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## RCC-VE ESXi 6.0 Guide

This guide will cover two ways to install and use ESXi on RCC-VE devices. This guide was written for the RCC-VE 4860, but applies to any RCC-VE device.

#### Prerequisites:

- Update the BIOS on the RCC Series unit to version 06 or later
- ESXi 6.0.0 Update 1 installer .ISO image <u>downloaded from VMware</u>.
- USB memstick with a capacity of 4 to 8 GB.
- Windows or OS X system from which to write the image and connect to the console.
- Connect a network cable that is attached to the local LAN to the RCC Series unit. On 6-port models, use port labeled **eth2**, 4-port models use **eth0**.
- Connect to the console port of the RCC-VE using a mini-USB cable attached to another system.

## Preparing the installation

Write the ESXi installer .iso file to a USB memstick. <u>Rufus on Windows</u> is the recommended utility, and it is shown below.

🖋 Rufus 2.5.799	_		×
Device			हि≑र
ESXI-6.0.0-20150902001-STANDAR	D (I:) [32GB]		~
Partition scheme and target syster	n type		
MBR partition scheme for BIOS or	UEFI		~
File system			
FAT32 (Default)			~
Cluster size			
16 kilobytes (Default)			$\sim$
New volume label			
ESXI-6.0.0-20150902001-STANDAR	D		
Format Options 🔽			
Check device for bad blocks	1 Pass		$\sim$
Quick format	ISO Image	~	
Create extended label and ico	n files	Ť	<b>\$</b>
DEAD	w		
KEAL	71		
About Log	Start	CI	ose
1 device found		#	00:00:31

If Rufus displays a dialog stating that it wants to update menu.c32, allow it to do so.

After the flashing process is complete, edit the file **boot.cfg** file in the root directory of the ESXI installer with appropriate settings to boot USB on RCC-VE. <u>Notepad++</u> on Windows is shown below, however the same is possible with any equivalent editor on Windows or other platforms such as such as Kate, CotEditor, TextMate, UltraEdit, and so on.

Windows Notepad cannot be used. It does not properly handle UNIX line termination in the file, making it unreadable.

At the end of the line starting with kernelopt=runweasel, add the following:

text nofb com2\_baud=115200 com2\_Port=0x2f8 tty2Port=com2 gdbPort=none logPort=none
It will look like the following image:



Save the file and unplug the USB memstick.

Insert the USB memstick containing the ESX installer into the RCC Series unit.

If the installation target will be another USB memstick, insert it now.

## Installing ESXi on RCC-VE

The screenshots in this part of guide were made using <u>PuTTY on Windows</u>. Read the First Steps Guide.

With the USB memstick(s) in place and the serial console connected, apply power to the RCC Series unit.

By default, The RCC Series unit boots from USB first, so if **boot.cfg** was edited correctly, the ESXi installer welcome screen will appear.



From here on it is a standard ESXi installation which is straightforward. Press Enter to continue and start the installation process.



After the RCC-VE disks are scanned a list of available disks is presented.

On the screen Select a Disk to Install or Upgrade choose the installation target disk.

• If installing to the eMMC, choose Generic Ultra HS-COMBO which represents the built-in eMMC drive.

• If installing to another USB memstick, choose it from the list.

VMware ESXi 6.0.0 Installer		
Select a Disk to Install or Upgrade		
* Contains a VMFS partition # Claimed by VMware Virtual SAN (VSAN)		
Storage Device	Capacity	
Local: ATA INTEL SSDMCEAC03 (t10.ATA INTEL_SSDMCEA) PNY USB 2.0 FD (mpx.vmhba32:C0:T0:L0) Generic Ultra HS-COMBO (mpx.vmhba33:C0:T0:L0) Remote: (none)	27.96 GiB 14.92 GiB 57.00 GiB	
(Esc) Cancel (F1) Details (F5) Refresh (Enter) C	Continue	
s3 loaded successfully.		

Next, select a keyboard layout, enter a new ESXi root password and finish the installation.

VMware ESXi 6.0.0 Installer		
Please select a keyboard layout		
Swiss French Swiss German Turkish US Default US Dvorak Ukrainian United Kingdom		
Use the arrow keys to scroll.		
(Esc) Cancel (F9) Back (Enter) Continue		
vmfs3 loaded successfully.		

VMware ESXi 6.0.0 Installer	
Enter a root password	
Root password: *******	
Confirm password:	
Passwords match.	
(Esc) Cancel (F9) Back (Enter) Continue	
vmfs3 loaded successfully.	
VMware ESXi 6.0.0 Installer	
Confirm Install	
The installer is configured to install ESXi 6.0.0 on:	
mpx.vmhba55:C0:10:L0.	
Warning: This disk will be repartitioned.	
(Esc) Cancel (F9) Back (F11) Install	
vmfs3 loaded successfully.	



When the **Installation Complete** screen is reached, remove the USB memstick containing the installer and press Enter.

At this point the ESX installation is complete, but the console will not function properly. To fully activate the console, continue on to the next document that best fits the installation type being performed.

By default ESXi **does not** initialize the two i211 network interfaces on the left side even though ESXi does support these interfaces. The issue will be fixed in a future BIOS update.

### Activating the Service Console for a USB Install

- Remove power from the RCC Series unit after the installation has finished.
- Remove the USB memstick that was used as the installation target and connect it to a Linux or Mac OS X host. Three partitions are on the USB memstick, but not all of them may be shown.
- Open the second partition contains **boot**.cfg among many other files.

It may not be appear as a second partition, make sure to edit the boot.cfg on the partition with files pictured in screenshot below.



- Open boot.cfg in a text editor such as CotEditor, Kate, or similar and add the following to thekernelopt line:
- text nofb com2\_baud=115200 com2\_Port=0x2f8 tty2Port=com2 gdbPort=none logPort=none



- Save the file and eject the USB memstick.
- Connect the USB memstick to the RCC Series unit and plug in the power
- Wait for ESXi to boot and the console is ready for use.
- ESXi is now fully installed. Login with the vSphere client to connect to ESXi.

```
VMware ESXi 6.0.0 (VMKernel Release Build 3029758)
ADI Engineering RCC-VE
Intel(R) Atom(TM) CPU C2758 @ 2.40GHz
8 GiB Memory
Download tools to manage this host from:
http://esx/
http://198.51.100.140/ (DHCP)
http://[fe80::208:a2ff:fe09:95b1]/ (STATIC)
```

### Activating the Service Console using SSH

- Remove the USB memstick once the install has completed
- Allow the RCC Series unit reboot post-install
- ESX will have obtained an IP address via DHCP. Locate the IP address it obtained from the DHCP server.
- Launch the vSphere client and connect to the IP address found in the previous step, using the username **root** and the password configured during the installation.

🕜 VMware vSphere Client	×		
vmware ‱vare vSphere Client			
All vSphere features introduced in vSphere 5.5 and beyond are available only through the vSphere Web Client. The traditional vSphere Client will continue to operate, supporting the same feature set as vSphere 5.0. To directly manage a single host, enter the IP address or host name. To manage multiple hosts, enter the IP address or name of a			
IP address / <u>N</u> ame: <u>U</u> ser name: <u>P</u> assword:	198.51.100.140       root       *******		
	Use <u>W</u> indows session credentials		

- Inside vSphere, enable SSH as follows:
  - o Click on the server name in the left pane, typically the ESX units IP address
  - o Click on the **Configuration** tab
  - Click Security Profile in the Software section

Software
Licensed Features
Time Configuration
DNS and Routing
Authentication Services
Virtual Machine Startup/Shutdown
Virtual Machine Swapfile Location
Security Profile
Host Cache Configuration
System Resource Reservation
Agent VM Settings
Advanced Settings

o Click **Properties** in the **Services** section

Services	Refresh	Properties
SNMP Server		
PC/SC Smart Card Daemon		
Load-Based Teaming Daemon		
ESXi Shell		
X.Org Server		
VMware vCenter Agent		
NTP Daemon		
Active Directory Service		
VProbe Daemon		
SSH		
Syslog Server		
Direct Console UI		
CIM Server		

o Locate SSH in the list, click it and then click **Options** 

	Daemon	
SXi Shell	Stopped	
.Org Server	Stopped	
/Mware vCenterAgent	Stopped	
NTP Daemon	Stopped	
Active Directory Service	Stopped	
/Probe Daemon	Stopped	
SSH	Stopped	
Syslog Server	Running	
Direct Console UI	Running	
CIM Server	Stopped	
Service Properties		
Service Properties General Service:	SSH	
Service Properties General Service: Package Information:	SSH esx-base This VIB contains al	of the base functionality of vSphere ESXi.

- $\circ$  ~ Select Start and stop with host, then click OK
- o Open the SSH service again and click Start

🚱 SSH (TSM-SSH) Options	×
StatusStopped	
Startup Policy C Start automatically if any ports are open, and stop when all ports are closed Start and stop with host C Start and stop manually	
Service Commands Start Stop Restart	
OK	Cancel

o Click OK

Use another system on the same LAN and connect to the ESX server using SSH From the shell, locate the boot configuration:

find / -name boot.cfg

[root@esx:~] find / -name boot.cfg
/vmfs/volumes/lc6872e4-a3ca960f-86ae-fdb7de376913/boot.cfg
/vmfs/volumes/d7c47be5-7d5a54b4-b671-f4f03dc56d94/boot.cfg

Edit each instance found using the vi editor, for example:

vi /vmfs/volumes/1c6872e4-a3ca960f-86ae-fdb7de376913/boot.cfg

- In each file, add the following text at the end of the kernelopt line, leading with a space(move the cursor to the end of the line and press a, then space):
- O text nofb com2\_baud=115200 com2\_Port=0x2f8 tty2Port=com2 gdbPort=none logPort=none



Save the file (Press Esc, then type :wq and press Enter)
 Reboot the ESX server and check the console, it will now be operational.



```
VMware ESXi 6.0.0 (VMKernel Release Build 3029758)
ADI Engineering RCC-VE
Intel(R) Atom(TM) CPU C2758 @ 2.40GHz
8 GiB Memory
Download tools to manage this host from:
http://esx/
http://198.51.100.140/ (DHCP)
http://[fe80::208:a2ff:fe09:95b1]/ (STATIC)
```

If the system will not boot from the eMMC, ensure that the BIOS has been updated to version 06 or later. With BIOS version 06, during the boot process the boot order can be changed to prefer the eMMC by pressing F12, the option for Payload (e.g. 7), then enter the letter for the eMMC (e.g. i), followed by  $\varepsilon$  to save and exit.

### Activating the Service Console using a Bootable Rescue Disk

The section covers editing VMware boot configuration installed on the eMMC drive with a CentOS 6.7 rescue disk.

After installing ESXi to eMMC, download CentOS 6.7 in order to boot the recovery environment which allows editing of the boot.cfg as was done on the USB memstick for installation. This will allow ESXi to boot correctly on the RCC-VE.

Download CentOS 6.7, make sure it is **not** CentOS 7 because the boot procedure is different. The image file CentOS-6.7-x86\_64-minimal.iso was used in this example.

Write CentOS 6.7 to a USB memstick with Rufus, dd, or another similar utility.

After flashing CentOS to the USB memstick, plug it in the top USB port of the RCC-VE unit and power-cycle or turn it on.

L
Welcome to CentOS 6.7!
Install system with basic video driver
Rescue installed system
Boot from local drive
Memory test
1
1
1
l .
I and the second se
+
Press [Tab] to edit options
Automatic boot in 60 seconds

At the screen with countdown, highlight **Rescue installed system** and press Tab.

After pressing Tab, press Space and add console=ttyS1,115200n8 to the line so it looks like the following screenshot. Then press Enter:



Wait for the CentOS recovery disk to boot and select an appropriate Language.

Welcome to CentOS for x86_64				
Choose a Language				
What language would you like to use during the installation process?				
Catalan † Chinese(Simplified) Chinese(Traditional) □ Croatian Czech Danish Dutch Putch				
OK				
<tab>/<alt-tab> between elements   <space> selects   <f12> next screen</f12></space></alt-tab></tab>				

On the **Rescue Method** media selection screen select **Hard Drive**.

Welcome to CentOS for x86_64 - Rescue Mode	
What type of media contains the rescue i	mage2
	mage :
Hard drive NFS directory	
URL	
OK Back	
<tab>/<alt-tab> between elements   <space> selects   &lt;</space></alt-tab></tab>	F12> next screen

On the Select Partition screen, choose /dev/sda1

elcome to CentOS for x86_64 - Rescue Mode Select Partition
What partition and directory on that partition holds the installation image for CentOS? If you don't see the disk drive you're using listed here, press F2 to configure additional devices.
/dev/sda1 ↑ /dev/sdb1 □ /dev/sdb5 /dev/sdb6 /dev/sdb7 ↓
Directory holding image:
OK Back
<tab>/<alt-tab> between elements   <space> selects   <f12> next scre</f12></space></alt-tab></tab>

After a short wait, under Setup Networking select NO.

	Setup Networking Do you want to start the network interfaces on this system? Yes Yes
<tab>/<alt-tab> bet</alt-tab></tab>	ween elements   <space> selects   <f12> next screen</f12></space>

Select Continue on the Rescue screen.



Select **OK** on the warning screen.

Г	Rescue Mode
	You don't have any Linux partitions. Press return to get a shell. The system will reboot automatically when you exit from the shell.
L	
<tab>/<alt-tab></alt-tab></tab>	> between elements   <space> selects   <f12> next screen</f12></space>

Select **shell** and press Enter.

<mark>s</mark> hell Start shell fakd Run diagnostic reboot Reboot	
Ok Cancel	

Once the shell has started, create a temporary mount point for sdb5 where boot.cfg is located. Type the following commands:

mkdir /tmp/mnt2
mount /dev/sdb5 /tmp/mnt2



Continue with the next commands:

cd /tmp/mnt2 ls

The last command will list the contents of mnt2

Now open boot.cfg file with command: vi boot.cfg

bash-4.1#							
bash-4.1#							
bash-4.1# cd /tmp/mnt2							
bash-4.1# ls							
a.b00	ipmi_ipm.v00	net_cnic.v00	rste.v00	scsi_meg.v01			
ata_pata.v00	ipmi_ipm.v01	net_e100.v00	s.v00	scsi_meg.v02			
ata_pata.v01	ipmi_ipm.v02	net_e100.v01	sata_ahc.v00	scsi_mpt.v00			
ata_pata.v02	jumpstrt.gz	net_enic.v00	sata_ata.v00	scsi_mpt.v01			
ata_pata.v03	k.b00	net_forc.v00	sata_sat.v00	scsi_mpt.v02			
ata_pata.v04	lpfc.v00	net_igb.v00	sata_sat.v01	scsi_qla.v00			
ata_pata.v05	lsi_mr3.v00	<pre>net_ixgb.v00</pre>	sata_sat.v02	tboot.b00			
ata_pata.v06	lsi_msgp.v00	net_mlx4.v00	sata_sat.v03	uc_amd.b00			
ata_pata.v07	lsu_hp_h.v00	net_mlx4.v01	sata_sat.v04	uc_intel.b00			
b.b00	lsu_lsiv00	net_nx_n.v00	sb.v00	uhci_usb.v00			
block_cc.v00	lsu_lsiv01	net_tg3.v00	scsi_aac.v00	user.b00			
boot.cfg	lsu_lsiv02	net_vmxn.v00	scsi_adp.v00	useropts.gz			
chardevs.b00	lsu_lsiv03	nmlx4_co.v00	scsi_aic.v00	vsanheal.v00			
ehci_ehc.v00	lsu_lsiv04	nmlx4_en.v00	scsi_bnx.v00	weaselin.t00			
elxnet.v00	misc_cni.v00	nmlx4_rd.v00	scsi_bnx.v01	xhci_xhc.v00			
emulex_e.v00	misc_dri.v00	nvme.v00	scsi_fni.v00	xorg.v00			
esx_dvfi.v00	mtip32xx.v00	ohci_usb.v00	scsi_hps.v00				
ima_qla4.v00	net_bnx2.v00	onetime.tgz	scsi_ips.v00				
imgdb.tgz	net_bnx2.v01	qlnative.v00	scsi_meg.v00				
bash-4.1# vi	boot.cfg						

Next, add the following text at the end of the kernelopt line, leading with a space (move the cursor to the end of the line and press a, then space):

text nofb com2\_baud=115200 com2\_Port=0x2f8 tty2Port=com2 gdbPort=none logPort=none



Save the file (Press Esc, then type :wq and press Enter).

Reboot the CentOS recovery disk and remove the USB memstick.

ESXi is now installed and ready to use. Login with the vSphere client to connect to ESXi.

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