, or if there was damage to any of the files (licenses, certs, secrets) during a system failure.

#### 5. Decommission box (VERY dangerous)

This function removes the OS-E software, configuration files, license, certificates, and secrets. The resulting system will not be bootable after using this function. You will then be required to commission the device from scratch.

## System and Data Drive Locations

The following system and data drive locations are for Acme Packet Net-Net OS-E hardware. For all other supported platforms and third-party servers, refer to the documentation that accompanies the hardware.

- **NN 2610**— System drive is disk 1 (left slot); remaining drives (2) are data drives.
- **NN 2620**— System RAID-1 drives are disk 1 (lower left slot) and disk 2 (upper left slot); remaining RAID-10 drives (4) are data drives
- **CXC-50** — Single disk only for both system and data.
- **CXC-350 and CXC-354** — System drive is disk 1 (left slot); remaining drives (2) are data drives.
- **CXC-550** — System drive is disk 1 (top left slot); data drive is disk 2 (lower left slot).
- **CXC-554** — System RAID-1 drives are disk 1 (lower left slot) and disk 2 (upper left slot); remaining RAID-10 drives (4) are data drives.
- **CXC-1250** — System drive is disk 1 (left slot); disk 2 is a data drive.

