Condor for Cisco UCS B-Series Blade Servers

Installation Guide

VERSION: 1.3

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1 Introduction

KEMP Condor is a true multi-tenant application service delivery control point for enterprises and Managed Service Providers (MSPs). Condor's flexible virtualized architecture (HyperFlex™) provides the framework for delivering KEMP as well as independent third party virtualized network functions (VNFs) in a single Cisco UCS B-Series platform.

This document describes the steps required to install the KEMP Condor software on a Cisco UCS B-Series Blade Server.

PXE and USB booting options are also supported by the LoadMaster installation ISO file.

1.1 Pre-requisites

The following pre-requisites are required:

- A Cisco UCS B-Series Blade Server
- An ISO image with the Condor software
- For a standalone Condor, one IP-address on an untagged LAN is required
- The local disk on the Cisco UCS B-Series Blade Server should be empty as it will be re-partitioned during the installation of the Condor software
- A minimum of 2GB RAM must be available on the guest environment for the Condor
- The boot order on the B-Series Blade Server should be configured as follows:
    1. Local Disk
    2. CD_ROM

  The boot order can be checked and configured within the **Boot Order Details** section on the **General** tab of the **Cisco Unified Computing Systems (UCS) Manager.**

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2 Create Policies

A number of policies can be created in order to optimize Condor performance. The sections below give instructions on how to create these policies in the Cisco Unified Computing System Manager.

2.1 Create a QoS Policy

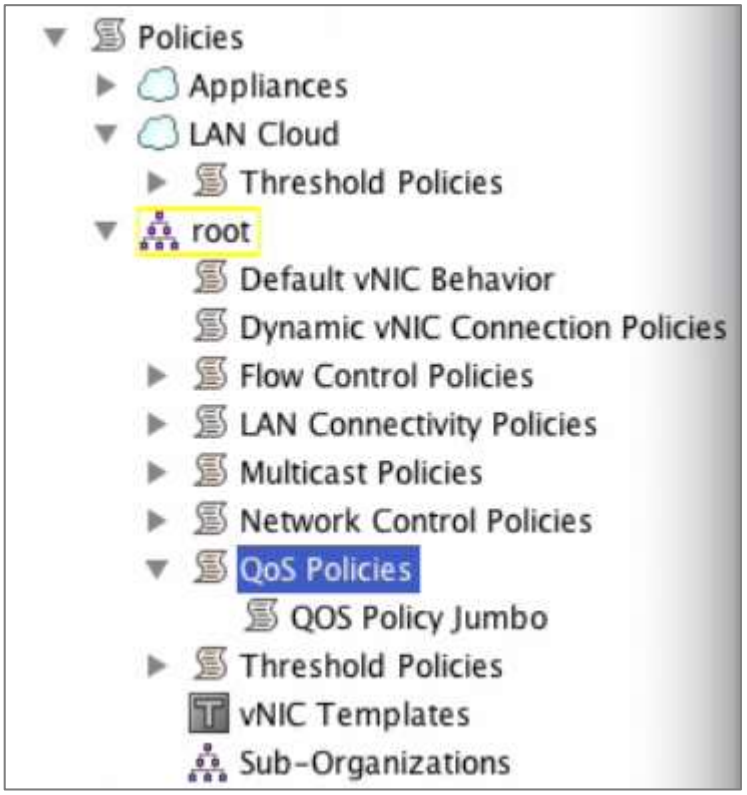

Figure 2-1: QoS Policies

1. In the menu on the left, go to **Policies > root > QoS Policies**.

Figure 2-2: Add

2. Click the plus button on the right to create a new policy.

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Figure 2-3: QOS policy

3. Enter a **Name**.
4. Select **Platinum** as the **Priority**.
5. Enter **65535** in the **Burst(Bytes)** text box.
6. Enter **40000000** in the **Rate(Kbps)** text box.
7. Ensure that **Host Control** is set to none.
8. Click **OK**.
9. Click **OK** again.

2.2 Create an Adapter Policy

Figure 2-4: Servers

1. Select the **Servers** tab at the top.
2. Expand **Policies**.

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Figure 2-5: Adapter Policies

3. Expand **root**.
4. Select **Adapter Policies**.

Figure 2-6: Add Policy

5. Click the plus button on the right.

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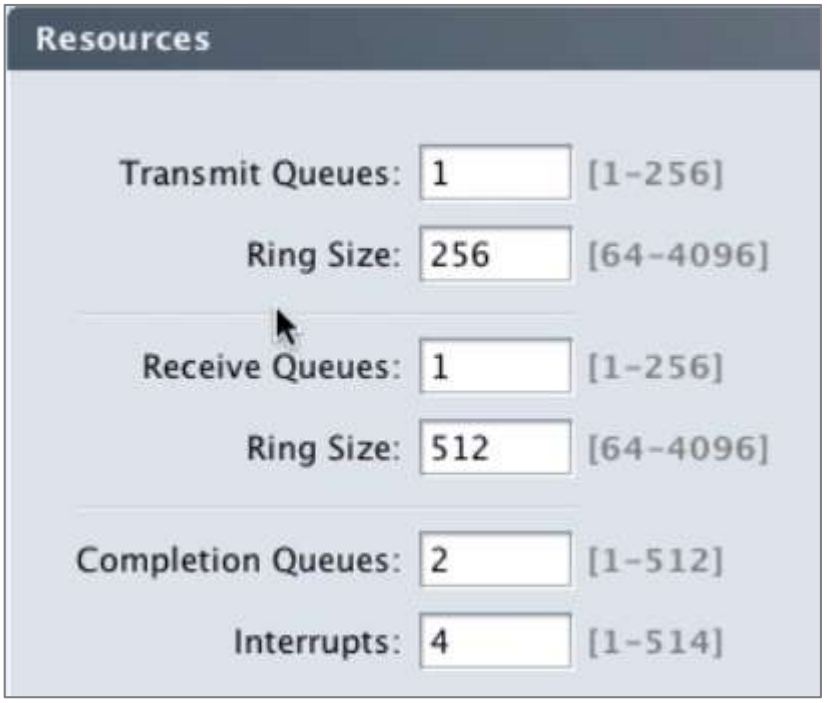

Figure 2-7: Resources

6. In the **Resources** section, set the field values as follows:
   a) **Transmit Queues: 1**
   b) **Ring Size: 256**
   c) **Receive Queues: 1**
   d) **Ring Size: 512**
   e) **Completion Queues: 2**
   f) **Interrupts: 4**

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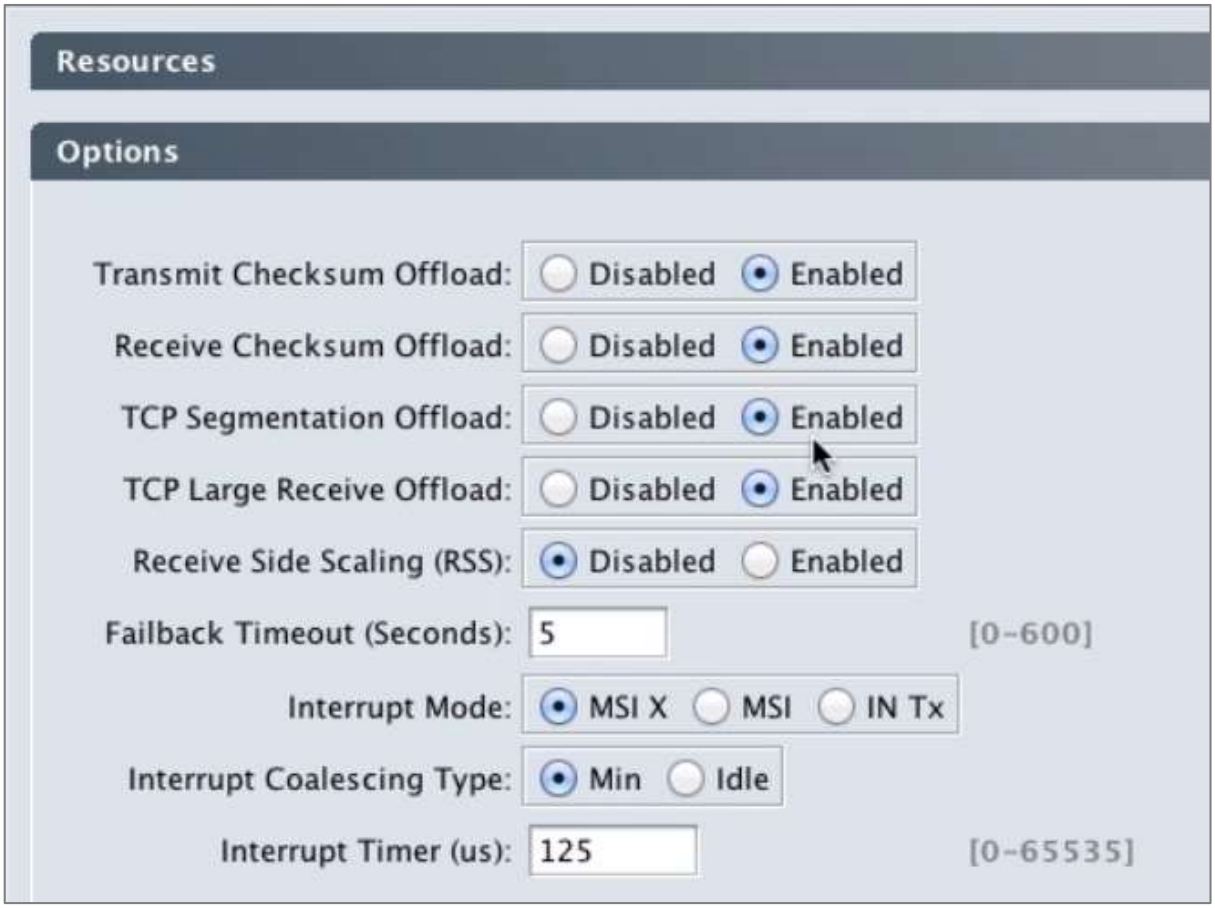

Figure 2-8: Policy Options

7. In the **Options** section, select **Enabled** for the following options:
   a) **Transmit Checksum Offload**
   b) **Receive Checksum Offload**
   c) **TCP Segmentation Offload**
   d) **TCP Large Receive Offload**
8. Select **Disabled** for **Receive Side Scaling (RSS)**.
9. Enter **5** in the **Failback Timeout (Seconds)** text box.
10. Select **MSI X** as the **Interrupt Mode**.
11. Select **Min** as the **Interrupt Coalescing Type**.
12. Enter **125** as the **Interrupt Timer (us)**.
13. Click **OK**.

2.3 Create a LAN Connectivity Policy

If you are planning on having a setup containing 4 arms or more, creating a LAN Connectivity Policy will help to reduce complexity. Follow the steps below to create this policy:

1. Select the **LAN** tab.
2. Expand **Policies**.
3. Expand **root**.

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4. Select **LAN Connectivity Policies**.

Figure 2-9: Create

5. Click the plus button on the right to create a new policy.

Figure 2-10: Create LAN Connectivity Policy

6. Enter a recognizable **Name**, for example **LM_4vNIC**.
7. Enter a **Description**.
8. Click **Add** to specify a vNIC.
9. Enter a **Name** for the vNIC, for example **eth 0**.
10. Select the relevant option in the **MAC Address Assignment** drop-down list.
11. Select the relevant clients to be on **Fabric A**.

To maximize input and output it is best to divide the number of client VLANs and server VLANs between **Fabric A** and **Fabric B**. For example, if there are 2 clients VLANs – one should be on **Fabric A** and the other should be on **Fabric B**. Similarly, if there are 2 server VLANs – one should be on **A** and the other on **B**.

12. Select a **Native VLAN**.
13. Set the **MTU** to **9000**.

The MTU must have the same value as it does in the **Priority** of the selected **QoS Policy**.

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14. Expand the **Operational Parameters** section.
15. Select the relevant **Adapter Policy**.
16. Select the relevant **QoS Policy**.
17. Click **OK**.
18. Click **OK** again.
19. Add the remaining vNICs needed.

2.4 Create a BIOS Policy

To create a BIOS policy:

1. Select the **Servers** tab at the top.
2. Expand **Policies**.
3. Expand **root**.
4. Select **BIOS Policies**.

Figure 2-11: Create

5. Click the plus button to create a new policy.

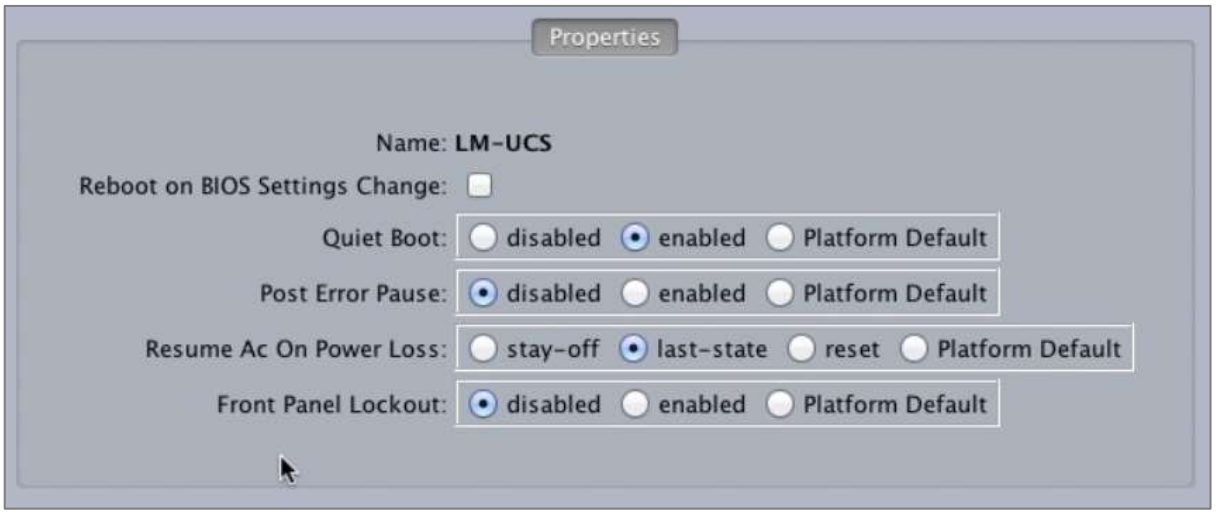

Figure 2-12: Main BIOS Properties

6. Enter a **Name**.
7. Set the options as follows:
   a) **Reboot on BIOS Settings Change:** Disabled
   b) **Quiet Boot: enabled**
   c) **Post Error Pause: disabled**
   d) **Resume Ac On Power Loss: last-state**
   e) **Front Panel Lockout: disabled**

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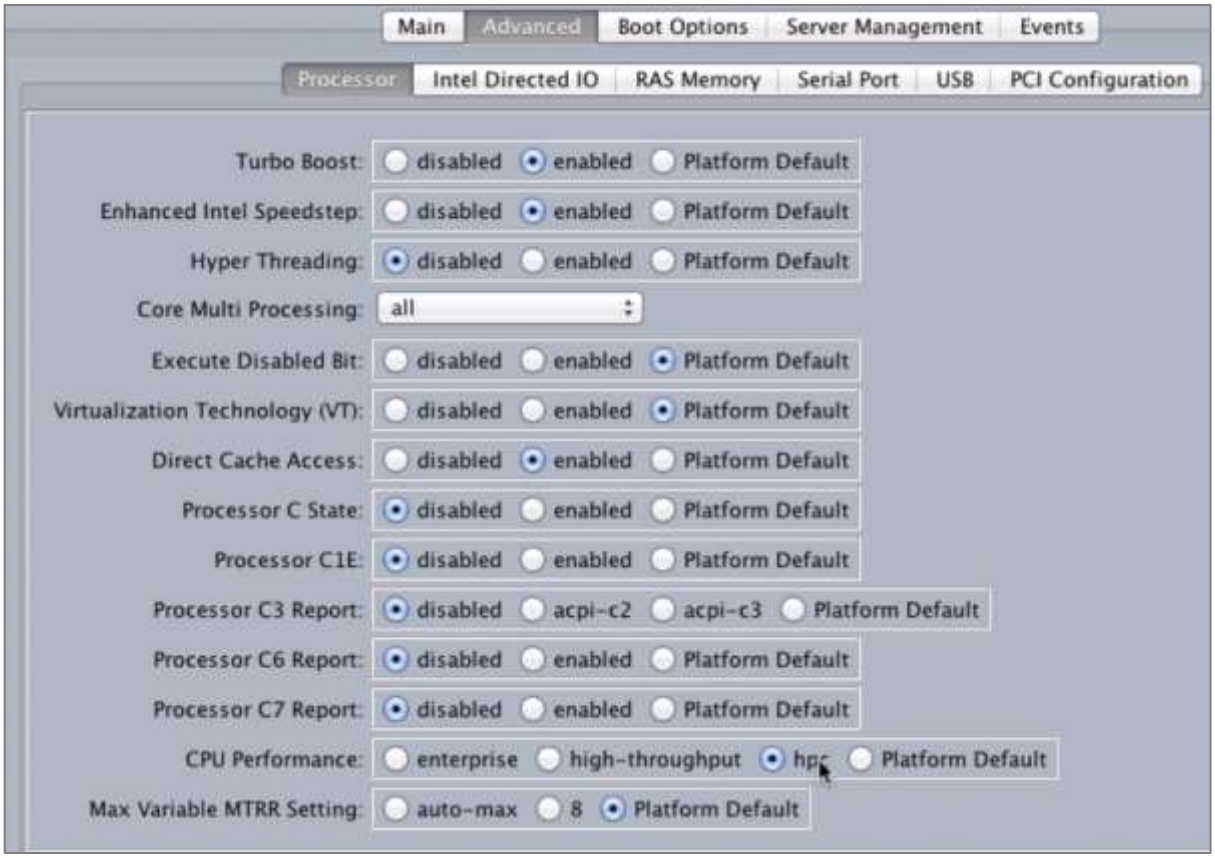

Figure 2-13: Advanced Processor options

8. In the **Advanced > Processor** tab, set the options as follows:
   a) **Turbo Boost: enabled**
   b) **Enhanced Intel Speedstep: enabled**
   c) **Hyper Threading: disabled**
   d) **Core Multi Processing: all**
   e) **Execute Disabled Bit: Platform Default**
   f) **Virtualization Technology (VT): Platform Default**
   g) **Direct Cache Access: enabled**
   h) **Processor C State: disabled**
   i) **Processor C1E: disabled**
   j) **Processor C3 Report: disabled**
   k) **Processor C6 Report: disabled**
   l) **Processor C7 Report: disabled**
   m) **CPU Performance: hpc**
   n) **Max Variable MTRR Setting: Platform Default**

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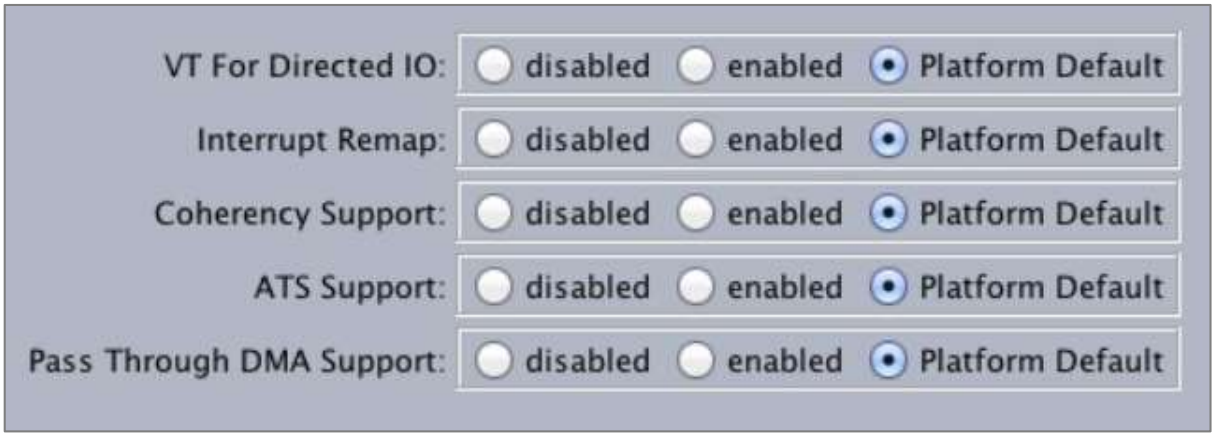

Figure 2-14: Advanced Intel Directed IO options

9. In the **Advanced > Intel Directed IO** tab, set all of the options to **Platform Default**.

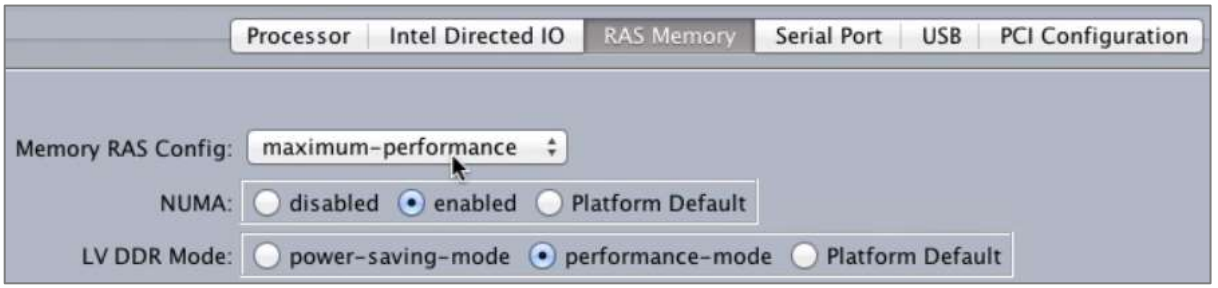

Figure 2-15: RAS Memory

10. In the **Advanced > RAS Memory** tab, set the options as follows:
    a) **Memory RAS Config: maximum-performance**
    b) **NUMA: enabled**
    c) **LV DDR Mode: performance-mode**
11. Click **OK**.

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3 Installing Condor on the Cisco UCS Blade

The following steps must be completed in order to install the Condor software on the Cisco B-Series Blade Server. These steps must be completed on the jump host, where the Condor installation ISO image is located.

3.1 Open the KVM console for the B-series server

1. Select the **Servers** tab in the navigation pane.
2. Within the expandable tree view select the relevant server.
3. Select the **General** tab in the main pane.
4. Click the **KVM console** option within the **Actions** section.

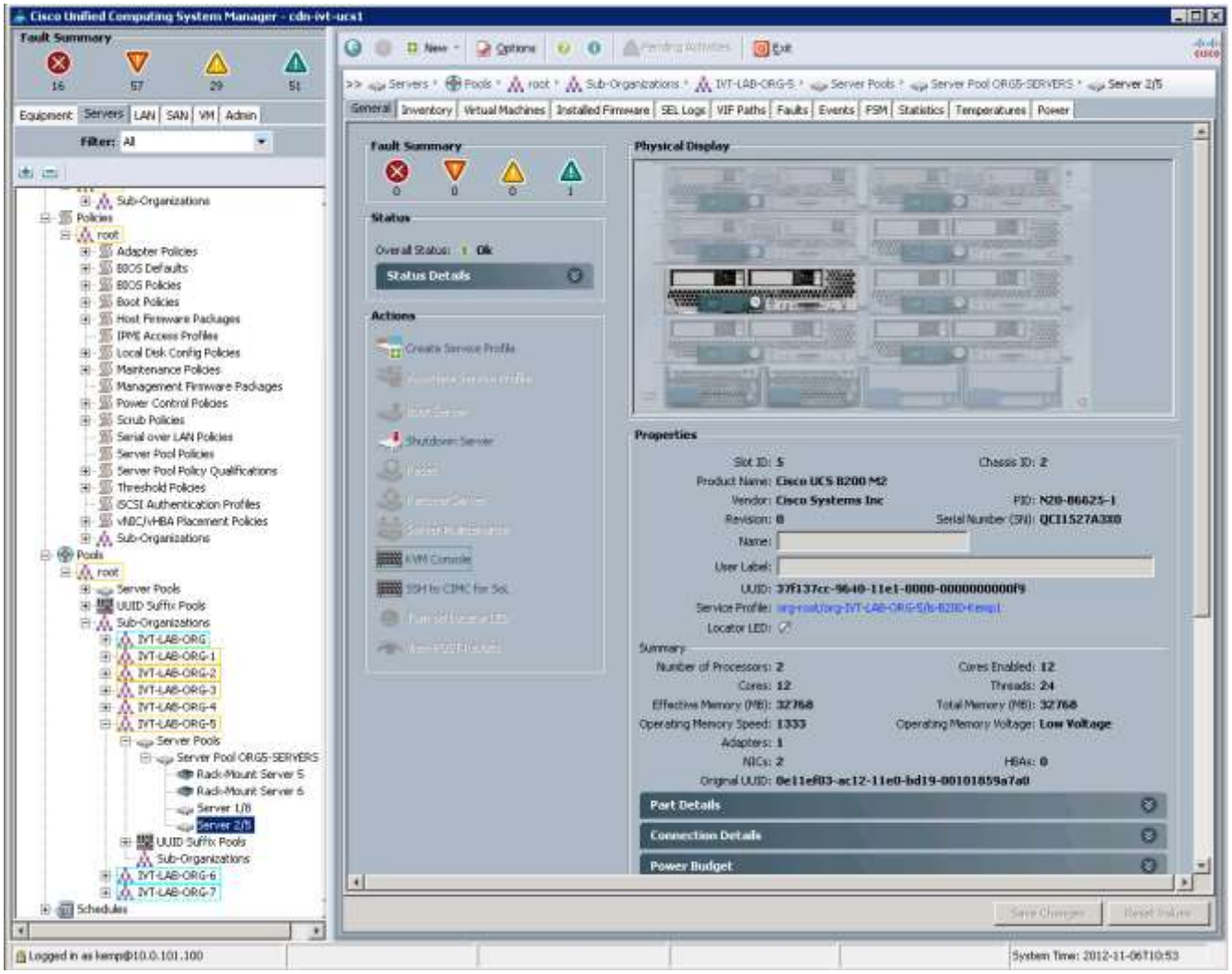

Figure 3-1 The Cisco UCS Manager

5. This will open a KVM console window from which the installation can be completed.

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3.2 Create a Virtual CD-ROM

In the KVM console window complete the following steps:

1. Select the **Virtual Media** tab.
2. Click the **Add Image** button to open a file-selector window.
3. Select the Condor installation image.
4. Click the **Open** button.
5. Click the **Mapped** button.

The **Virtual Media** tab of the KVM console should now correspond with **Figure 3-2**.

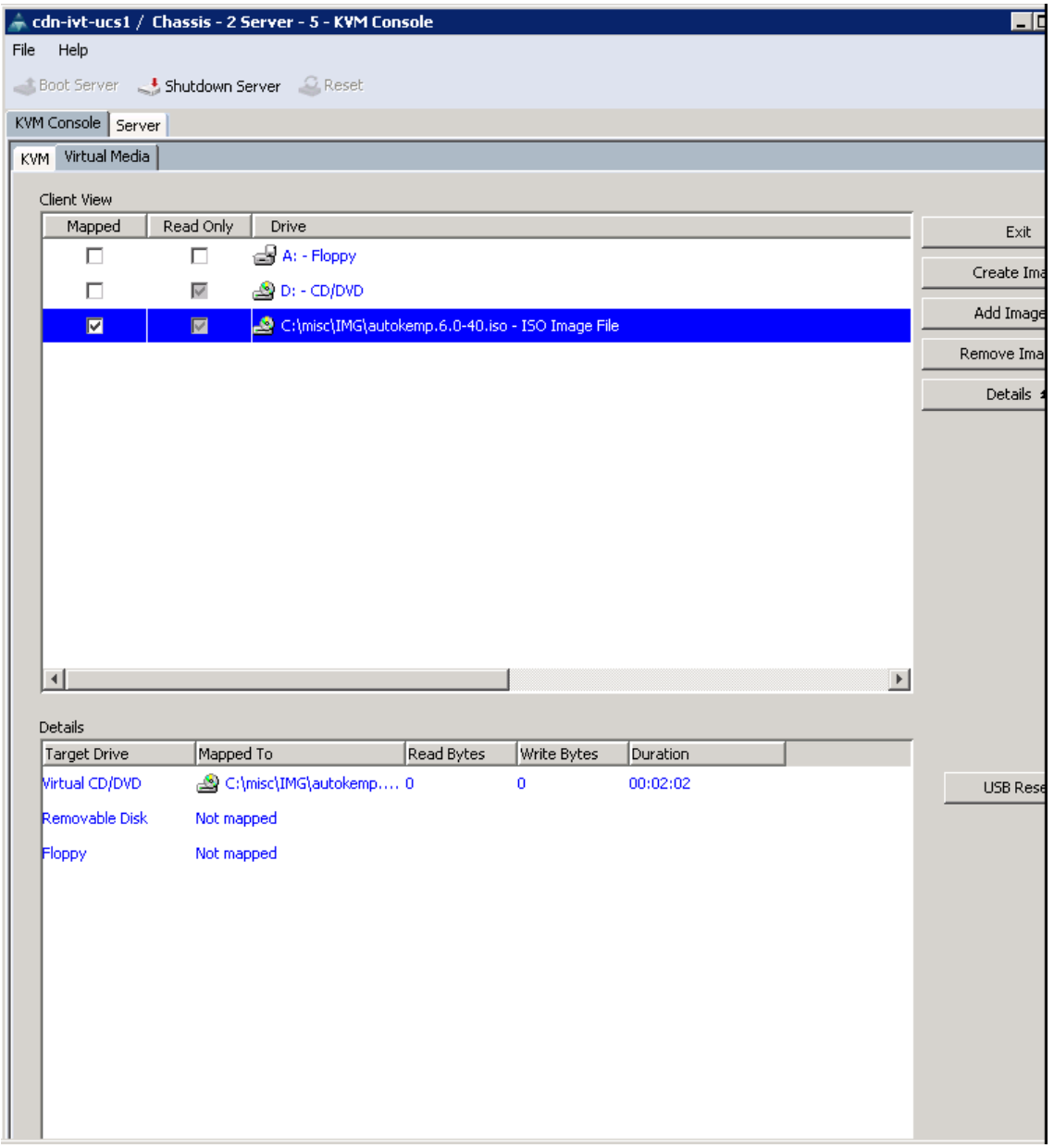

Figure 3-2 The KVM Console

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3.3 Boot the Server

The server is now ready to be booted to complete the installation procedure.

If the local disk is empty, that is contains no valid boot partition, simply click the **Boot Server** option on the KVM console. The server is booted from the previously mapped virtual CD.

If the local disk does contain a valid bootable partition you can explicitly select the virtual CD from the servers boot menu by completing the following steps:

1. Press **F6** when the boot process reaches the point illustrated in **Figure 3-3**.

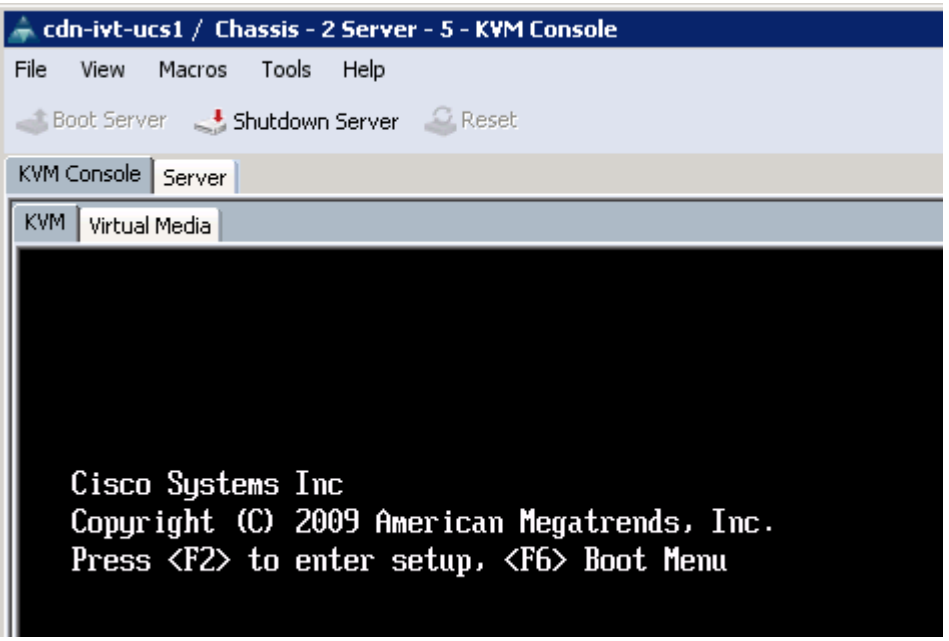

Figure 3-3 Server Boot Menu Selection

2. The **Boot Menu Screen,** as illustrated by **Figure 3-4**, appears

Figure 3-4 The Boot Menu Screen

6. Select the **Cisco Virtual CD/DVD** option and press **Enter.**

The server should boot from the virtual CD.

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3.4 Install the Condor

Once the server boots from the virtual CD, as described in **Section 0**, the Condor installation process automatically begins.

> The serial number should be automatically pulled from the Condor. If it is not, please enter it when prompted.

Press **OK**.

The installation then completes.

3.5 Boot the Installed Condor

The server is now ready to be rebooted with the Condor software installed on the local disk. Within the KVM console, select the **Ctrl-Alt-Del** option from the **Macros** drop-down menu.

The server should now begin to boot from the local disk**.**

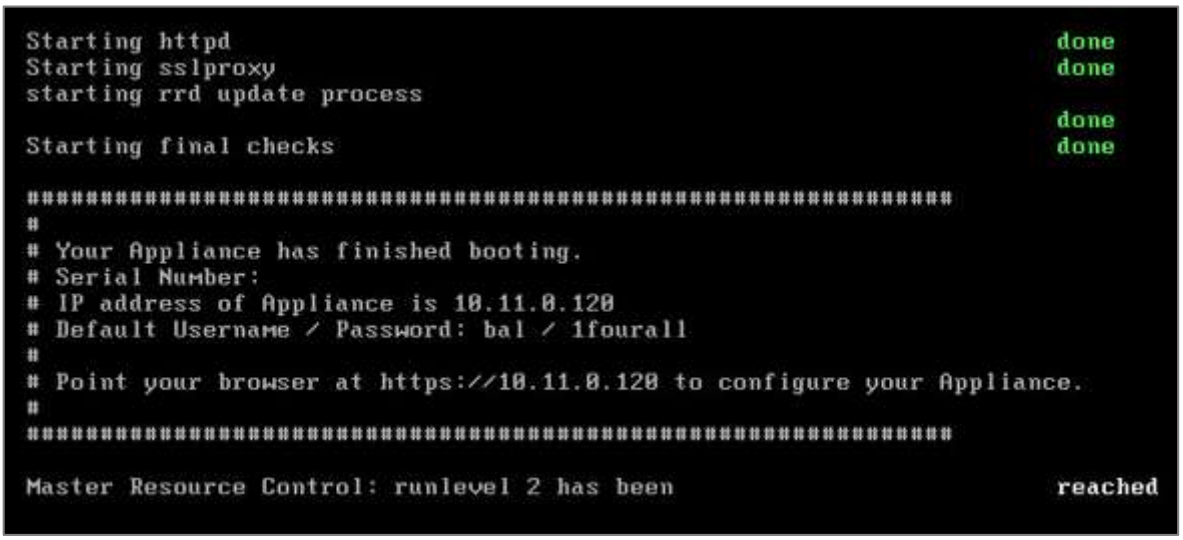

Figure 3-5: Finished booting

The Condor should obtain an IP address via DHCP, please note this value.

If the Condor does not obtain an IP address via DHCP then the Condor must be manually configured using the KVM console once the license key has been obtained.

Please refer to **Section 4** for further information regarding manually configuring the Condor.

3.6 Configure the Condor

The Condor must now be configured to operate within the network configuration.

1. In an internet browser, enter the IP address that was previously noted in **Section 3.5**.

> Ensure to enter **https:**// before the IP address.

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2. A warning may appear regarding website security certificates. Please click the continue/ignore option.
3. Enter the user name and password when requested.

Please use the following login credentials:

lb100 login: bal

Password: 1fourall

Figure 3-6: License Required

4. If using the **Online** licensing method, fill out the fields and click **License Now**.

If you are starting with a trial license, there is no need to enter an Order ID**.** If you are starting with a permanent license, enter the KEMP **Order ID#** if this was provided to you.

If using the **Offline Licensing** method, select **Offline Licensing**, obtain the license text, paste it into the **License** field and click **Apply License**.

For detailed instructions on how to register for a KEMP ID and license the Condor, refer to the **Licensing, Feature Description**.

5. The Condor End User License Agreement screen appears.

Please read the license agreement and, if you are willing to accept the conditions therein, click on the **Agree** button to proceed.

6. A screen will then appear asking if you are OK with the Condor regularly contacting KEMP to check for updates and other information. Click the relevant button to proceed.

Figure 3-7 Change password screen

7. The **Change Password** screen appears. Enter a new password for the **bal** user in the **Password** input field and retype it in the **Retype Password** input field.

8. The login screen appears again, enter the **bal** user name and the new password as defined in the previous step.
9. In the screen informing you that the password has changed, press the **Continue** button
10. If your machine has shipped with a temporary license you should get a warning informing you that a temporary license has been installed on your machine and for how long the license is valid.

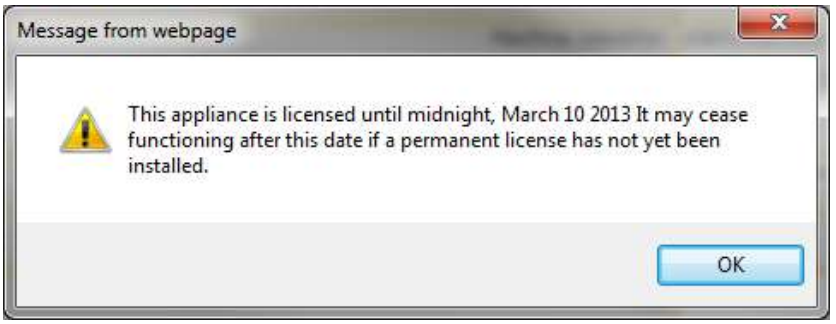

Figure 3-8 Temporary license warning

Click the **OK** button.

11. You should now connect to the **Appliance Vitals** screen of the Condor.

Figure 3-9 Appliance Vitals screen

12. Click the **System Configuration** menu option.
13. Click the **eth0** menu option within the **Interfaces** section.

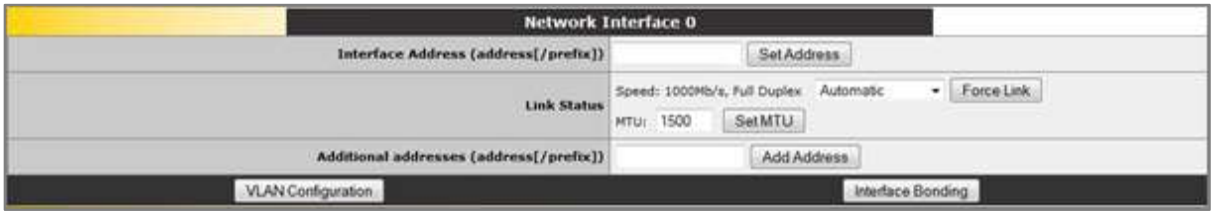

Figure 3-10 Network Interface screen

14. In the **Network Interface 0** screen, enter the IP address of the eth0 interface, the network facing interface of the Condor, in the **Interface Address** input field.
15. Click the **Set Address** button
16. Click the **eth1** menu option within the **Interfaces** section
17. In the **Network Interface 1** screen, enter the IP address of the eth1 interface, the farm-side interface of the Condor, in the **Interface Address** input field.
18. Click the **Set Address** button

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This interface is optional, depending on the network configuration.

19. Click the **Local DNS Configuration > Hostname Configuration** menu option.

Figure 3-11 Set Hostname screen

20. In the **Hostname Configuration** screen, enter the hostname into the **Current Hostname** text box.
21. Click the **Set Hostname** button.
22. Select the **Local DNS Configuration > DNS Configuration** menu option.

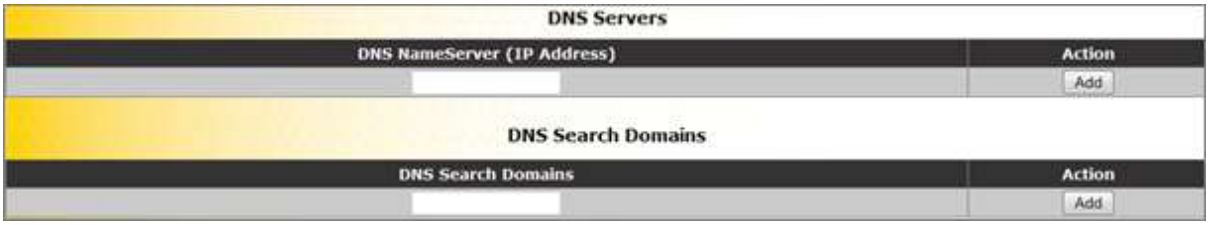

Figure 3-12 DNS configuration screen

23. In the **DNS Configuration** screen, enter the IP address(es) of the DNS Server(s) which will be used to resolve names locally on the Condor into the **DNS NameServer** text box.
24. Click the **Add** button.
25. Enter the domain name that is to be prepended to requests to the DNS nameserver into the **DNS Search Domains** text box.
26. Click the **Add** button.
27. Go to **Route Management > Default Gateway** in the main menu.

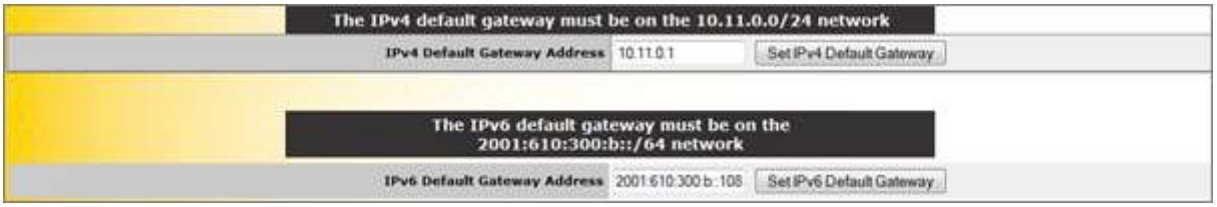

Figure 3-13 Default gateway screen

28. In the **DNS configuration** screen, enter the IP address of the default gateway into the **IPv4 Default Gateway Address** input field.
29. Click the **Set IPv4 Default Gateway** button.

The Condor is now fully installed and ready to be used. For further information on how to configure and implement the Condor, please refer to the Condor documentation which can be downloaded from the http://www.KEMPtechnologies.com/documentation page.

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4 Configuring the Condor via the KVM Console

If the Condor does not automatically obtain an IP address using DHCP as described in Step 4, **Section 3.6**, or if you prefer to configure the Condor via the KVM console, then the following configuration steps must be completed before starting the Condor.

1. Login into the Condor via the KVM-console using the default settings:

   lb100 login: bal
   Password: 1fourall
2. If required, change the Condor password (for the **bal** user) when prompted to within the KVM console.
3. If required, click **OK** within the dialog box informing of the password change
4. Click **OK** within **Quick Setup Help** dialog box.
5. Enter the IP address of the eth0 interface, the network facing interface of the Condor, in the input field within the **Network Side Interface Address** dialog box.

   This value must be configured from within the KVM console.
6. Click **OK.**
7. Enter the IP address of the eth1 interface in the input field within the **Farm Side Interface Address** dialog box. The eth1 interface is only configured if you have a two-armed configuration.

This interface can be configured at a later date using the Condor WUI if preferred.

8. Click **OK.**
9. Enter the hostname (you can accept the default value of 'KEMP') into the input field of the **Condor Hostname** dialog box.
10. Click **OK.**
11. Enter the IP address(es) of the DNS Server(s) which will be used to resolve names locally on the Condor into the input field of the **Name Server IP Addresses** dialog box.

This interface can be configured at a later date using the Condor WUI if preferred.

12. Click **OK.**
13. Enter the domain name that is to be prepended to requests to the DNS nameserver in the input field of the **Domain List** dialog box.

This interface can be configured at a later date using the Condor WUI if preferred

14. Click **OK.**
15. Enter the IP address of the default gateway in the input field of the **Default Gateway** dialog box.

This value must be configured from within the KVM console.

16. Click **OK.**

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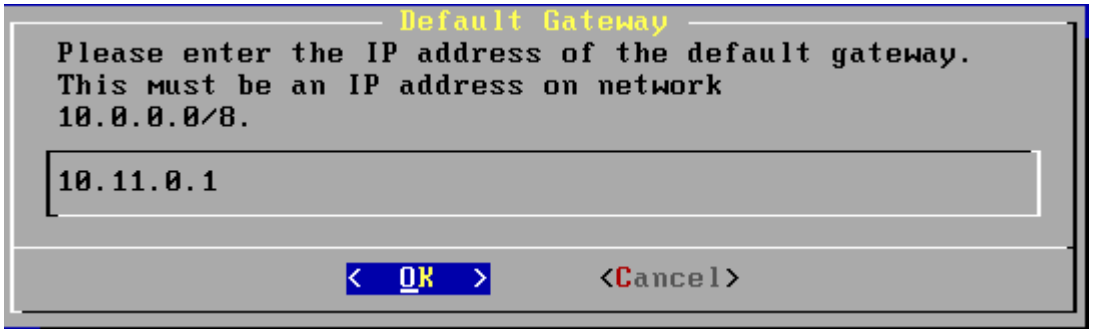

Figure 4-1 Default Gateway

17. Press **Yes** within the **Reboot** screen when requested.
18. In your internet browser enter the IP address of the eth0 inter you entered in Step 6.

Ensure you place 'https://' before the IP address.

19. You may get a warning regarding website security certificates. Please click on the continue/ignore option.
20. The End User License Agreement screen appears.

Please read the license agreement and, if you are willing to accept the conditions therein, click on the **Agree** button to proceed.

21. If your machine has shipped with a temporary license you should get a warning informing you that a temporary license has been installed on your machine and for how long the license is valid.

    Click **OK**.

Figure 4-2: Appliance Vitals

22. You should now connect to the **Condor Manager Vitals** screen of the Condor.

The Condor is now fully installed and ready to be used. For further information on how to configure and implement the Condor, please refer to the Condor documentation which can be downloaded from the http://www.KEMPtechnologies.com/documentation page.

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5 References

Unless otherwise specified, the below documents can be found at http://www.kemptechnologies.com/documentation.

Licensing, Feature Description

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Document History

Date	Change	Reason for Change	Version	Resp.
July 2014	Initial draft of the document	Initial draft of the document	1.0	LB
Jan 2015	Release updates	Updated for 7.1-24 release	1.1	LB
Mar 2015	Minor update	Enhancement made	1.2	LB

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