

Ruckus IoT Controller Software Installation Guide, 1.3

Supporting IoT Controller Release 1.3

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Document Conventions

The following table lists the text conventions that are used throughout this guide.

TABLE 1 Text Conventions

Convention	Description	Example
monospace	Identifies command syntax examples	<code>device(config)# interface ethernet 1/1/6</code>
bold	User interface (UI) components such as screen or page names, keyboard keys, software buttons, and field names	On the Start menu, click All Programs .
<i>italics</i>	Publication titles	Refer to the <i>Ruckus Small Cell Release Notes</i> for more information.

Notes, Cautions, and Warnings

Notes, cautions, and warning statements may be used in this document. They are listed in the order of increasing severity of potential hazards.

NOTE

A NOTE provides a tip, guidance, or advice, emphasizes important information, or provides a reference to related information.

ATTENTION

An ATTENTION statement indicates some information that you must read before continuing with the current action or task.



CAUTION

A CAUTION statement alerts you to situations that can be potentially hazardous to you or cause damage to hardware, firmware, software, or data.



DANGER

A DANGER statement indicates conditions or situations that can be potentially lethal or extremely hazardous to you. Safety labels are also attached directly to products to warn of these conditions or situations.

Command Syntax Conventions

Bold and italic text identify command syntax components. Delimiters and operators define groupings of parameters and their logical relationships.

Convention	Description
bold text	Identifies command names, keywords, and command options.
<i>italic text</i>	Identifies a variable.
[]	Syntax components displayed within square brackets are optional. Default responses to system prompts are enclosed in square brackets.
{ x y z }	A choice of required parameters is enclosed in curly brackets separated by vertical bars. You must select one of the options.
x y	A vertical bar separates mutually exclusive elements.
< >	Nonprinting characters, for example, passwords, are enclosed in angle brackets.
...	Repeat the previous element, for example, <i>member[member...]</i> .
\	Indicates a “soft” line break in command examples. If a backslash separates two lines of a command input, enter the entire command at the prompt without the backslash.

Document Feedback

Ruckus is interested in improving its documentation and welcomes your comments and suggestions.

You can email your comments to Ruckus at ruckus-docs@arris.com.

When contacting us, include the following information:

- Document title and release number
- Document part number (on the cover page)
- Page number (if appropriate)

For example:

- Ruckus SmartZone Upgrade Guide, Release 5.0
- Part number: 800-71850-001 Rev A
- Page 7

Ruckus Product Documentation Resources

Visit the Ruckus website to locate related documentation for your product and additional Ruckus resources.

Release Notes and other user documentation are available at <https://support.ruckuswireless.com/documents>. You can locate the documentation by product or perform a text search. Access to Release Notes requires an active support contract and a Ruckus Support Portal user account. Other technical documentation content is available without logging in to the Ruckus Support Portal.

White papers, data sheets, and other product documentation are available at <https://www.ruckuswireless.com>.

Online Training Resources

To access a variety of online Ruckus training modules, including free introductory courses to wireless networking essentials, site surveys, and Ruckus products, visit the Ruckus Training Portal at <https://training.ruckuswireless.com>.

Contacting Ruckus Customer Services and Support

The Customer Services and Support (CSS) organization is available to provide assistance to customers with active warranties on their Ruckus products, and customers and partners with active support contracts.

For product support information and details on contacting the Support Team, go directly to the Ruckus Support Portal using <https://support.ruckuswireless.com>, or go to <https://www.ruckuswireless.com> and select **Support**.

What Support Do I Need?

Technical issues are usually described in terms of priority (or severity). To determine if you need to call and open a case or access the self-service resources, use the following criteria:

- Priority 1 (P1)—Critical. Network or service is down and business is impacted. No known workaround. Go to the **Open a Case** section.
- Priority 2 (P2)—High. Network or service is impacted, but not down. Business impact may be high. Workaround may be available. Go to the **Open a Case** section.
- Priority 3 (P3)—Medium. Network or service is moderately impacted, but most business remains functional. Go to the **Self-Service Resources** section.
- Priority 4 (P4)—Low. Requests for information, product documentation, or product enhancements. Go to the **Self-Service Resources** section.

Open a Case

When your entire network is down (P1), or severely impacted (P2), call the appropriate telephone number listed below to get help:

- Continental United States: 1-855-782-5871
- Canada: 1-855-782-5871
- Europe, Middle East, Africa, Central and South America, and Asia Pacific, toll-free numbers are available at <https://support.ruckuswireless.com/contact-us> and Live Chat is also available.
- Worldwide toll number for our support organization. Phone charges will apply: +1-650-265-0903

We suggest that you keep a physical note of the appropriate support number in case you have an entire network outage.

Self-Service Resources

The Ruckus Support Portal at <https://support.ruckuswireless.com> offers a number of tools to help you to research and resolve problems with your Ruckus products, including:

- Technical Documentation—<https://support.ruckuswireless.com/documents>

Preface

Contacting Ruckus Customer Services and Support

- Community Forums—<https://forums.ruckuswireless.com/ruckuswireless/categories>
- Knowledge Base Articles—<https://support.ruckuswireless.com/answers>
- Software Downloads and Release Notes—https://support.ruckuswireless.com/#products_grid
- Security Bulletins—<https://support.ruckuswireless.com/security>

Using these resources will help you to resolve some issues, and will provide TAC with additional data from your troubleshooting analysis if you still require assistance through a support case or RMA. If you still require help, open and manage your case at https://support.ruckuswireless.com/case_management.

About This Guide

- [Introduction to Ruckus IoT Controller.....9](#)

Introduction to Ruckus IoT Controller

The Ruckus IoT Controller is a versatile easy-to-deploy service and management component that allows for integration of Internet of Things (IoT) devices and IoT services for a wide range of use cases. It provides a robust, secure, scalable, interoperable, and well-managed general transport between IoT devices and cloud services.

The Ruckus IoT Controller is an open-programmable framework that exposes north-bound APIs and is thereby a highly flexible IoT transport for Ruckus partners to integrate a wide range of IoT services and solutions for the enterprise and beyond.

This guide provides information about how to install the Ruckus IoT Controller on a supported hypervisor. Topics include the list of supported hypervisors and Ruckus IoT Controller installation instructions using the .OVA file.

NOTE

If release notes are shipped with your product and the information there differs from the information in this guide, follow the instructions in the release notes.

This guide is intended for use by those responsible for installing and setting up network equipment. It assumes a basic working knowledge of local area networking, wireless networking, and wireless devices.

Installing Ruckus IoT Controller on a Hypervisor

- System Requirements for Installing Ruckus IoT Controller on a Hypervisor..... 11
- Installing Ruckus IoT Controller on Oracle VM VirtualBox.....11
- Installing Ruckus IoT Controller on a VMware ESXi..... 21
- Installing Ruckus IoT Controller Using VMware Player..... 32

System Requirements for Installing Ruckus IoT Controller on a Hypervisor

Ruckus IoT Controller supports a number of hypervisors and requires a virtual machine (VM).

The following table lists the hypervisors (and their release versions) on which you can install the controller.

TABLE 2 Supported Hypervisors

Hypervisor	Vendor	Version
ESXi	VMware	5.5 and later
VM VirtualBox	Oracle	5.1.20 and later
VM Player	VMware	12 or later

The virtual machine (VM) on which the controller is installed must meet the following requirements:

- The VM for the Oracle VM VirtualBox hypervisor must have a minimum of 2 vCPUs, 2 GB RAM, and 8 GB HDD.
- The VM for the VMware ESXi hypervisor must have a minimum of 2 vCPUs, 2 GB RAM, and 8 GB HDD.
- The VM for the VM Player hypervisor must have a minimum of 2 vCPUs, 2 GB RAM, and 8 GB HDD.
- Ports 80, 443, 1883, and 8883 must be open.

NOTE

For a high-scale deployment, Ruckus recommends a minimum of 4 vCPUs and 4 GB RAM.

Installing Ruckus IoT Controller on Oracle VM VirtualBox

The Ruckus IoT Controller can be installed on an Oracle VM VirtualBox using an .OVA file.

NOTE

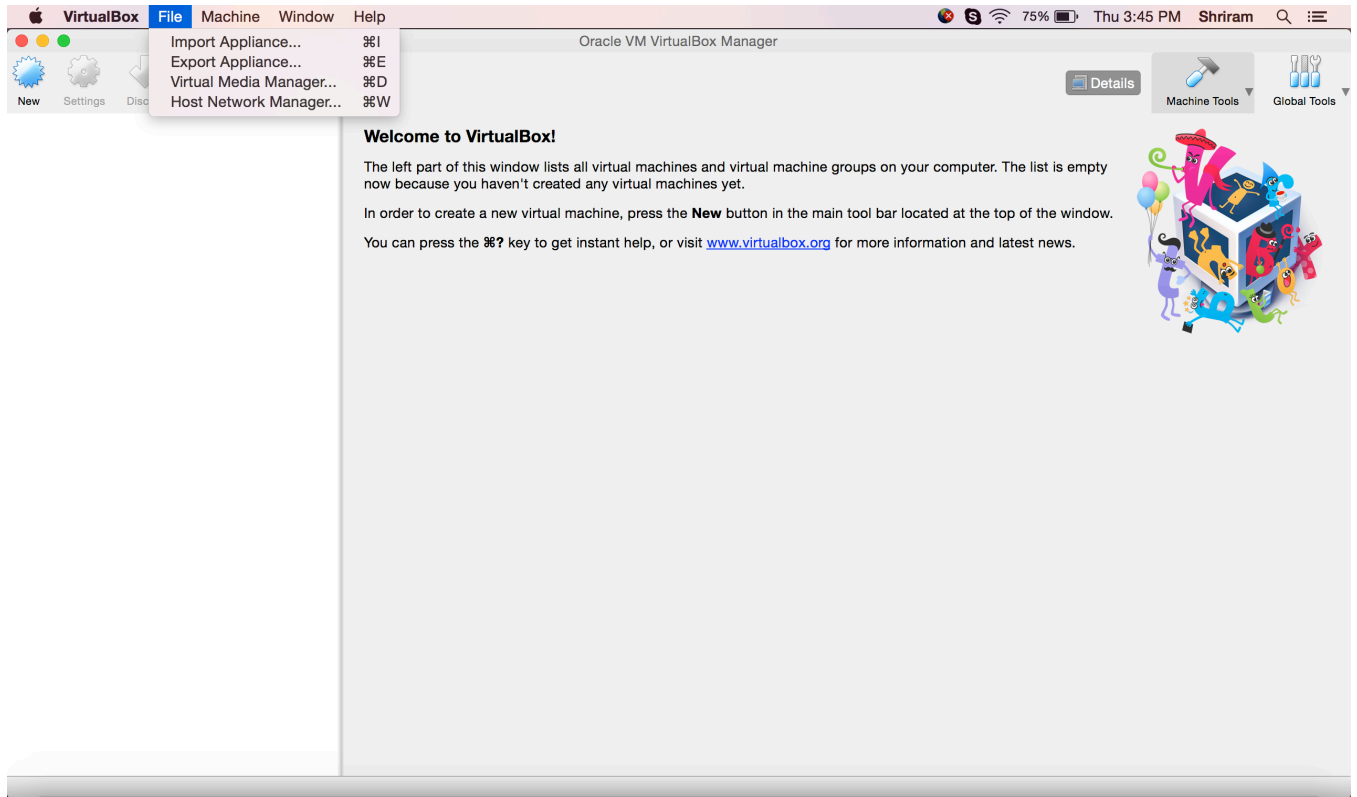
Ruckus IoT Controller can be installed on a Mac or a Windows 64-bit machine.

Complete the following steps to install Ruckus IoT Controller on a Mac.

1. Download the Ruckus IoT Controller distribution package in the .OVA file format from the Ruckus Support website at <https://support.ruckuswireless.com>.

2. Open the Oracle VM VirtualBox Manager and select **File > Import Appliance**.

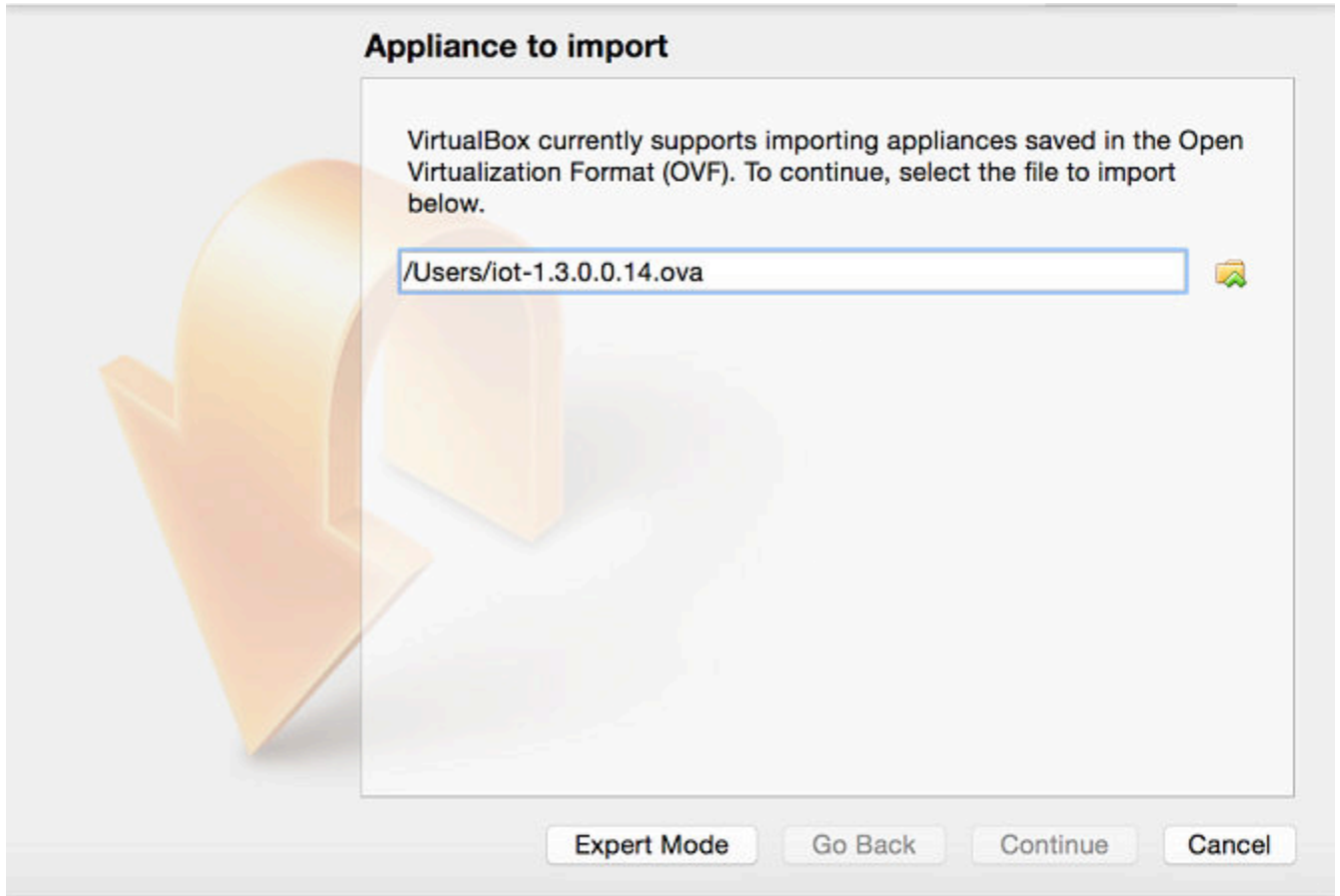
FIGURE 1 Oracle VM VirtualBox Manager



The installation begins.

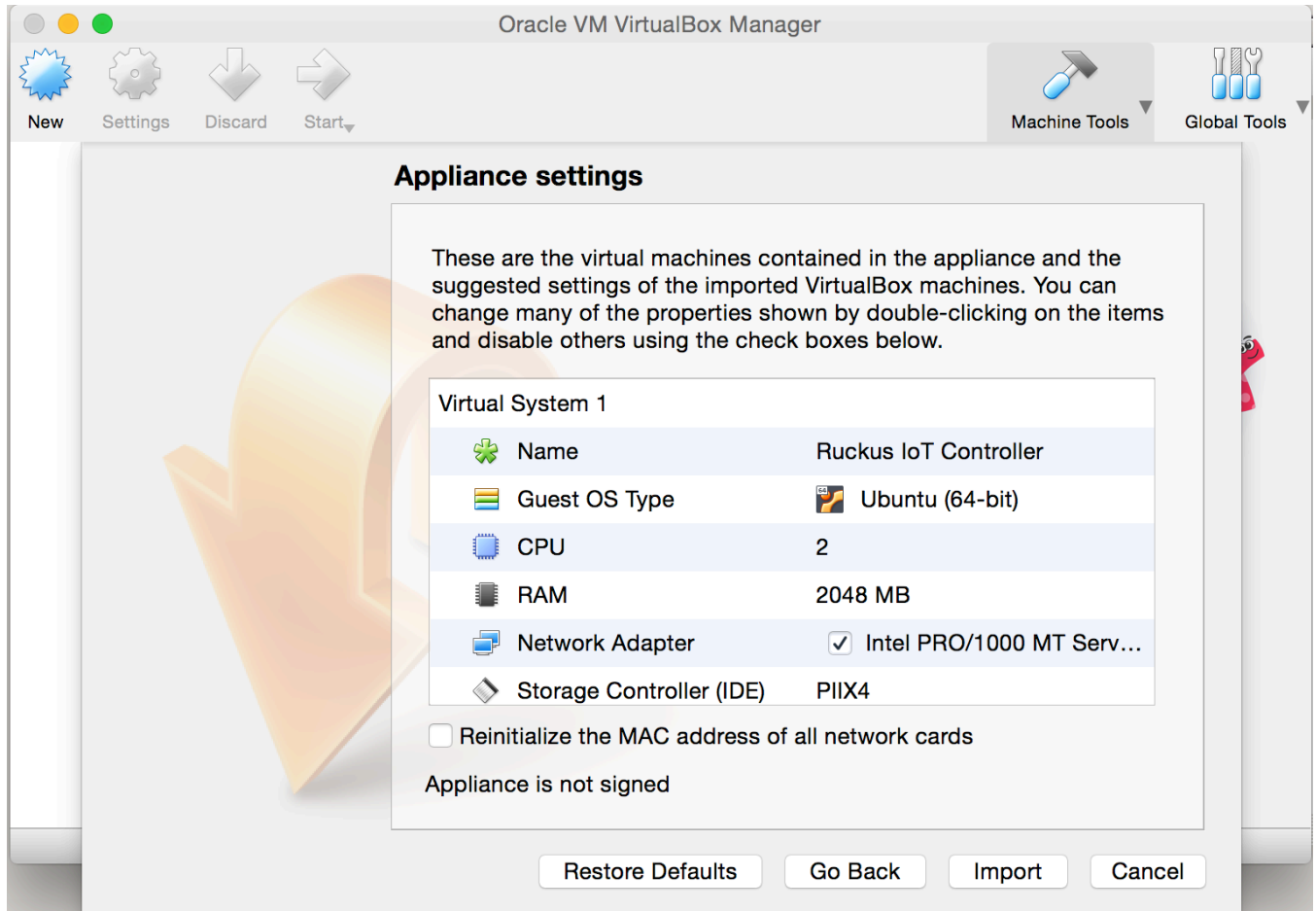
3. Import the .OVA file of the virtual appliance and click **Continue**.

FIGURE 2 Importing the Virtual Appliance



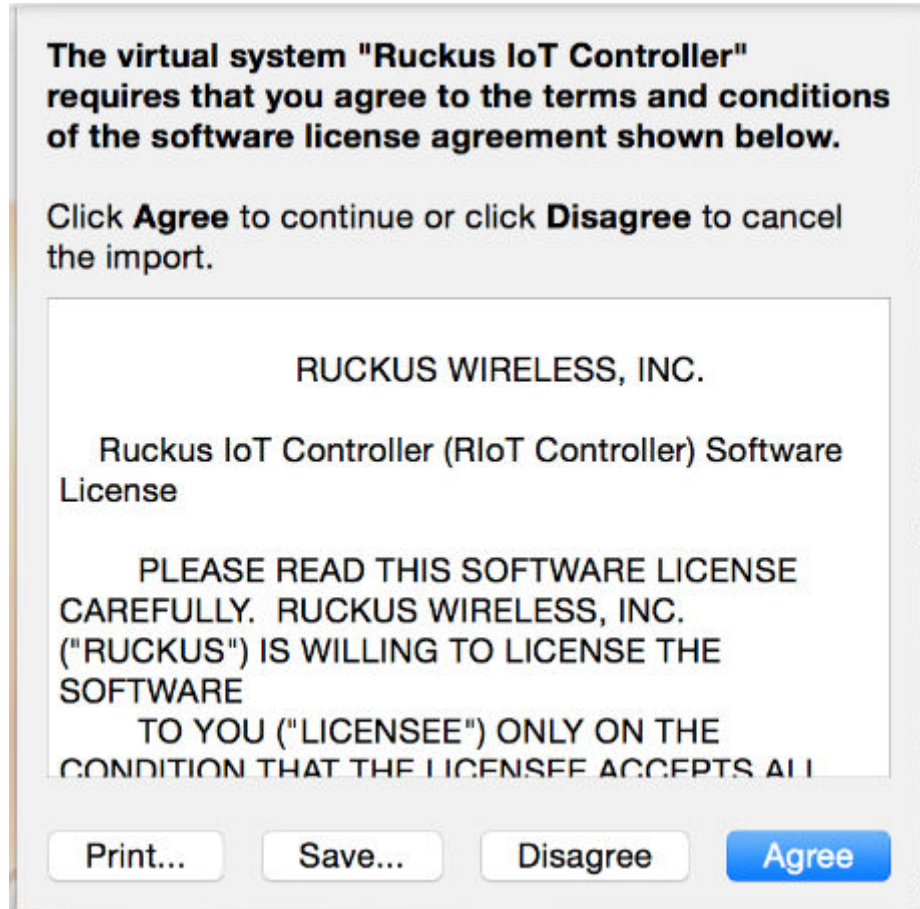
4. Confirm the appliance settings and click **Import**.

FIGURE 3 Importing the Appliance Settings



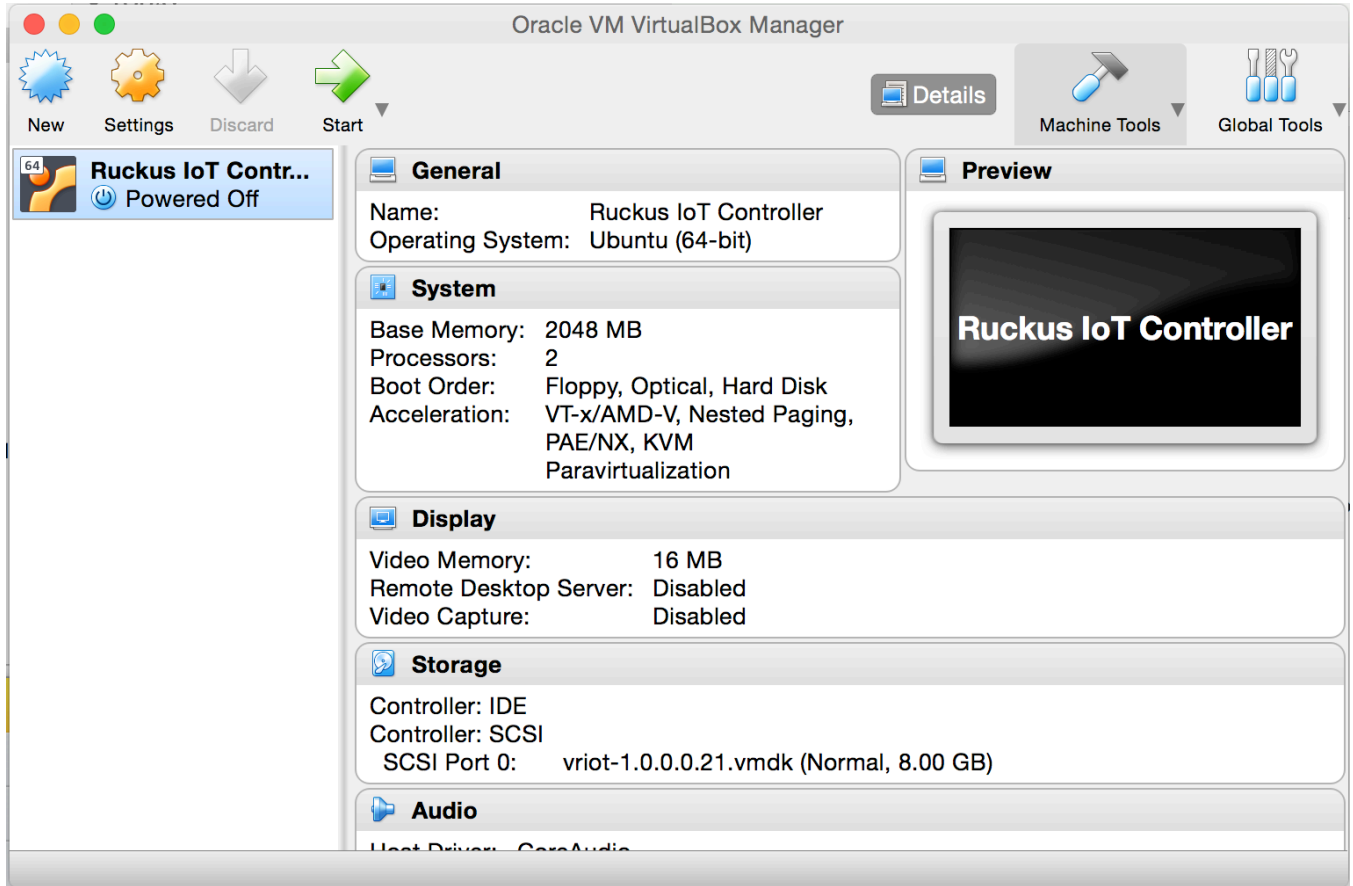
5. Accept the terms of the license agreement and click **Agree**.

FIGURE 4 License Agreement



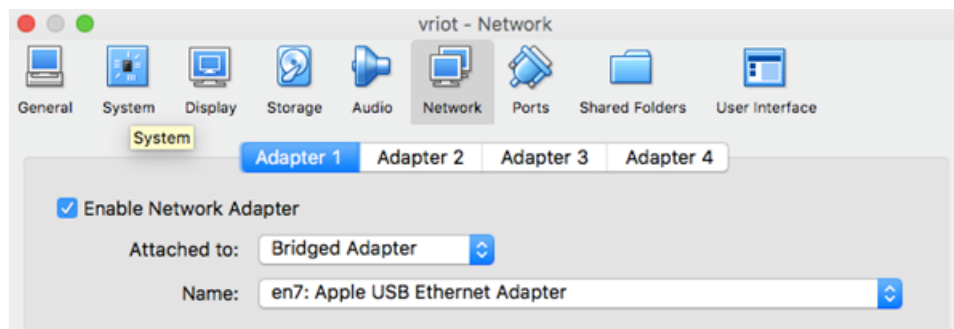
When the import has completed, the Ruckus IoT Controller .OVA file runs in VirtualBox.

FIGURE 5 Ruckus IoT Controller .OVA File Running in VirtualBox



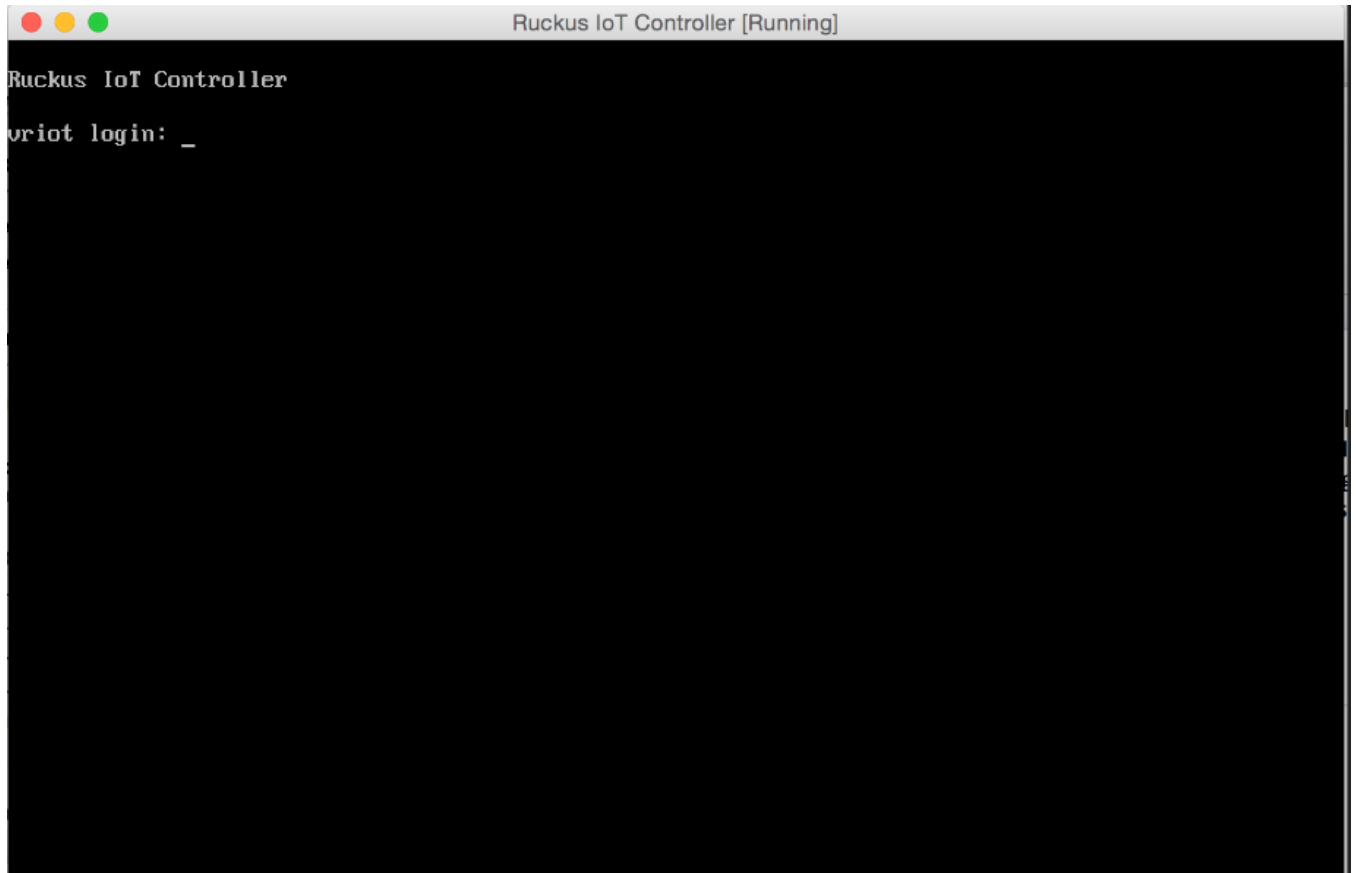
6. Select **Bridged Adapter** to configure the VirtualBox interfaces.

FIGURE 6 VM Interface Configuration



7. Power on the virtual machine and wait for the login prompt.

FIGURE 7 Ruckus IoT Controller Login Prompt



8. Log in to the virtual machine using the username "admin" and password "admin".

9. Enter **1** in the **Enter Choice** field to get the IP address of the virtual machine.
This information is needed to access the Ruckus IoT Controller Initialization page.

FIGURE 8 Displaying the IP Address

```
*****
vRIoT Controller
Main Menu
*****

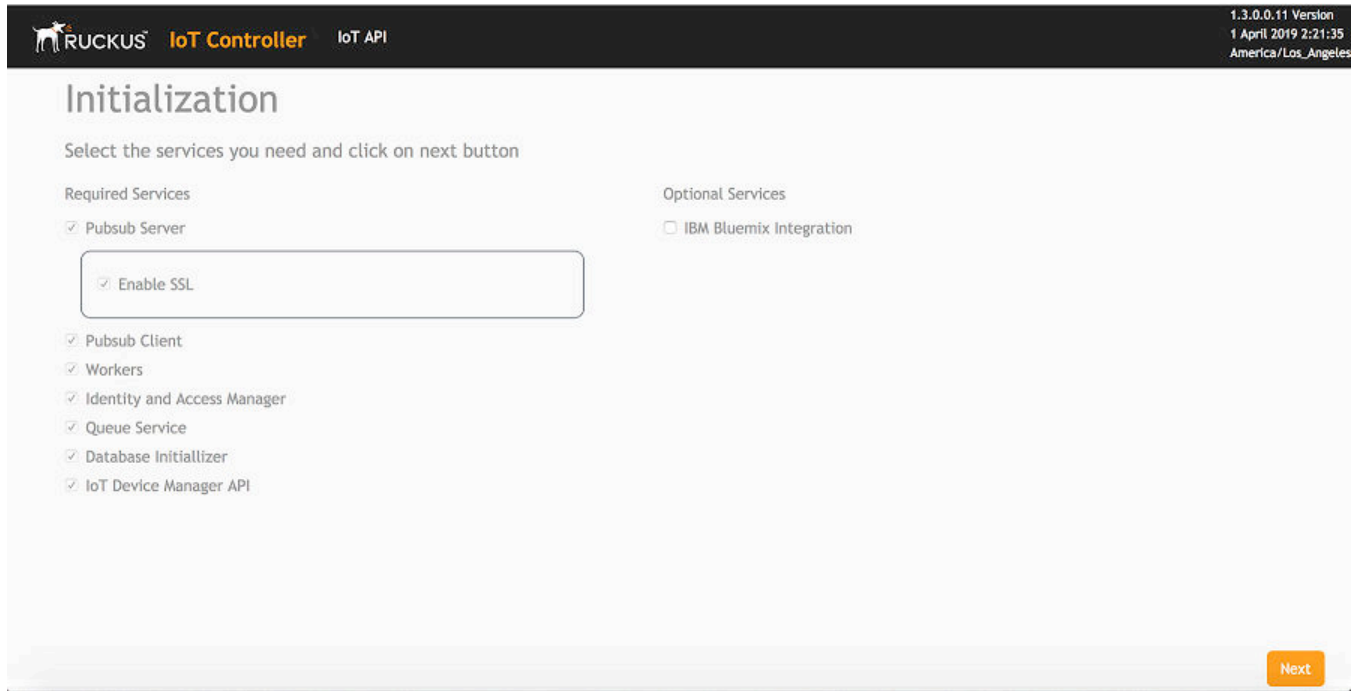
1 - Ethernet Network
2 - Get Application Info
3 - NTP Setting
4 - Restart Application
5 - Reboot System
6 - Reset System
7 - Command Prompt
8 - Comm Debugger
9 - N+1
x - Log Off

Enter Choice: █
```

To configure N+1 on the Ruckus IoT Controller, enter **9** in the **Enter Choice** field. Refer to the topic Logging In to Ruckus IoT Controller in the *Ruckus IoT Controller Configuration Guide* to complete this configuration.

10. Open a web browser on your host machine and enter the IP address of the VM in the address bar.
HTTP and HTTPS on ports 80 and 443 are supported.
The **Initialization** page is displayed.

FIGURE 9 Initialization Page



11. Select the required services and click **Next**.

12. Confirm the configuration information and click **Start**.

FIGURE 10 Initial VM and IP Configurations

1.3.0.0.11 Version
1 April 2019 2:21:48
America/Los_Angeles

Initialization

Select the services you need and click on start button

VM Configurations

Hostname
vriot

Time Zone
America/Los_Angeles

Set Time Automatically using NTP Set Time Manually

NTP Address
Default : ntp.ubuntu.com (Optional)

IP Configurations

DHCP Static

Back Start

The **Ruckus IoT Controller Login** page is displayed.

FIGURE 11 Ruckus IoT Controller Login Page

RuckusIoT Controller

Username:

Password: Show

Login

13. Enter the username "admin" and password "admin".

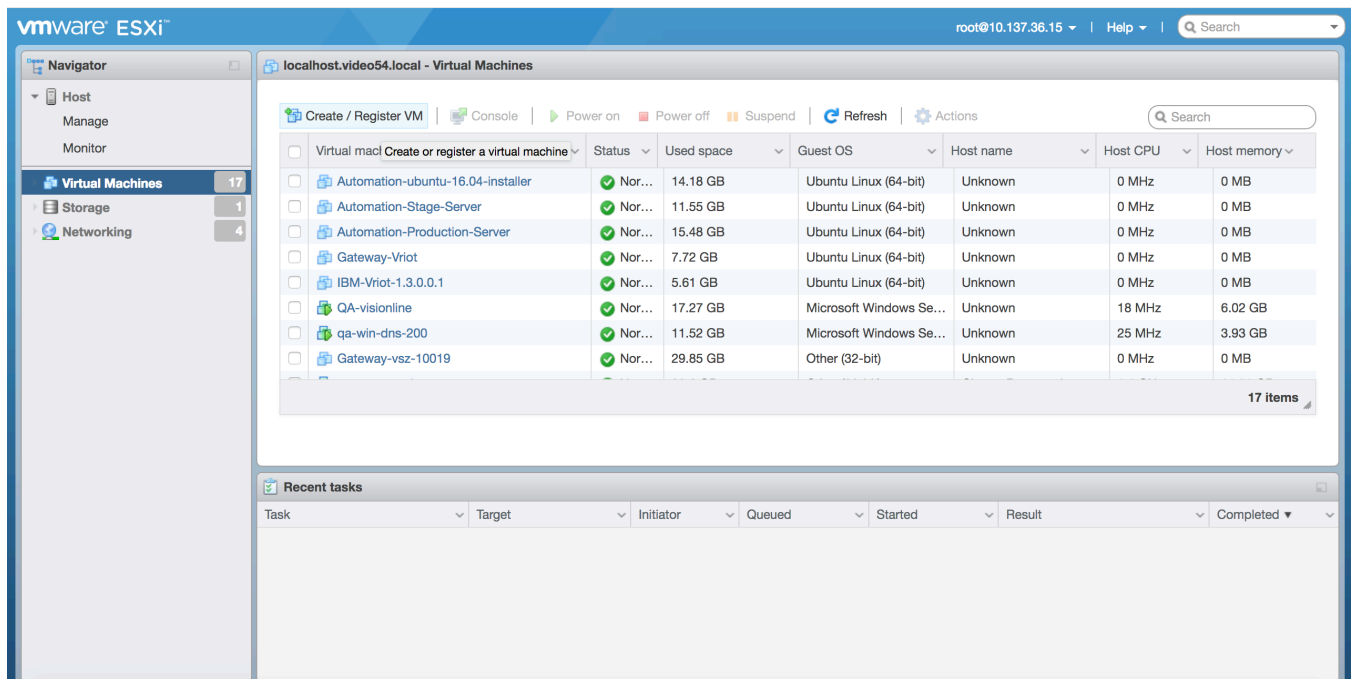
You are ready to configure and start the Ruckus IoT Controller services. Refer to the *Ruckus IoT Controller Configuration Guide* for more information.

Installing Ruckus IoT Controller on a VMware ESXi

The Ruckus IoT Controller can be installed on a VMware ESXi hypervisor using an .OVA file.

1. Download the Ruckus IoT Controller distribution package in the .OVA file format from the Ruckus Support website at <https://support.ruckuswireless.com>.
2. Open VMware ESXi and select **Virtual Machines** from the **Navigator** pane.

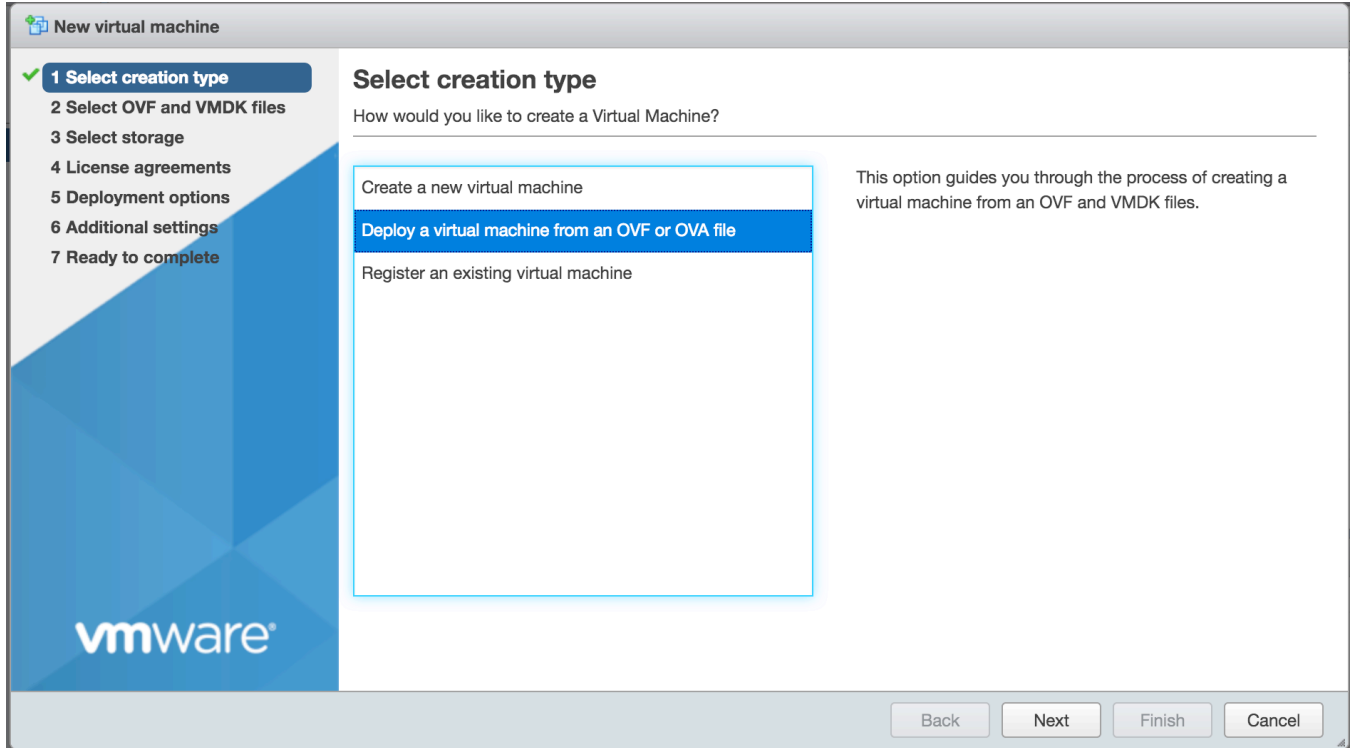
FIGURE 12 Creating or Registering Virtual Machines



3. Click **Create/Register VM**.

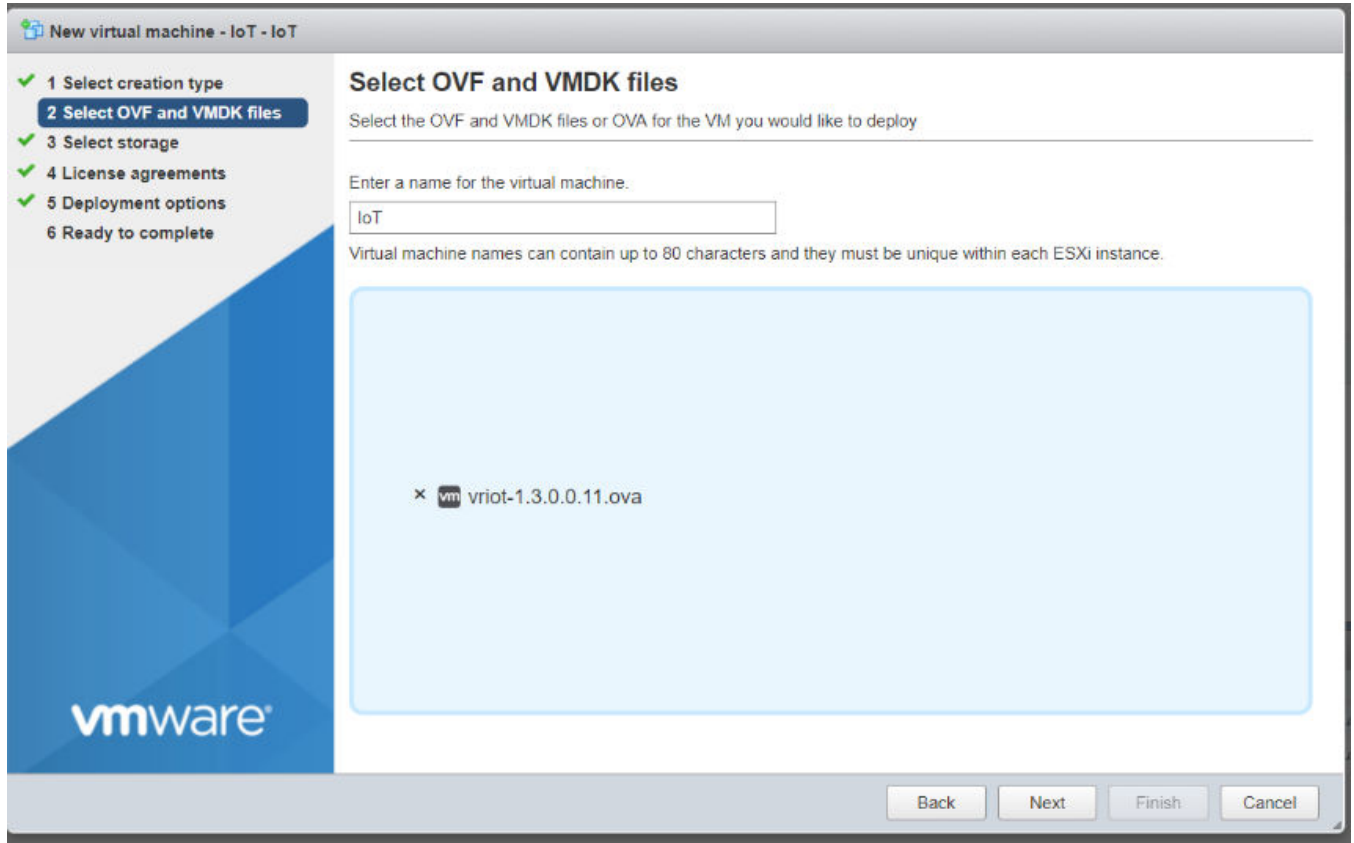
4. On the **New virtual machine** page, click **Select creation type**, and select **Deploy a virtual machine from an OVF or OVA file**. Click **Next**.

FIGURE 13 Select Creation Type Page



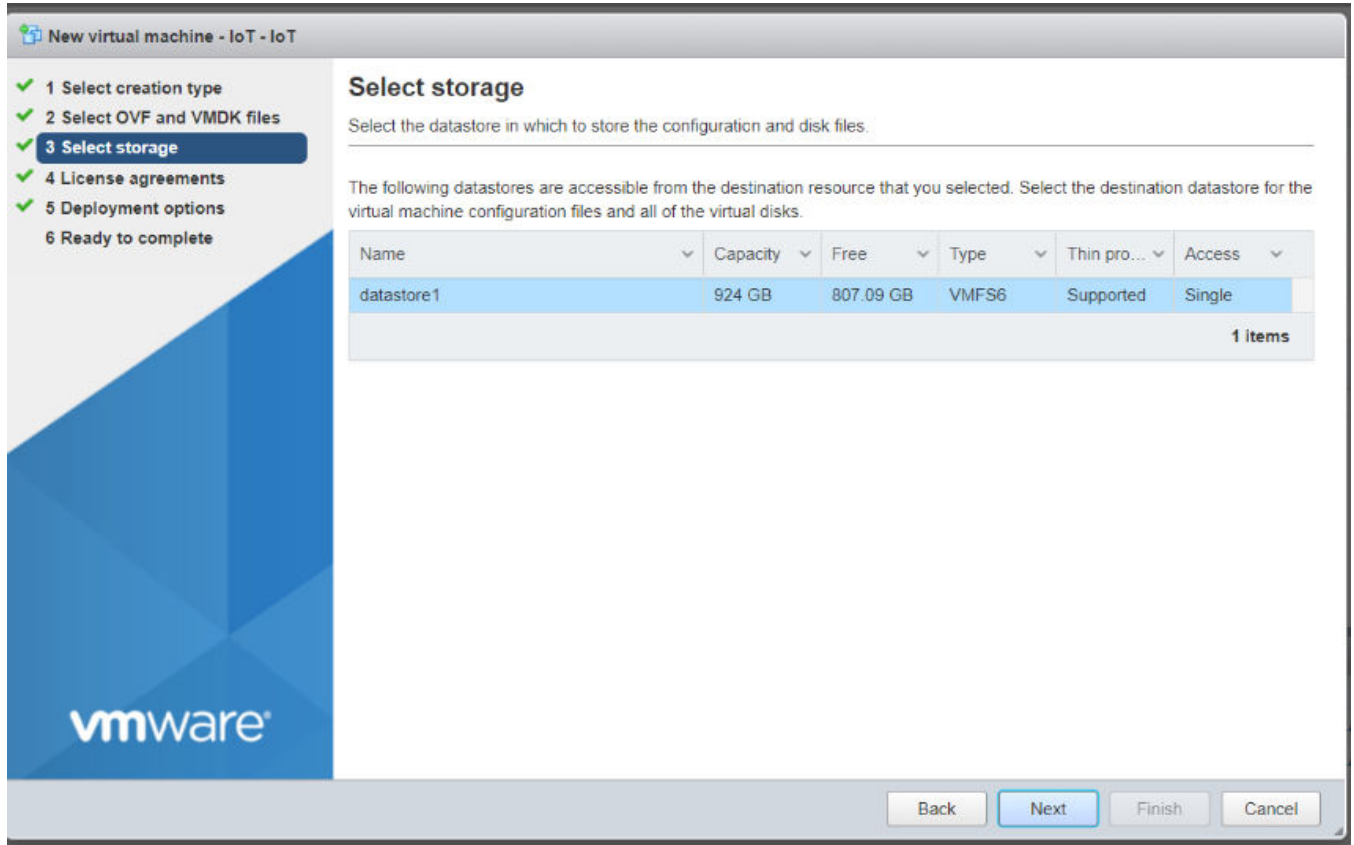
5. Click **Select OVF and VMDK files**, enter a name for the virtual machine, and select the OVF file. Click **Next**.

FIGURE 14 Select OVF and VMDK Files Page



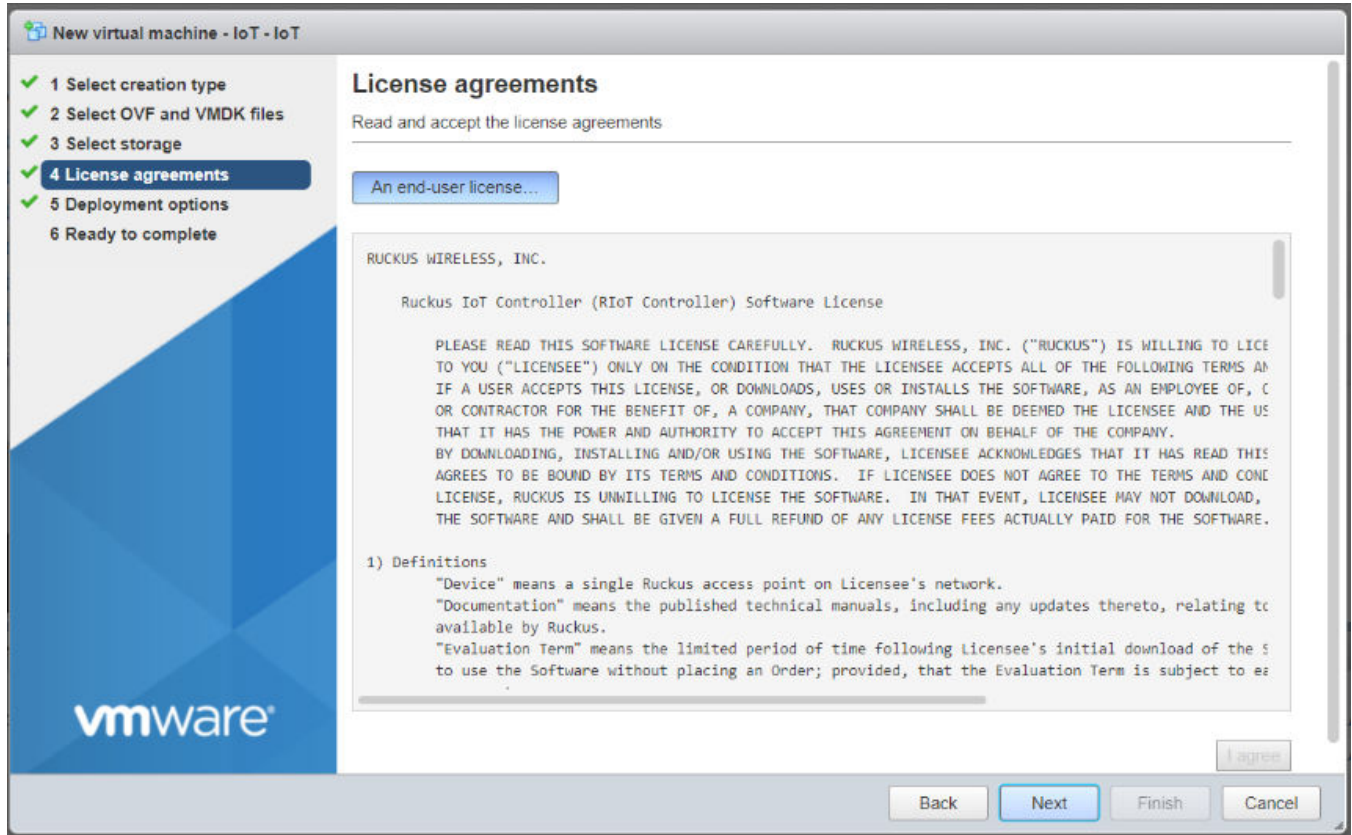
6. Click **Select storage**, and select the datastore in which you want to save the configuration and disk files. Click **Next**.

FIGURE 15 Select Storage Page



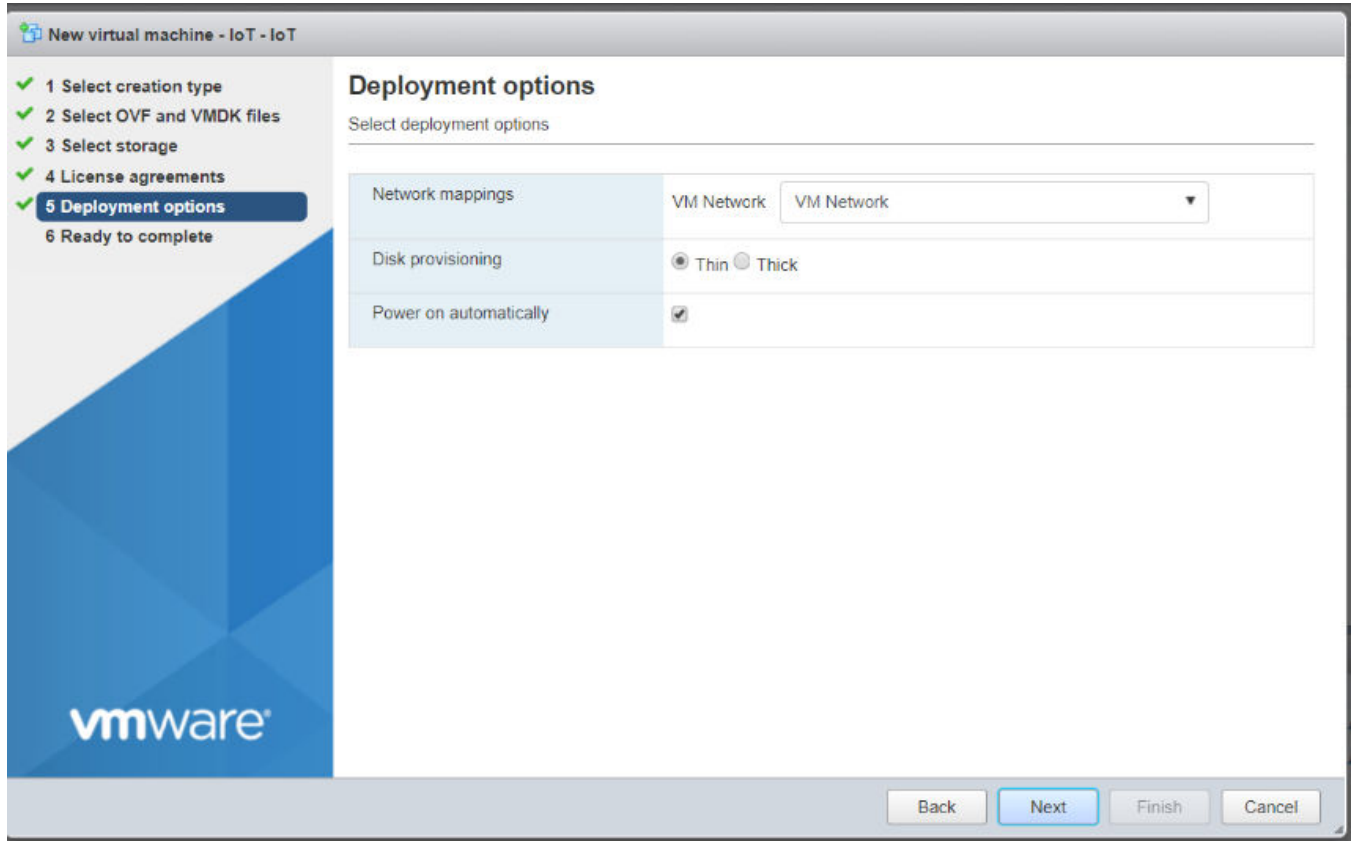
7. Click **License agreements** to accept the terms and conditions of software license and click **Agree**.

FIGURE 16 License Agreement



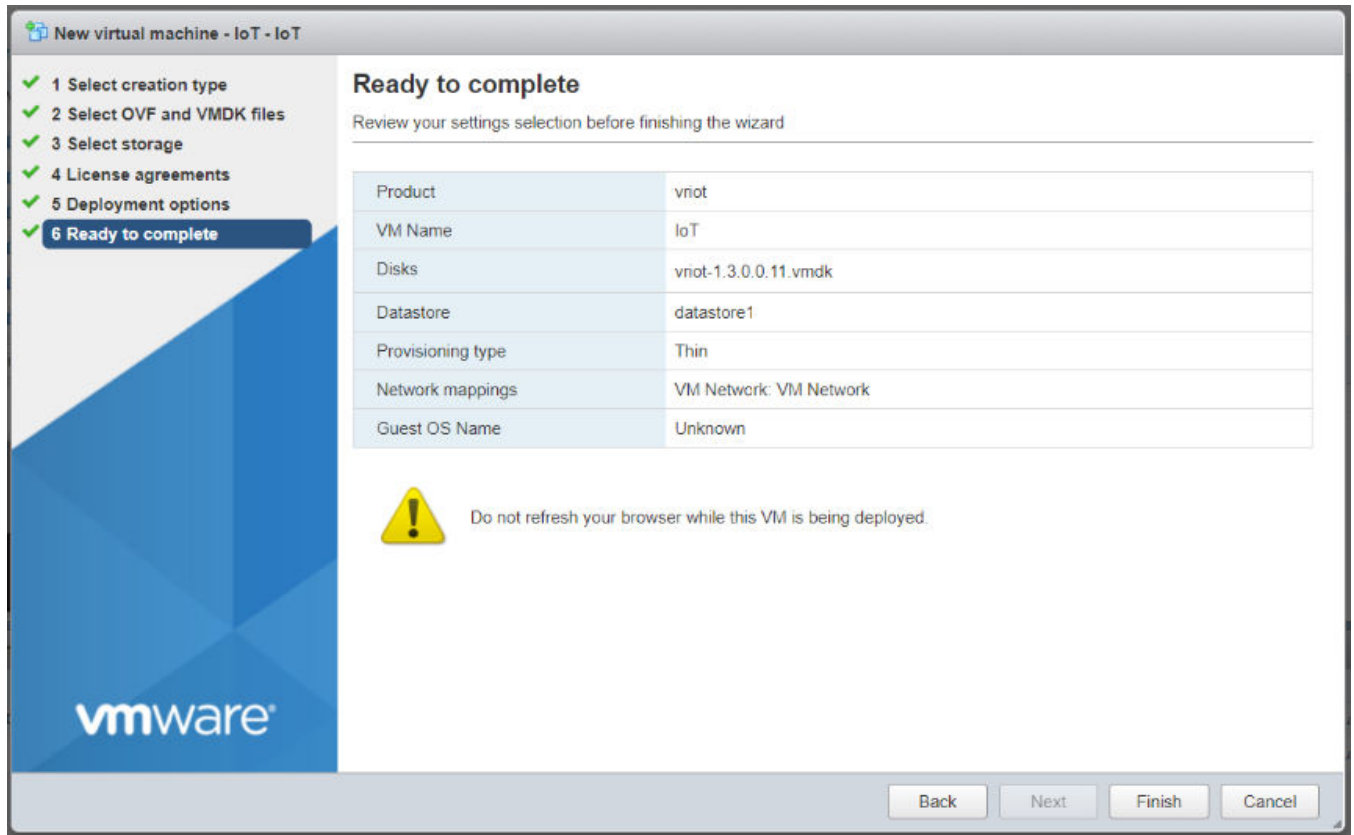
8. Click **Deployment options**, and select the **Network mappings** and **Disk provisioning**. Click **Next**.

FIGURE 17 Deployment Options Page



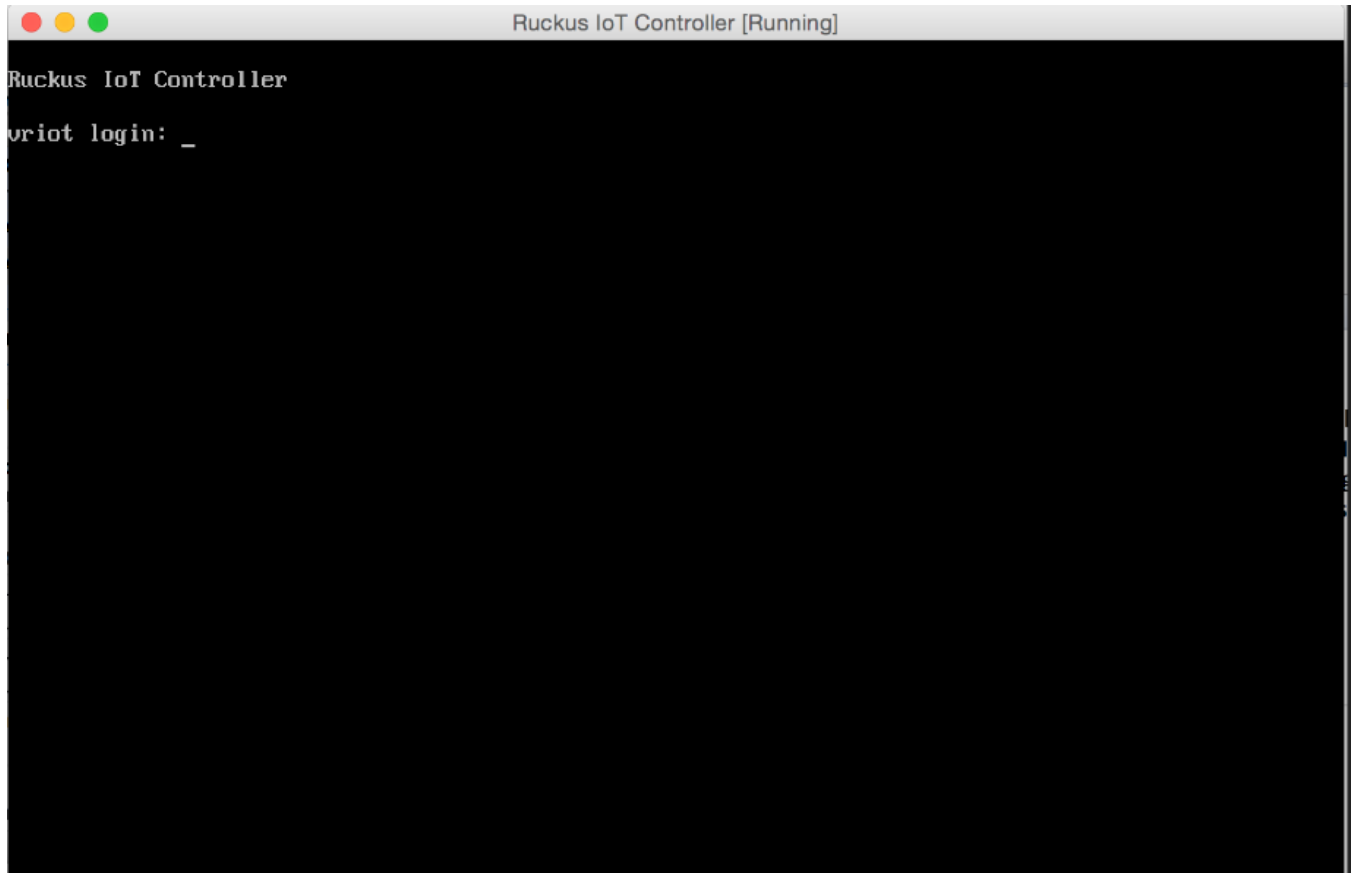
9. Click **Ready to complete** and review the settings. Click **Finish**.

FIGURE 18 Ready to Complete Page



10. Log in to the virtual machine using the username "admin" and password "admin".

FIGURE 19 Ruckus IoT Controller Login Prompt



11. Enter **1** in the **Enter Choice** field to get the IP address of the virtual machine.
This information is needed to access the Ruckus IoT Controller Initialization page.

FIGURE 20 Displaying the IP Address

```
*****
                                vRIoT Controller
                                Main Menu
*****

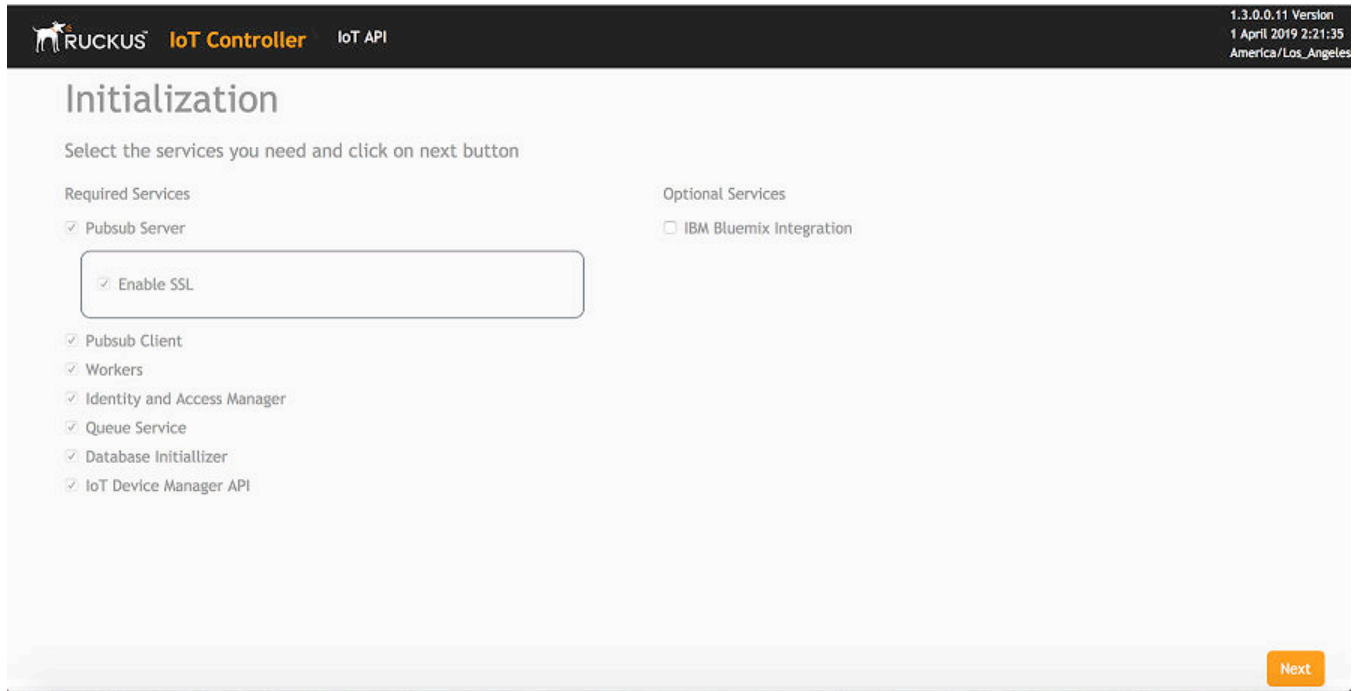
1 - Ethernet Network
2 - Get Application Info
3 - NTP Setting
4 - Restart Application
5 - Reboot System
6 - Reset System
7 - Command Prompt
8 - Comm Debugger
9 - N+1
x - Log Off

Enter Choice: █
```

To configure N+1 on the Ruckus IoT Controller, enter **9** in the **Enter Choice** field. Refer to the topic Logging In to Ruckus IoT Controller in the *Ruckus IoT Controller Configuration Guide* to complete this configuration.

12. Open a web browser on your host machine and enter the IP address of the VM in the address bar.
HTTP and HTTPS on ports 80 and 443 are supported.
The **Initialization** page is displayed.

FIGURE 21 Intialization Page



13. Select the required services and click **Next**.

14. Confirm the configuration information and click **Start**.

FIGURE 22 Initial VM and IP Configurations

RUCKUS IoT Controller IoT API 1.3.0.0.11 Version
1 April 2019 2:21:48
America/Los_Angeles

Initialization

Select the services you need and click on start button

VM Configurations

Hostname:

Time Zone:

Set Time Automatically using NTP Set Time Manually

NTP Address: (Optional)

IP Configurations

DHCP Static

[Back](#) [Start](#)

The **Ruckus IoT Controller Login** page is displayed.

FIGURE 23 Ruckus IoT Controller Login Page

RuckusIoT Controller

Username:

Password: [Show](#)

[Login](#)

15. Enter the username "admin" and password "admin".

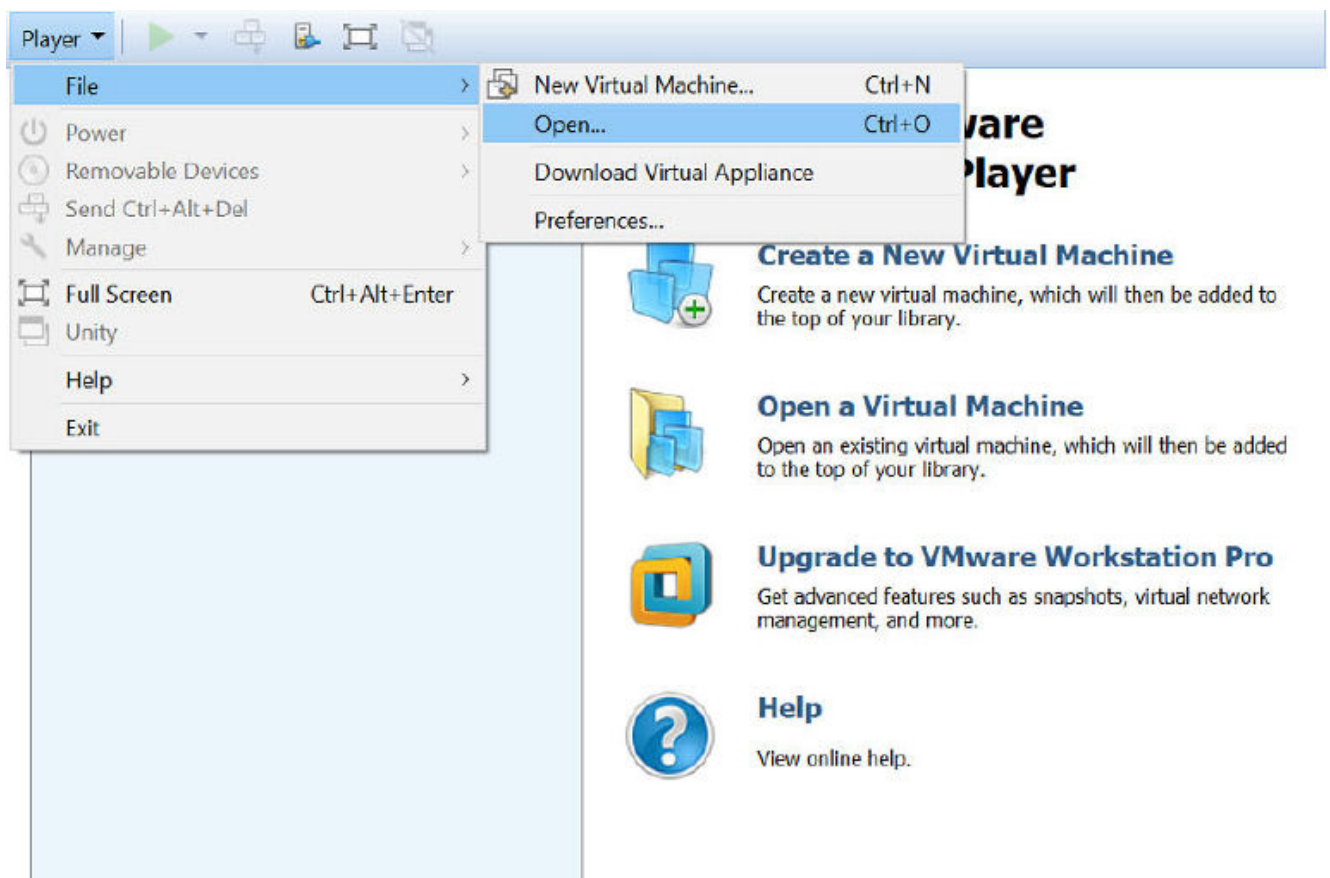
You are ready to configure and start the Ruckus IoT Controller services. Refer to the *Ruckus IoT Controller Configuration Guide* for more information.

Installing Ruckus IoT Controller Using VMware Player

The Ruckus IoT Controller can be installed on a virtual machine using VMware Player.

1. Download the Ruckus IoT Controller distribution package in the .OVA file format from the Ruckus Support website at <https://support.ruckuswireless.com>.
2. Open VMware Player.
3. From the **Player** menu, select **File > Open**, and select the .OVA file for the Ruckus IoT Controller.

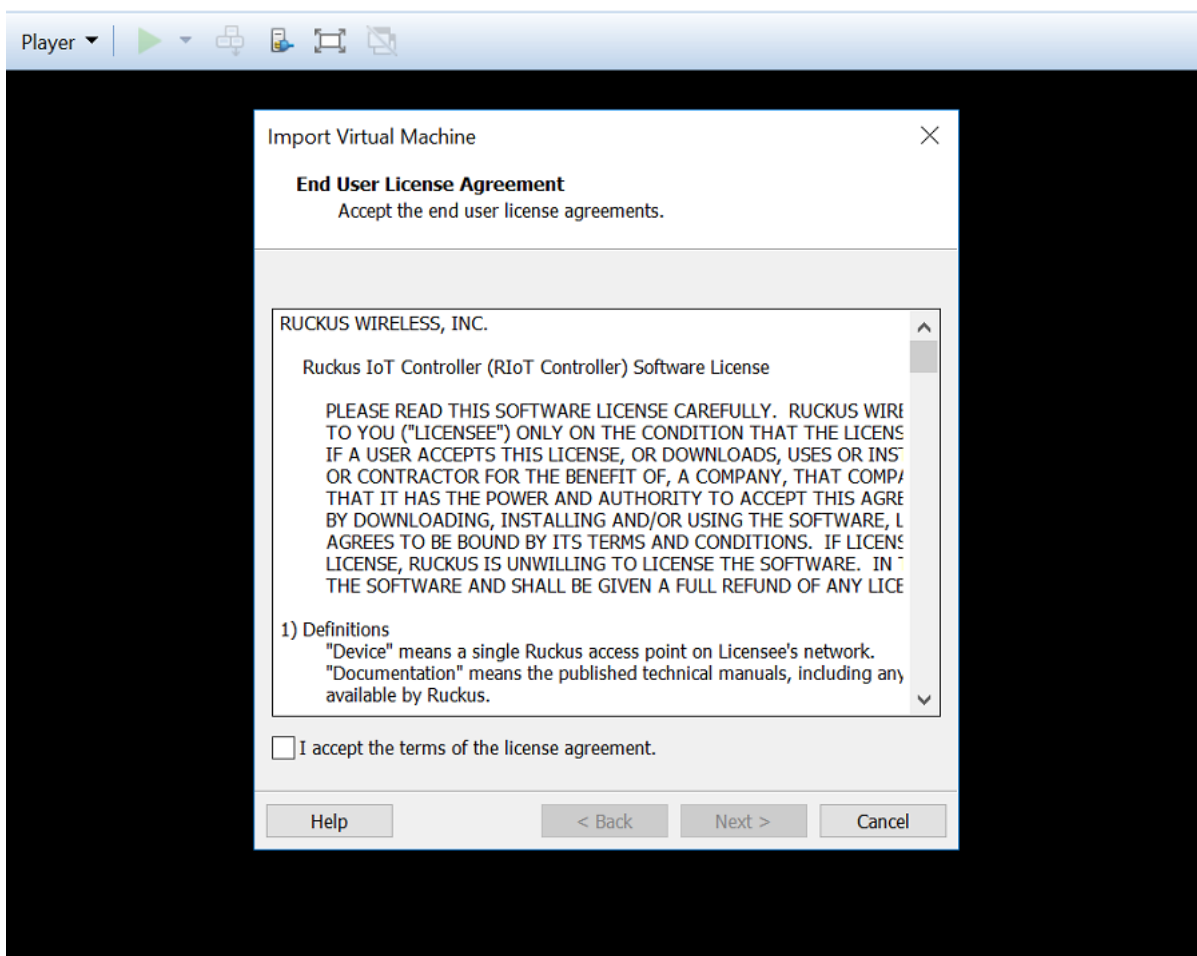
FIGURE 24 Selecting the .OVA File



The installation begins.

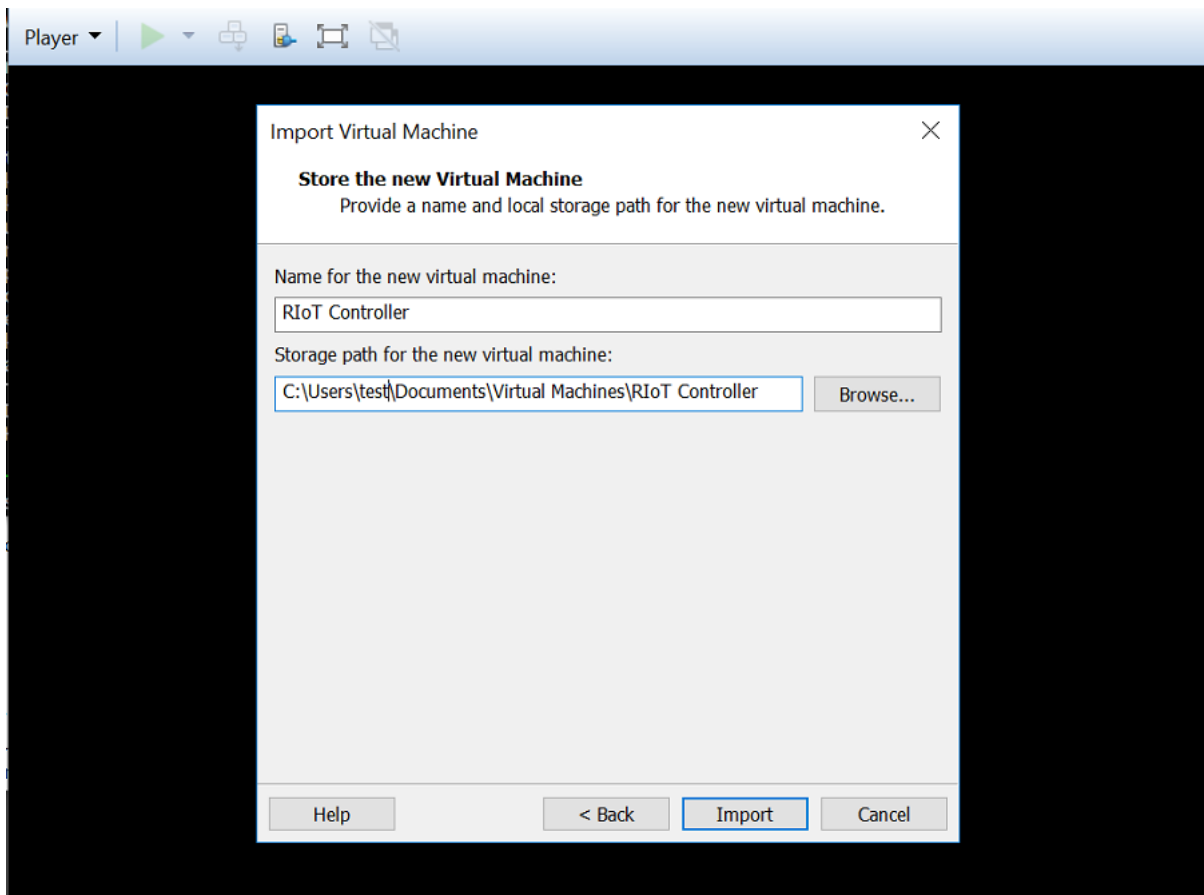
4. Accept the terms of the end user license agreement and click **Next**.

FIGURE 25 End User License Agreement



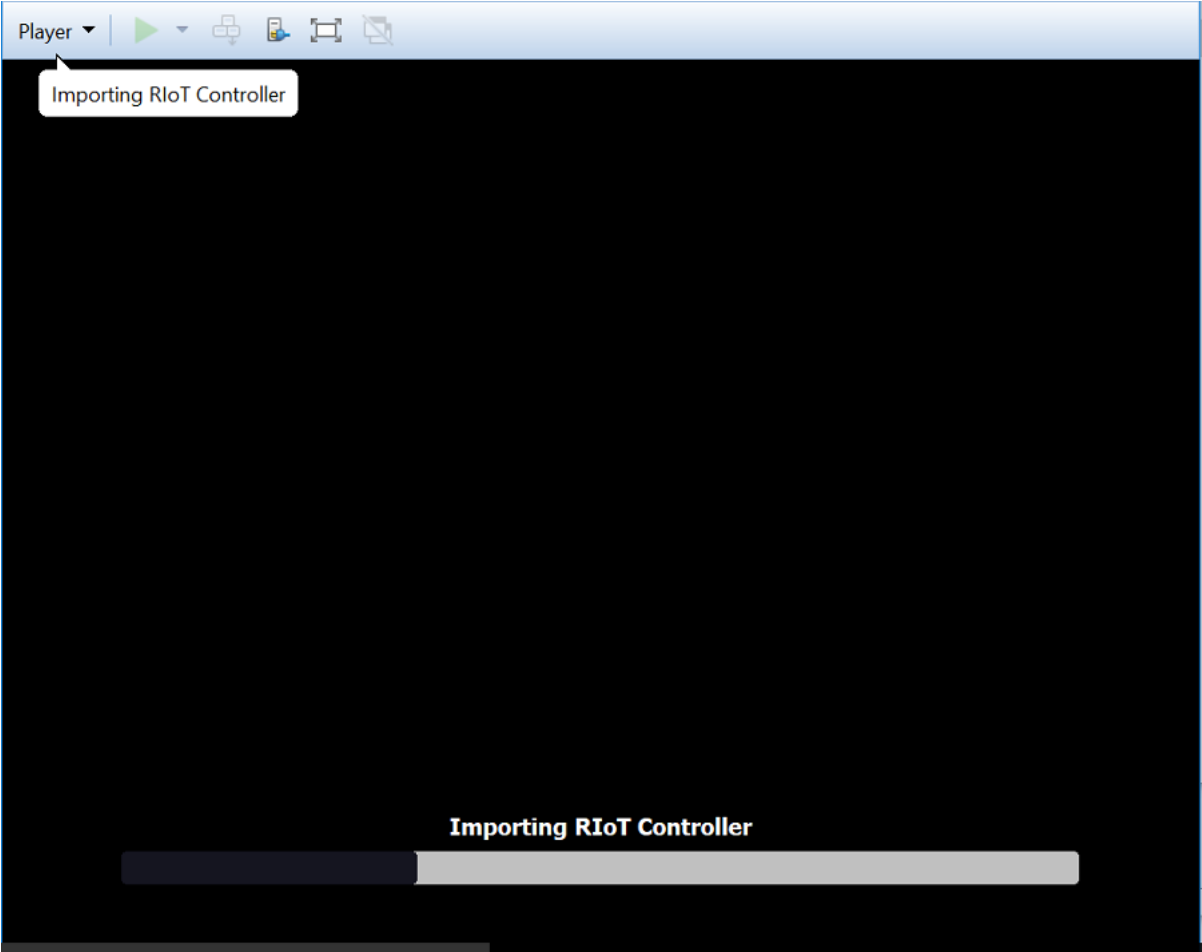
5. Enter a name and storage path for the virtual machine and click **Import**.

FIGURE 26 Naming the Virtual Machine



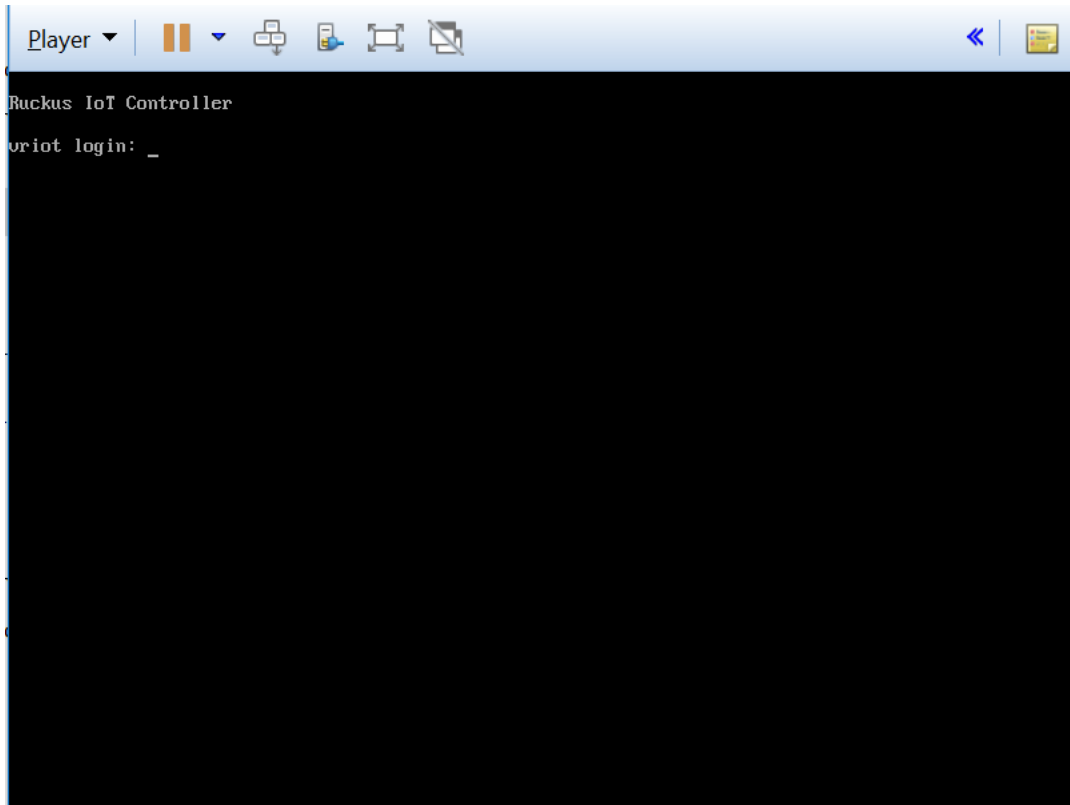
VMware Player begins importing the Ruckus IoT Controller.

FIGURE 27 Importing the Ruckus IoT Controller



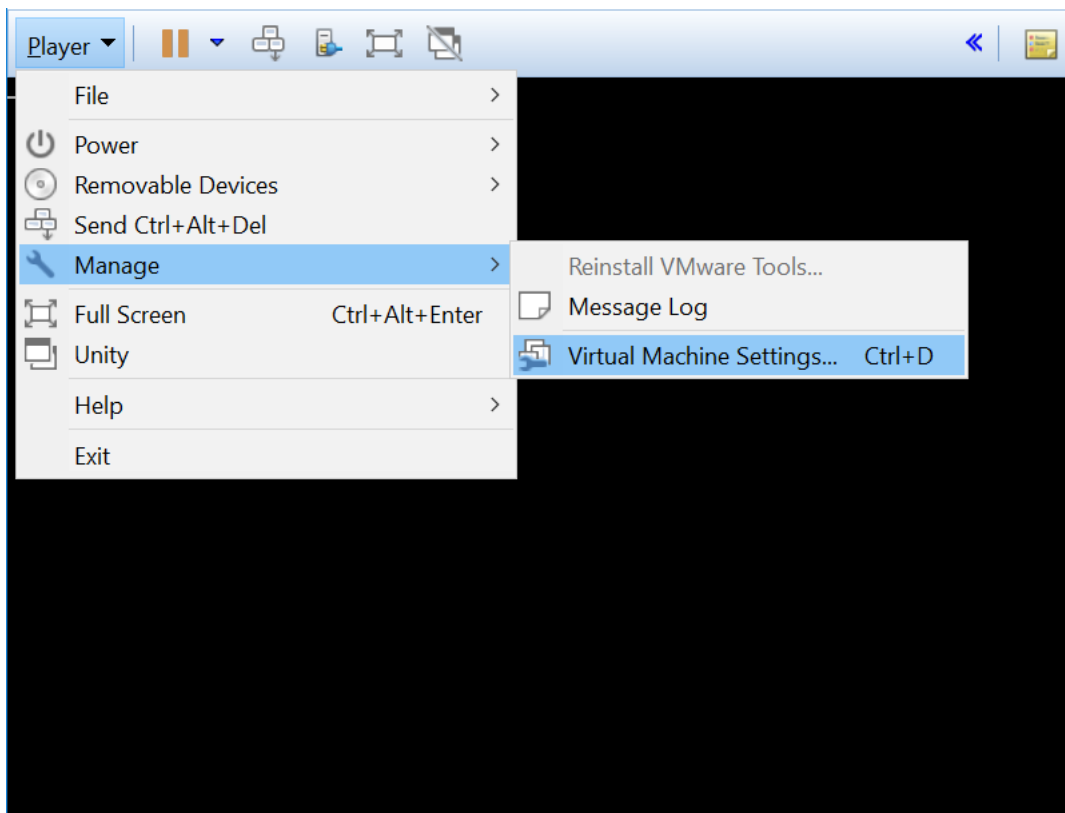
6. Log in to the Ruckus IoT Controller using the username "admin" and password "admin".

FIGURE 28 Ruckus IoT Controller Login Prompt



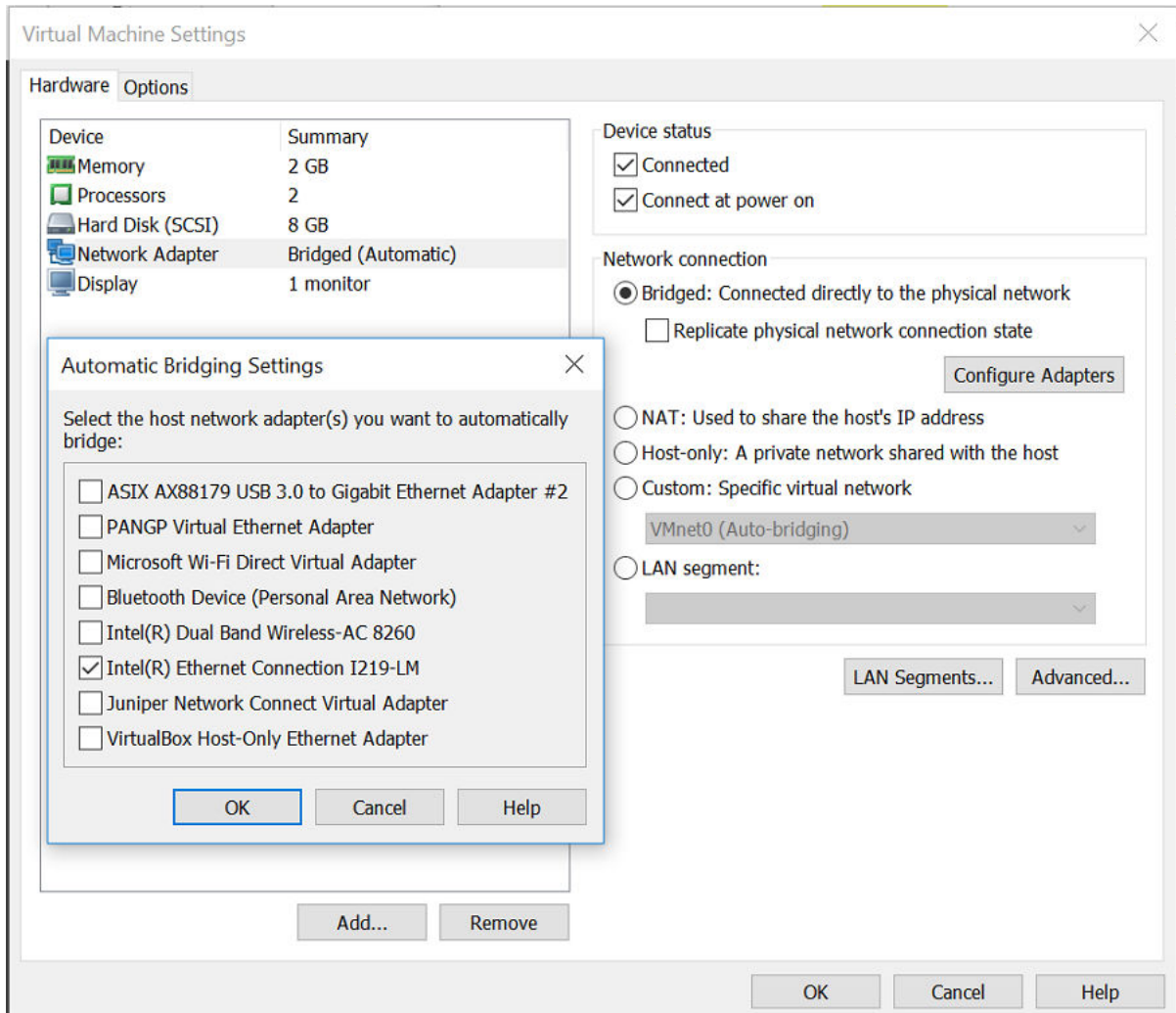
7. From the **Player** menu, select **Manage > Virtual Machine Settings** to open the settings for the virtual machine.

FIGURE 29 Opening the Virtual Machine Settings



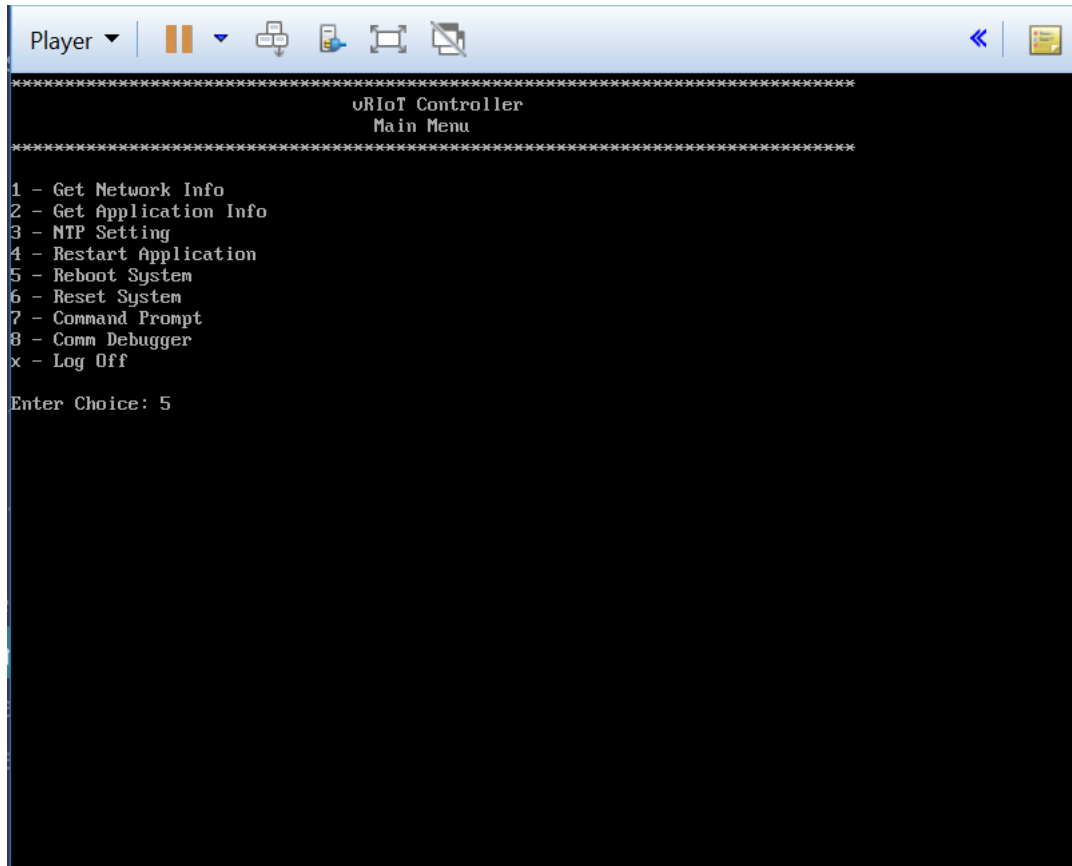
- Click the **Bridged** network connection and select the appropriate host network adapter for automatic bridging. Click **OK**.

FIGURE 30 Virtual Machine Settings Page



9. In the Ruckus IoT Controller Main Menu, enter **5** in the **Enter Choice** field to reboot the Ruckus IoT Controller.

FIGURE 31 Rebooting Ruckus IoT Controller



10. Enter **1** in the **Enter Choice** field to get the IP address of the virtual machine.
This information is needed to access the Ruckus IoT Controller **Initialization** page.

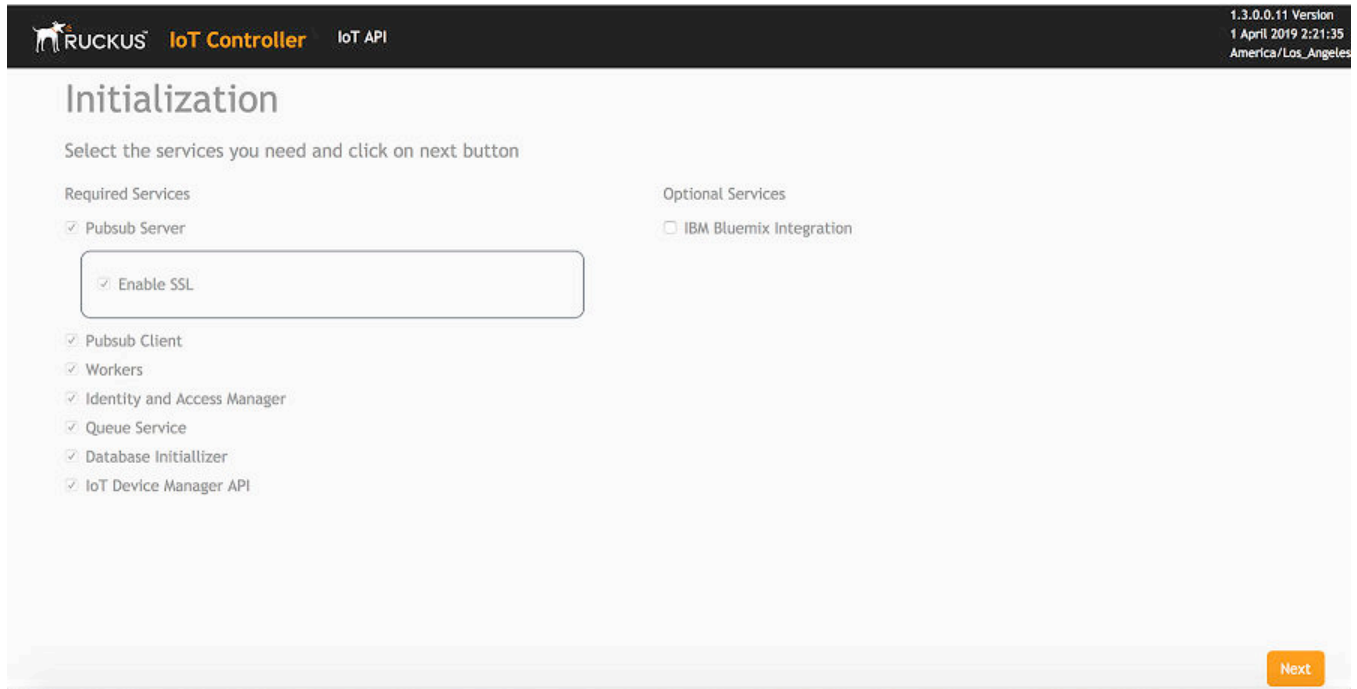
FIGURE 32 Displaying the IP Address

```
*****  
vRIoT Controller  
Main Menu  
*****  
  
1 - Ethernet Network  
2 - Get Application Info  
3 - NTP Setting  
4 - Restart Application  
5 - Reboot System  
6 - Reset System  
7 - Command Prompt  
8 - Comm Debugger  
9 - N+1  
x - Log Off  
  
Enter Choice: █
```

To configure N+1 on the Ruckus IoT Controller, enter **9** in the **Enter Choice** field. Refer to the topic Logging In to Ruckus IoT Controller in the *Ruckus IoT Controller Configuration Guide* to complete this configuration.

11. Open a web browser on your host machine and enter the IP address of the VM in the address bar.
HTTP and HTTPS on ports 80 and 443 are supported.
The **Initialization** page is displayed.

FIGURE 33 Intialization Page



12. Select the required services and click **Next**.

13. Confirm the configuration information and click **Start**.

FIGURE 34 Initial VM and IP Configurations

RUCKUS IoT Controller IoT API 1.3.0.0.11 Version
1 April 2019 2:21:48
America/Los_Angeles

Initialization

Select the services you need and click on start button

VM Configurations

Hostname:

Time Zone:

Set Time Automatically using NTP Set Time Manually

NTP Address: (Optional)

IP Configurations

DHCP Static

Back **Start**

The **Ruckus IoT Controller Login** page is displayed.

FIGURE 35 Ruckus IoT Controller Login Page

RuckusIoT Controller

Username:

Password: Show

Login

14. Enter the username "admin" and password "admin".

You are ready to configure and start the Ruckus IoT Controller services. Refer to the *Ruckus IoT Controller Configuration Guide* for more information.

Upgrading the Software

- [Upgrading the AP Firmware Using SmartZone100 or Virtual SmartZone Controller.....](#) 45

Upgrading the AP Firmware Using SmartZone100 or Virtual SmartZone Controller

You can upgrade the existing AP firmware using a SmartZone100 controller or Virtual SmartZone.

Always back up the controller before attempting a software upgrade. If you are managing a multi-node cluster, back up the entire cluster, and then verify that the backup process has completed successfully. If you have an FTP server, back up the entire cluster and upload the backup files from all the nodes in a cluster to a remote FTP server.

NOTE

Ruckus strongly recommends backing up the SmartZone100 controller cluster before performing an upgrade. If the upgrade process fails for any reason, you can use the latest backup file to restore the controller cluster.

NOTE

Before beginning the upgrade, you must obtain a valid controller software upgrade file from Ruckus Support or an authorized Ruckus reseller.

Before starting this procedure, you should have already obtained a valid controller software upgrade file from Ruckus Support or an authorized reseller.

Always back up the controller before attempting a software upgrade. If you are managing a multi-node cluster, back up the entire cluster, and then verify that the backup process completes successfully.

If you have an FTP server, back up the entire cluster and upload the backup files from all the nodes in a cluster to a remote FTP server.

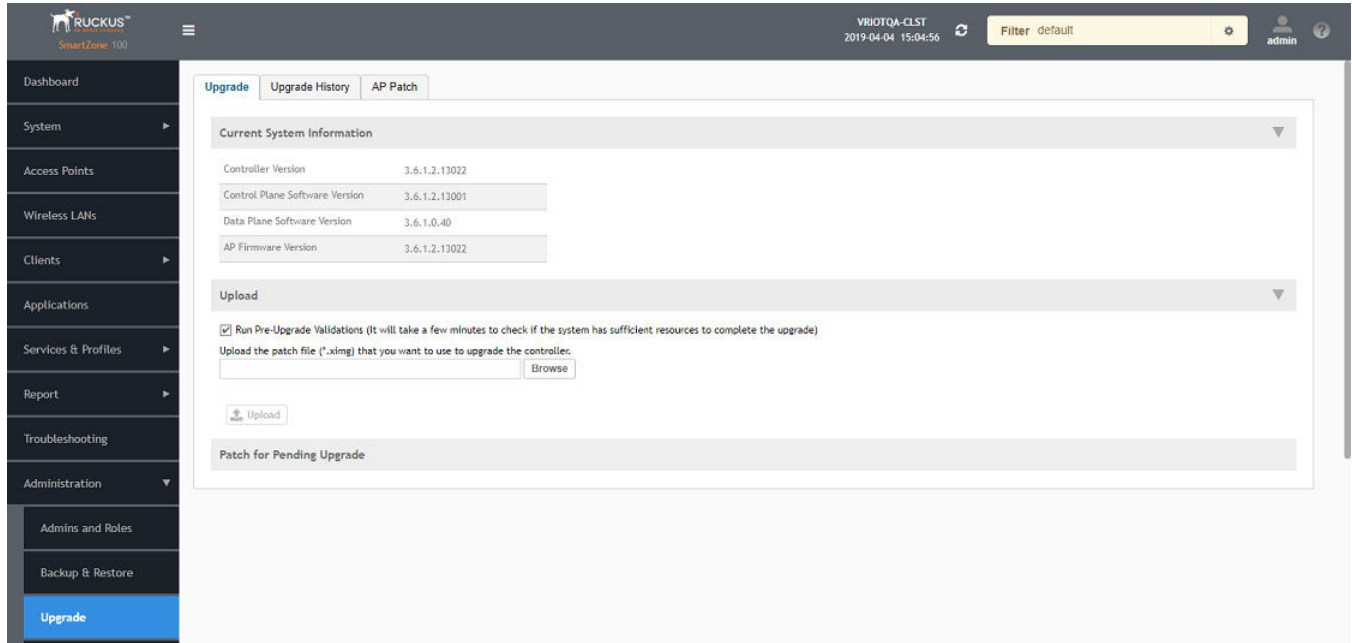
1. Copy the software upgrade file that you received from Ruckus to the computer where you are accessing the controller web interface or to any location on the network that is accessible from the web interface.

Upgrading the Software

Upgrading the AP Firmware Using SmartZone100 or Virtual SmartZone Controller

- From the Smartzone 100 interface click **Administration** -> **Upgrade**

FIGURE 36 SmartZone100 User Interface



- Select the **Upgrade** tab.

Under **Current System Information**, the controller version information is displayed.

NOTE

The **Upgrade History** tab displays information about previous cluster upgrades.

- Under Upload, select **Run Pre-Upgrade Validations** check box to verify if the data migration was successful. This option allows you to verify data migration errors before performing the upgrade.

NOTE

You can still upgrade even if there are data migration errors.

- Click **Browse** to select the .ximg patch file.
- Click **Upload** to upload the controller configuration to the configuration in the patch file.

The controller uploads the file to its database, and then performs file verification. After the file is verified, the **Patch for Pending Upgrade** section is populated with information about the upgrade file. If data migration was unsuccessful, the following error is displayed:

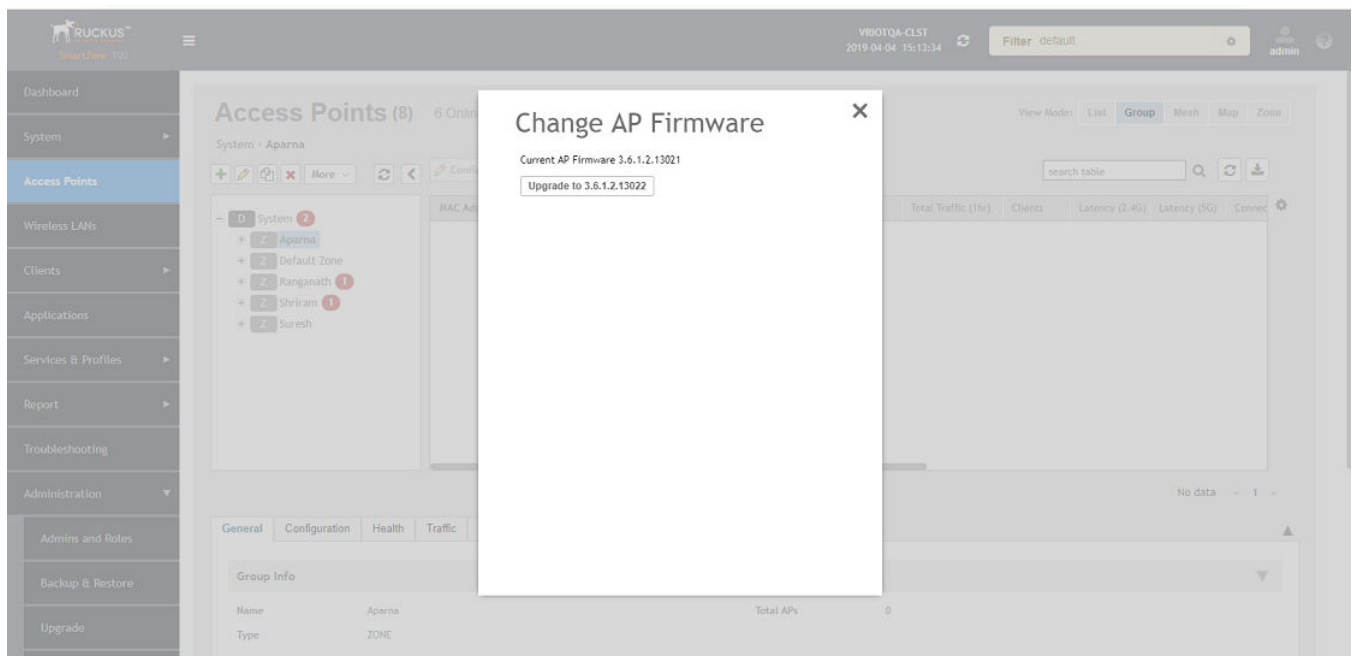
```
Exception occurred during the validation of data migration. Please apply the system configuration backup and contact system administrator.
```

7. If the controller configuration upload was successful, perform one of the following:
 - Click **Upgrade** to start the upgrade process without backing up the current controller cluster or its system configuration.
 - Click **Backup & Upgrade** to back up the controller cluster and system configuration before performing the upgrade.

When the upgrade (or backup-and-upgrade) process is complete, the controller logs you off the web interface automatically. When the controller log on page appears again, you have completed upgrading the controller.

8. From the Smartzone 100 interface, click **Access Points**.
9. Select the zone from the list, and click **More** and select the **Change AP Firmware** form the drop-down list. A **Change AP Firmware** dialog-box appears.

FIGURE 37 Changing the AP Firmware

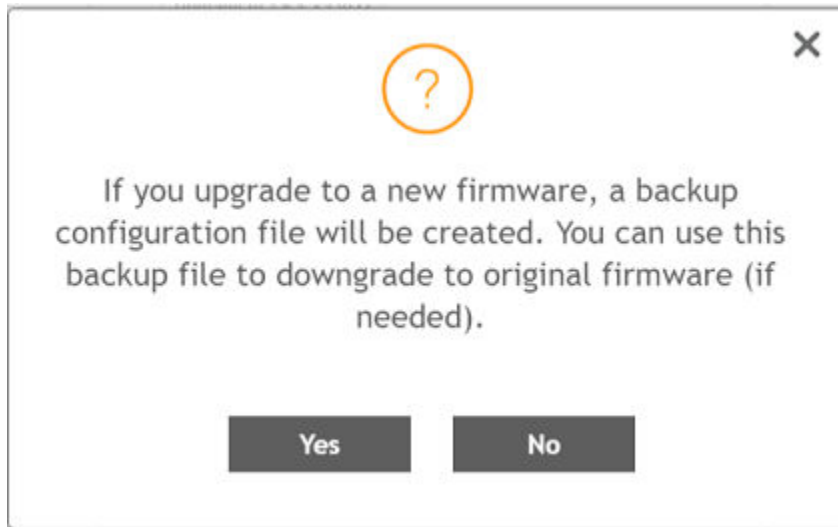


Upgrading the Software

Upgrading the AP Firmware Using SmartZone100 or Virtual SmartZone Controller

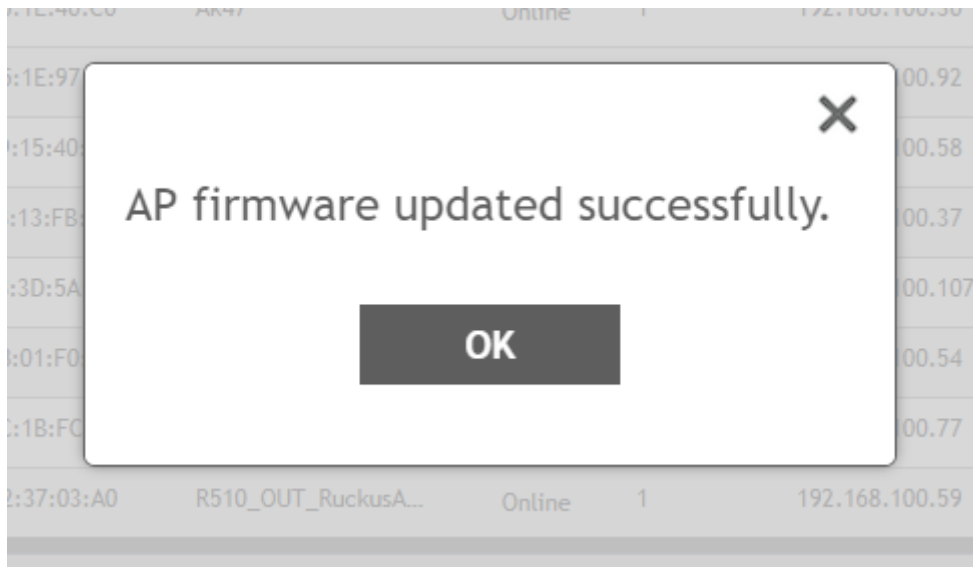
10. The Current AP Firmware version is displayed. Click **Upgrade** to upgrade to new firmware version.

FIGURE 38 Upgrading to New Firmware



11. Click **Yes**, a confirmation message appears stating that the firmware version was updated successfully.

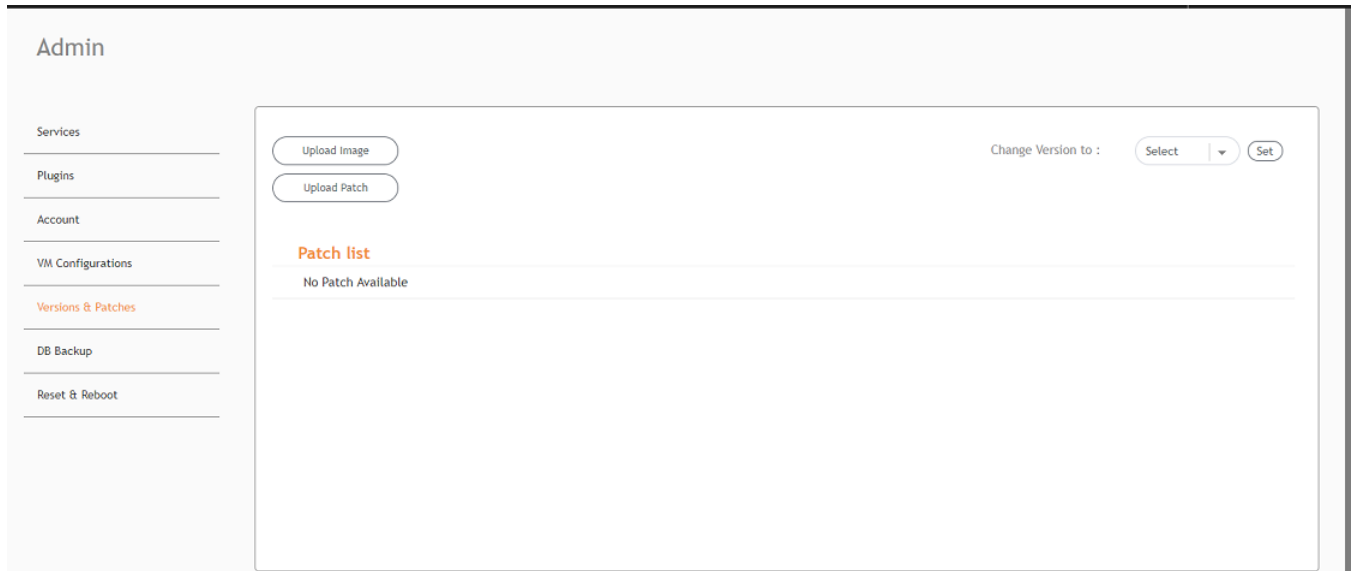
FIGURE 39 Update Successful Dialog Box



12. A successful display dialog box appears. Click **OK**.
The AP firmware is updated successfully.

13. Open the Ruckus IoT Controller. From the **Admin** tab, click **Versions and Patches**

FIGURE 40 Uploading an Image



14. Click **Upload Image** and select the tar.gz image.
15. From the **Change version to** list, select the image and click **Set**.
16. The Ruckus IoT Controller is upgraded successfully to the new build.



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