Oracle® Retail Merchandise Financial Planning Cloud Service

Starter Kit

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Oracle Retail Merchandise Financial Planning Cloud Service Starter Kit, Release 19.0

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Oracle Retail Merchandise Financial Planning Cloud Service Starter Kit, Release 19.0.

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Preface

Oracle Retail Installation Guides contain the requirements and procedures that are necessary for the retailer to install Oracle Retail products.

Audience

This Starter Kit is written for the following audiences:

- Integrators and implementation staff

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Related Documents

For more information, see the following documents in the Oracle Retail Merchandise Financial Planning Cloud Service Release 19.0 documentation set:

- *Oracle Retail Merchandise Financial Planning Cloud Service Administration Guide*
- *Oracle Retail Merchandise Financial Planning Cloud Service Implementation Guide*
- *Oracle Retail Merchandise Financial Planning Cost Cloud Service User Guide*
- *Oracle Retail Merchandise Financial Planning Retail Cloud Service User Guide*
- *Oracle Retail Merchandise Financial Planning Cloud Service Starter Kit Guide*
- *Oracle Retail Merchandise Financial Planning Cloud Service Release Notes*
- Oracle Retail Predictive Application Server Cloud Edition documentation set

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- Exact error message received
- Screenshots of each step you take

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Conventions

The following text conventions are used in this document:

Convention	Meaning
boldface	Boldface type indicates graphical user interface elements associated with an action, or terms defined in text or the glossary.
italic	Italic type indicates book titles, emphasis, or placeholder variables for which you supply particular values.

Convention	Meaning
`monospace`	Monospace type indicates commands within a paragraph, URLs, code in examples, text that appears on the screen, or text that you enter.

1

Introduction

Welcome to the *Oracle Retail Merchandise Financial Planning Cloud Service Starter Kit*. This chapter outlines the contents of this guide, discusses the updated components with respect to the previous version, lists hardware and software requirements, and defines commonly used notations and terms.

Using this document allows users to:

- Install RPAS Windows Starter Kit
- Launch ConfigTools and application plug-ins for modifying an existing or developing a new application configuration.
- Validate the configurations using scripts in Cygwin
- Launch Starter Kit VM and start using the application

About This Document

This document contains information for installation of the Starter Kit components.

Read this entire guide before beginning the installation process to ensure you understand the installation process and have all the necessary documentation, hardware, and software available.

Hardware and Software Requirements

Table 1–1 describes the hardware and software requirements for the Starter Kit.

Note: Java can be acquired for Microsoft Windows at: `www.java.com`.

Table 1–1 Starter Kit Hardware and Software Requirements

Requirement	Details
Supported Operating Systems for RPAS Configuration Tools	Microsoft Windows 10 **Note:** Oracle Retail assumes that the retailer has ensured its Operating System has been patched with all applicable Windows updates.
	RPAS Configuration Tools requires 64-bit Java 1.8 or later.

Table 1–1 (Cont.) Starter Kit Hardware and Software Requirements

Requirement	Details
Required Software	■ Java 8 JDK (required to support the RPAS Cloud Edition Configuration Tools.) ■ Microsoft 2015 Runtime Libraries ■ VirtualBox ■ Cygwin
Microsoft 2015 Runtime Libraries	Ensure that these Microsoft 2015 Runtime Libraries are installed to enable RPAS RPAS Cloud Edition Configuration Tools and other RPAS utilities: ■ vc_redist.x64.exe ■ vc_redist.x86.exe Download these libraries from this link: **https://www.microsoft.com/en-us/download/details.aspx?id=48145** **Note:** Use Microsoft Visual C++ 2015 or higher for use with RPAS Cloud Edition Configuration Tools and other RPAS utilities.
Cygwin	Cygwin provides a Unix-like environment under Windows. You must install Cygwin to emulate UNIX commands (required for running some RPAS Cloud Edition Configuration Tools utilities on Windows).

Cygwin Installation Requirement Notes

The following notes pertain to the RPAS hardware and software requirements.

Installation Requirements for Cygwin

For some RPAS Cloud Edition Configuration Tools utilities on Windows, you must install Cygwin to emulate UNIX commands. You can find more information about downloading this product at: **http://www.cygwin.com**.

1. Cygwin should be installed under this directory:

   C:\cygwin

   Note: Only use this folder and do not install under **C:\Program files** or any other folders with spaces to avoid file path conversion issues.

2. Select **Use System Proxy Settings** for install to display a list of mirror sites.

   WARNING: In addition to the default packages that are installed, make sure to select **mksh** and unzip packages to be installed.

Starter Kit Components

For information on installing the Starter Kit, refer to Chapter 2, "Installing on a Windows Environment."

For information on installing the VM related software refer to Chapter 3, "RPAS CE Virtual Machine"

Hardware and Software Requirement Notes

The following notes pertain to the RPAS hardware and software requirements:

- An application for unzipping (`.zip`) components must be installed and used for extracting the RPAS Configuration Tools.
- You must install Cygwin to emulate UNIX commands (required for running some RPAS Configuration Tools utilities on Windows). You can find more information about downloading this product at: `http://www.cygwin.com`.

Table 1–2 indicates which software components are needed for each task.

Table 1–2 Software Requirements Notes

Item	Details
Task	Use the Configuration Tools to create or modify solutions.
Typical User	Solution/ Product Administrator
Platforms	Windows 10
RPAS Server	Yes
RPAS Clients	No
Configuration Tools	Yes
Java	Yes

Terms

The following table lists terms that are used in this guide:

Term	Definition
RPAS	The Oracle Retail Predictive Application Server provides the foundation for Oracle Retail solutions such as Oracle Retail Demand Forecasting (RDF), Merchandise Financial Planning (MFP), and Advanced Inventory Planning (AIP). RPAS does not include any business logic, but it enables the solutions to store, manipulate and retrieve data. It provides the solutions with a standard interface based on wizards, templates, workbooks, and batch processes.
RPAS solution	The software that uses RPAS. RPAS solutions are added on to RPAS domains as separate modules. All the business logic is encapsulated in the solution. An RPAS domain can support multiple solutions.
RPAS domain	The collection of server-side directories and files containing data and procedures that comprise the RPAS solution. For additional information, refer to either the Classic Client or Fusion Client version of the *Oracle Retail Predictive Application Server Administration Guide*.
RPAS Configuration Tools	The tools used to configure an RPAS solution. For more information, refer to the *Oracle Retail Predictive Application Server Configuration Tools User Guide*

2

Installing on a Windows Environment

This chapter describes how to install the MFP Cloud Service Starter Kit on a Windows environment.

MFP Cloud Service Starter Kit Overview

RPAS 19.0 Cloud Service is comprised of many components. In addition, there are solutions that have been developed using the RPAS 19.0 Cloud Service foundation. Examples of these solutions include Oracle Retail Merchandise Financial Planning (MFP) and Oracle Retail Demand Forecasting (RDF). Each application supported by the RPAS 19.0 Cloud Service Platform has a dedicated Starter Kit.

The components of the Starter Kit software include the following:

- RPAS Configuration Tools
- RPAS Server libraries used by the Configuration Tools
- A base configuration of the application
- Application specific extensions of the RPAS Cloud Edition Configuration Tools
- Documentation
- Application specific batch scripts
- Hierarchy, data and translation files

> **Note:** The Starter Kit distribution does not contain a full Retail Home instance. As a result, Retail Home and its features are not supported in Starter Kit environments. The VM provided as part of the Starter Kit does not include Retail Home, Science, or RI components. It only contains the base planning application and does not use IDCS for authentication.

Starter Kit Installation on Windows

For the purposes of this section, a slash "/" is used to delineate directories and files in paths. Users in a Windows Command Prompt environment need to either use a backslash "\" as the delineation character or use double quotes around paths.

This section contains the following topics:

- Starting the Cygwin Shell and Setting up the Environment
- RPAS Package Location

- Installing the Starter Kit

Starting the Cygwin Shell and Setting up the Environment

Perform the following procedures to start the Cygwin shell and set up the environment.

- Update fstab
- Download and Install Java JDK
- Setup JAVA_HOME

Update fstab

WARNING: Before starting work with the Cygwin shell, you need to update the fstab file to prevent permission issues observed when files are modified on Windows Explorer versus Cygwin.

Open the Cygwin shell as an administrator. To run Cygwin as an Administrator, either:

- Right-click the Cygwin shortcut and select **Run as Administrator**
- Change shortcut and select **Run the Program as Administrator**

Modify the fstab file and close the shell.

```
>cd /etc

    >cat fstab
```

Note: Add the text, `noacl`, and `exec` to the fstab file.

Example 2–1 fstab Before Changes

```
# /etc/fstab
#
#    This file is read once by the first process in a Cygwin process tree.
#    To pick up changes, restart all Cygwin processes.  For a description
#    see https://cygwin.com/cygwin-ug-net/using.html#mount-table

# This is default anyway:
none /cygdrive cygdrive binary,posix=0,user 0 0
```

Example 2–2 fstab After Changes

```
# /etc/fstab
#
#    This file is read once by the first process in a Cygwin process tree.
#    To pick up changes, restart all Cygwin processes.  For a description
#    see https://cygwin.com/cygwin-ug-net/using.html#mount-table

none /cygdrive cygdrive binary,noacl,posix=0,user,exec 0 0
```

Download and Install Java JDK

This version of ConfigTools support 64 bit Java JDK version. Java needs to be installed under the directory which does not have spaces in it.

```
C:\Java
```

Setup JAVA_HOME

After installing JDK inside Cygwin, setup the JAVA_HOME as described in Creating the Required Environment Variables.

RPAS Package Location

The RPAS package can be found on My Oracle Support.

1. Access the following URL: `https://support.oracle.com`
2. From the My Oracle Support Portal, click **Download a Patch** within the **How Do I?...** box. This link opens the **Patches & Updates** tab on the My Oracle Support page.

3. From the **Patches & Updates** tab, select the **Product or Family (Advanced Search)** that is located in the **Patch Search** panel.
4. In the **Product** search box, enter: *Oracle Retail Merchandise Financial Planning Cloud Service*.
5. The **Release** list, provides all of the available releases for your product. Select the release that you wish to access and then click **Search**.

> **Note:** Some customers may not be able to download the Starter Kit package, due to a limitation in My Oracle Support portal's structure. If you run into a problem trying to download, then log an SR through which Oracle will provide you a link to access the Starter Kit package.

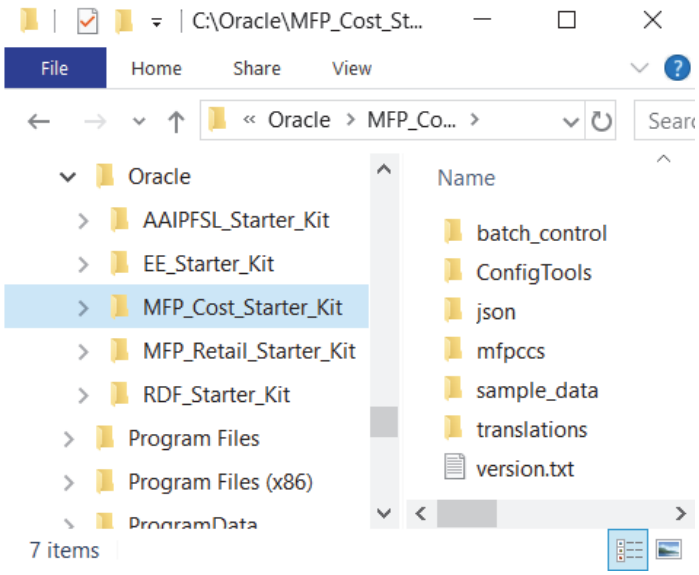
Installing the Starter Kit

The following procedures provide information about creating the necessary folders on your Windows PC and copying the Configuration Tools components to them.

1. Using Windows Explorer, navigate to your C drive, create a folder named **Oracle**.
2. Open the **Oracle** folder.
3. Unzip the **`MFP_Cost_Starter_Kit.zip`** into the newly created Oracle directory on the Windows machine. The **`MFP_Cost_Starter_Kit.zip`** contains all the RPAS components. Once extracted, the following directories appear:

Directory	Description
batch_control	This directory contains the GA batch control files that match the configuration provided. For informational use only, it is not needed to edit the configuration.
ConfigTools	This directory contains the components required to run the RPAS Configuration Tools.
json	This directory contains the GA json files for help and dashboard that match the configuration provided. For informational use only, it is not needed to edit the configuration.
mfpccs	This directory contains an example configuration for the application.
sample_data	This directory contains sample data for the application. For informational use only, it is not needed to edit the configuration.
translations	This directory contains GA translations for the application. For informational use only, it is not needed to edit the configuration.

Figure 2–1 ConfigTools Folder with All Starter Kit Components



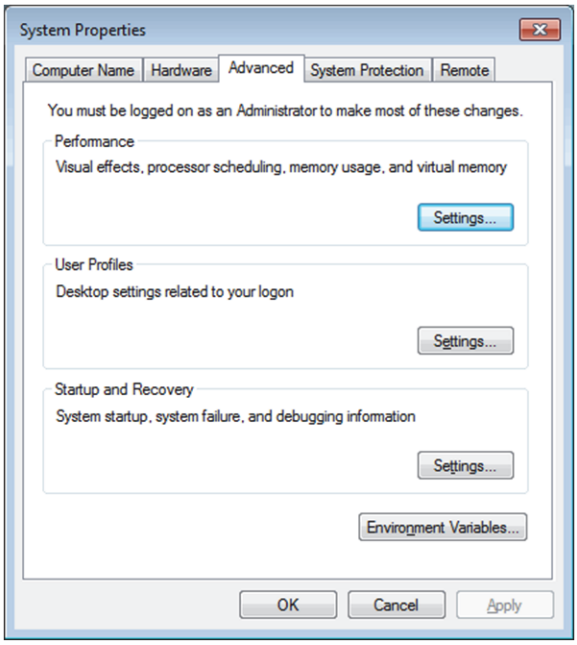
In this example, **`C:\Oracle\MFP_Cost_Starter_Kit\ConfigTools`** is referred to as both **RPAS_HOME** and **RIDE_HOME**. Environment variables are defined on your Windows PC to point to this location so that RPAS will function correctly. Refer to "Creating the Required Environment Variables" for information on creating the necessary RPAS variables.

Creating the Required Environment Variables

The following steps outline the process to follow and environment variables required to support the RPAS installation and domain install.

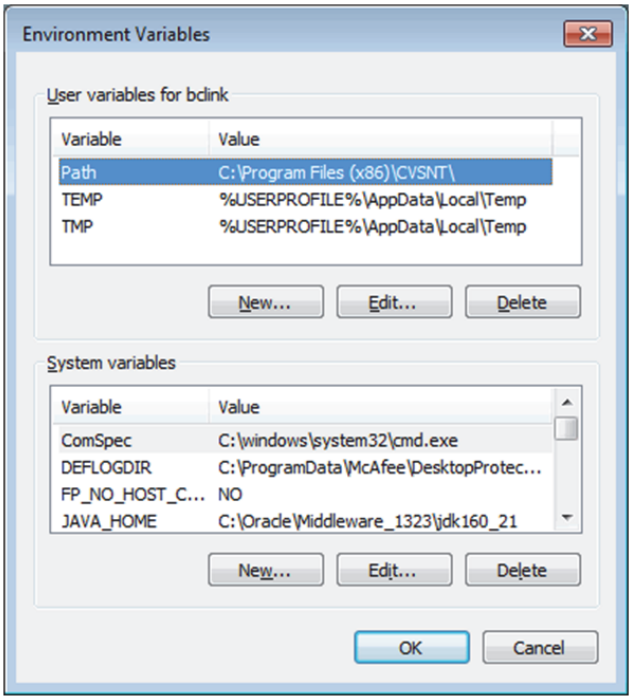
1. From the Windows Start Menu, type *environment*.
   a. Type *environment*. Select **Edit the System Environment Variables.**
   b. Select the **Advanced** tab.
   c. At the bottom of the window, click **Environment Variables**.

Figure 2–2 System Properties - Advanced Tab



d. The Environment Variables window opens.

Figure 2–3 Environment Variables



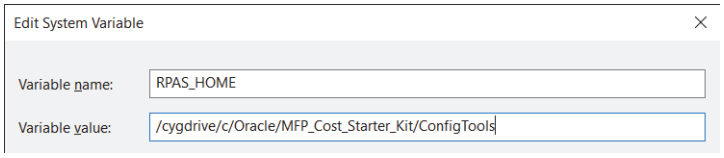
2. Create the **RPAS_HOME** environment variable.

a. Under the System variables box, click **New**. The New System Variable dialog box opens.

b. Enter **RPAS_HOME** in the **Variable** name field.

c. Enter the path of the **RPAS Server** folder in the **Variable value** field. In our Figure 2–4 example, this is: **`/cygdrive/c/Oracle/MFP_Cost_Starter_Kit/ConfigTools`**

Figure 2–4 Example of RPAS_HOME Variable



d. Click **OK**. **RPAS_HOME** now appears in the Variable name box.

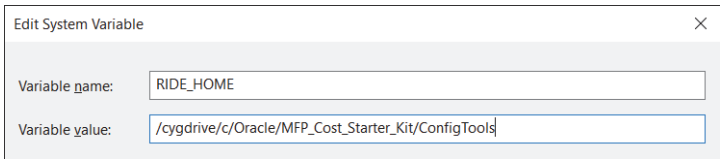
3. Create the **RIDE_HOME** environment variable.

a. Under the System variables box, click **New**. The New System Variable dialog box opens.

b. Enter **RIDE_HOME** in the **Variable name** field.

c. Enter the path of the **ConfigTools** folder in the **Variable value** field. In our Figure 2–5 example, this is: **`/cygdrive/c/Oracle/MFP_Cost_Starter_Kit/ConfigTools`**

Figure 2–5 Example of RIDE_HOME Variable



d. Click **OK**. **RIDE_HOME** now appears in the Variable name box.

4. Update or create the JAVA_HOME environment variable.

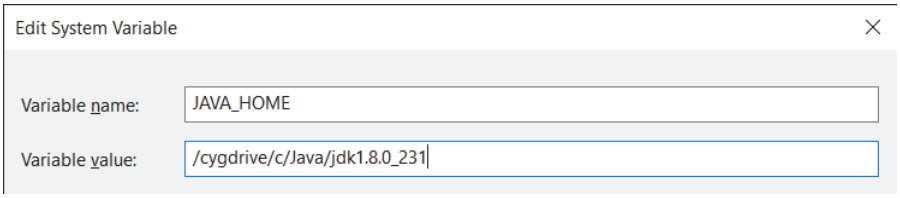
a. Under the System variables box, select the JAVA_HOME environment variable. Under the System variables box, select the JAVA_HOME environment variable. Either:

— click **Edit** to open the Edit System Variable dialog box

— click **New** to open the New System Variable dialog box and then enter JAVA_HOME in the Variable name field.

b. Enter the path of the java folder in the Variable value field. In Figure 2–6, this is: `/cygdrive/c/Java/jdk1.8.0_231`

Figure 2–6 JAVA_HOME Variable



5. Update the PATH variable.
   a. Under the System variables section, select the PATH environment variable and click **Edit**.
   b. Insert the complete paths for RPAS_HOME, RIDE_HOME, and JAVA_HOME as shown:

      ```
      %RPAS_HOME%\bin;%RPAS_HOME%\applib;%RPAS_HOME%\lib;
      %JAVA_HOME%\bin;%JAVA_HOME%\lib;
      %JAVA_HOME%\jre\bin\server
      ```

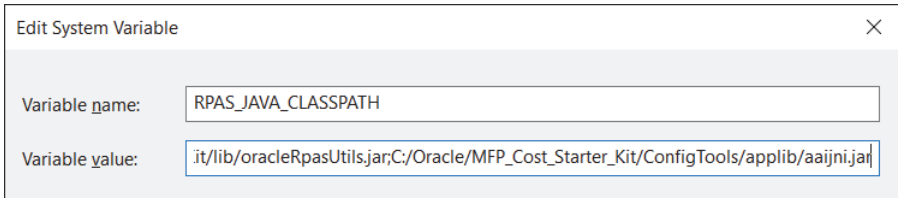
      Note: Remember to separate all path statements with semicolons (;).

   c. Select **OK** to save your changes.
6. The RPAS_JAVA_CLASSPATH is used to enable the MFP solution to execute extensions to RPAS written within the AAI framework. In order for the Configuration Tools to support these extensions, it is necessary to set the RPAS_JAVA_CLASSPATH environment variable so that the Configuration Tools can locate the libraries.

   The value of the RPAS_JAVA_CLASSPATH variable should be the locations of the aaijni.jar located in the applib subdirectory of the Starter Kit installation and the oracleRpasUtils.jar located in the lib subdirectory of the Starter Kit installation. Assuming the default location for Starter Kit installation, RPAS_JAVA_CLASSPATH should be set to:

   ```
   C:/Oracle/ConfigTools/MFP_Cloud_Starter_
   Kit/lib/oracleRpasUtils.jar;C:/Oracle/ConfigTools/MFP_Cost_Starter_
   Kit/applib/aaijni.jar
   ```

Figure 2–7 Example of RPAS_JAVA_CLASSPATH Variable



7. The RIDE_OPTIONS environmental variable has been defined to allow users to pass information into the ConfigTools process.

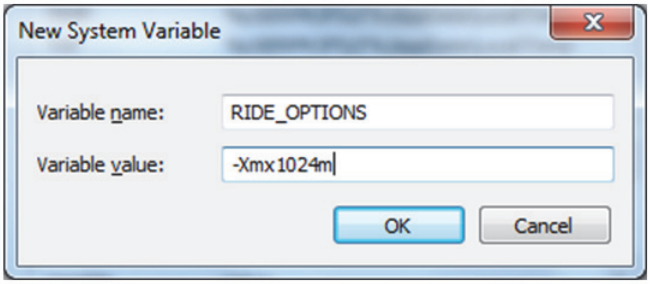
   For Java -Xmx Option

By default, the Java Virtual Machine requests on the order of 268 MB of RAM from the OS to allocate for its heap. Large domains that are built from complex configurations can potentially exhaust this limited amount of memory. This is even more of an issue when multiple configurations are open in the Configuration Tools and must be held in memory simultaneously.

By using the `-Xmx` option, you can instruct the Java Virtual Machine to request more memory from the OS to prevent situations when all allocated memory is exhausted. The syntax of the property is:

`-Xmx###m`, where ### is the amount, in megabytes, of memory the JVM is to request. Common values for this argument are `-Xmx512m` or `-Xmx1024m`.

Figure 2–8 Example of RIDE_OPTIONS Variable



Launching RPAS Cloud Edition Configuration Tools

Launching RPAS Cloud Edition Configuration Tools

Perform the following steps to launch RPAS Cloud Edition Configuration Tools from Cygwin.

1. Run Cygwin as an Administrator.
2. Switch to the mksh shell.

   In the Cygwin shell, switch to the **`.ksh`** shell by typing the command:**`>mksh`**
3. Change directories to the installed starter kit Config Tools bin directory.

   `>cd $RIDE_HOME/bin`

   then

   `>ConfigTools`

Generating the Configuration with Plug-in Options

MFP Cloud Service supports generating different configurations using plug-in automation for different configuration options.

For details on creating a configuration using plug-ins, refer to Appendix A, "Appendix: Generating the Configuration for Plug-in Options."

Domain Creation

This section describes domain creation using the Starter Kit. This process helps in validating configuration files for SFTP upload to the cloud servers to be built and deployed for the Application.

SFTP Subdirectories

> **Note:** For additional information, refer to the *Oracle Retail Merchandise Financial Planning Cloud Service Implementation Guide*

For the purposes of building the domain, three subdirectories in the SFTP site are used:

config

For uploading the domain configuration into the cloud environment, create an archive (either `.zip` or `.tar.gz`) containing the config directory and all of its contents. This archive file must be named as `<config_name>_config.zip` or `<config_name>_config.tar.gz`. This archive file must be placed in the simulated `SFTP server location $INCOMING_FTP_PATH/config` on your machine.

> **Note:** The config directory should also contain the `<CONFIGURATION_NAME >DashboardSettings.json` file in the directory. This file is then configured in the UI during the domain build process for displaying the dashboard.
>
> Sample files are located under the json directory. After you unzip the `MFP_Cost_Starter_Kit.zip`. If you do not have these files for your configuration you can place an empty file with the file names previously listed in this note.
>
> Use the plug-ins to generate different available configuration plug-in options. Refer to "Appendix: Generating the Configuration for Plug-in Options."

batch_control

The set of batch process control files, as detailed in the previous section, must be uploaded to the simulated `$INCOMING_FTP_PATH/batch_control` subdirectory. These files are placed into the domain environment when the domain is built.

input

The initial domain creation process requires at least the `.dat` files for all hierarchies specified in the domain configuration. Normally, it is desirable to have an initial set of measure data load files available at domain build time as well. These data files may be placed into the simulated `$INCOMING_FTP_PATH/input` directory of the SFTP server either as individual files or in an archive using either the `.zip` or `.tar.gz` format. If uploading data files in an archive format, the name of the archive to be unpacked will be specified as an optional parameter on the Online Admin page for building the domain.

Remember not to include any directory structure in the archive file, but only simple file names. In addition to the domain build and patch processes, batch framework tasks including measload, hierload, unpack, and waittrigger will also check for incoming files in this same input directory.

Note: Remember to send a complete file into the top-level COMMAND directory once all files for the domain build process have been uploaded.

A sample MFP configuration should include the previously mentioned files for upload.

integration

This integration directory in the Starter Kit contains the base GA Integration Configuration RGBU_RDM.xml. If customers use Planning Data Store (PDS) and plan to make changes to the integration configuration and then patch it, then they can use this integration configuration as the base integration configuration to make changes.

For more details about patching PDS, refer to the Patch PDS section in the *Oracle Retail Predictive Application Server Cloud Edition Administration Guide*.

Using Multiple Versions of RPAS on the Same Windows Machine

If you have multiple versions of the Starter Kit installed on your PC, it is important to note that the environment variables will reference RPAS 19.0 after the installation process is complete.

To switch to a different version of RPAS that is installed on your machine, you will need to manually update the RPAS_HOME and RIDE_HOME environment variables each time you want to switch.

Updating the Starter Kit Installation

Each release of Cloud Service will have a version-specific Starter Kit. As the product is enhanced in future versions, it will be necessary to update the Starter Kit to incorporate these enhancements. The following steps outline the process of updating the Starter Kit installation:

1. Download the new version of the MFP Cloud Service Starter Kit.
2. Delete the contents of the **`C:/Oracle/MFP_Cost_Starter_Kit`** directory.

WARNING: It is highly recommended to save custom configurations outside of the MFP_Cost_Starter_Kit directory so that they are not accidentally deleted when updating the Starter Kit.

3. Follow the installation instructions for the new version of the Starter Kit.
4. Run plug-in automation on the existing configuration to create a version of the configuration for the selection configuration options. Follow the instructions in the *Oracle Retail Merchandise Financial Planning Cloud Service Implementation Guide*.
5. Apply the changes in the newly generated configuration to the MFP Cloud Service domain.

Note: For more information on using the RPAS Configuration Manager, refer to the *Oracle Retail Predictive Application Server Configuration Tools User Guide*.

3

RPAS CE Virtual Machine

RPAS Cloud Edition (CE) Virtual Machines (VMs) provide a way for anyone to get up and running using the RPAS CE software as quickly as possible without having to deal 16with all the steps around setting up RPAS CE server, UI and its applications. The VMs were originally targeted for Oracle consultants and partners who want to get a quick feel of the application without having to setup hardware and software resources necessary for trying out RPAS CE solutions.

RPAS CE VMs are not a replacement or substitution for pre-production Cloud Environments (STAGE, Dev, and so on). These VMs are provided to partners to get a quick feel for the application and is not intended to be used as full-blown implementation tool.

This chapter lists the steps necessary to deploy an RPAS CE VM, launch the UI and connect to the domain included in the VM. All the components - RPAS CE server, JET client, the domain and the database used for notification purposes are all local to the VM. Please disregard the version numbers shown in some of the images in this chapter as the steps are exactly same across different versions.

Contrary to previous versions of the RPAS CE VMs where the RPAS CE server and UI software were directly installed in the VM they are now deployed using Docker inside the VirtualBox VM. Therefore, the RPAS CE server, UI and database processes are running inside their own silos known as containers inside the VM. for more information on Docker, refer to the URL:

https://docs.docker.com/

VirtualBox Software

Download the Oracle VirtualBox software that is available for Windows, Mac, Linux and Solaris from the following link. For Windows, select the download link for Windows Hosts:

https://www.virtualbox.org/wiki/Downloads

> **Note:** For a straight forward installation, use the VirtualBox version 6.1 from the older downloads section. Version 7 and later versions require Python and certain Python bindings, refer to VirtualBox software documentation for more information.

Note: The previously mentioned Operating System (OS) is the OS of the host machine where the VirtualBox software will be installed and not the OS of the VM image itself. For most installers this will be a Windows system as shown in Figure 3–1.

Figure 3–1 VirtualBox Platform Packages

System Requirements

The Oracle VirtualBox software has the following system requirements:

- 16GB RAM and a quad core CPU.

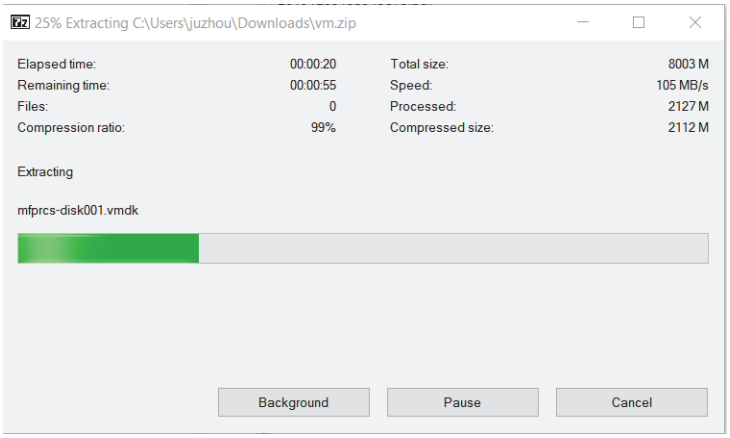
  Note: Without 16GB RAM and a 4 core CPU there might be sluggishness when using this VM. 16GB RAM ensures a smoother operation

- For systems with only 8GB RAM, it is recommended to stop all other processes running on the host machine.

VM Image

The VM is packaged as part of the Cloud Service Starter Kit as a zip archive that is split into parts. For example, **`vm.zip`**, **`vm.z01`**, **`vm.z02`**, and so on. Make sure all parts are downloaded fully and present in the same folder. Right-click on the **`vm.zip`** file and then extract using the Windows zip utility or another utility such as 7zip. The unzipped folder contains the VM base image file (**`.ovf`** file).

Figure 3–2 Zip File Extraction

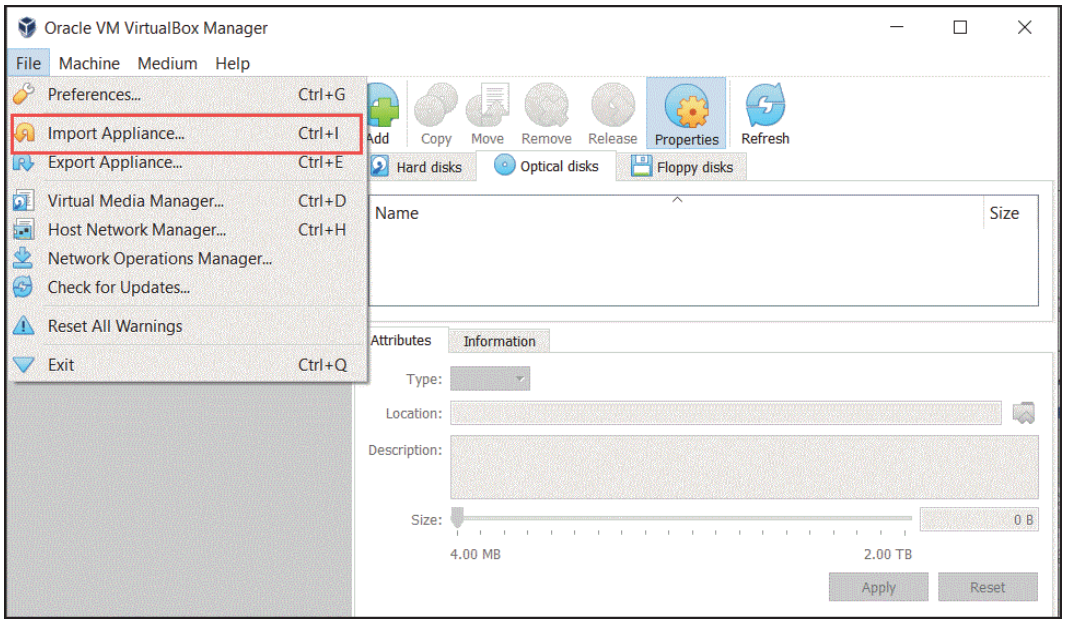


VM Setup

Perform the following steps to import the downloaded RPAS CE VM image file using VirtualBox software and then start it.

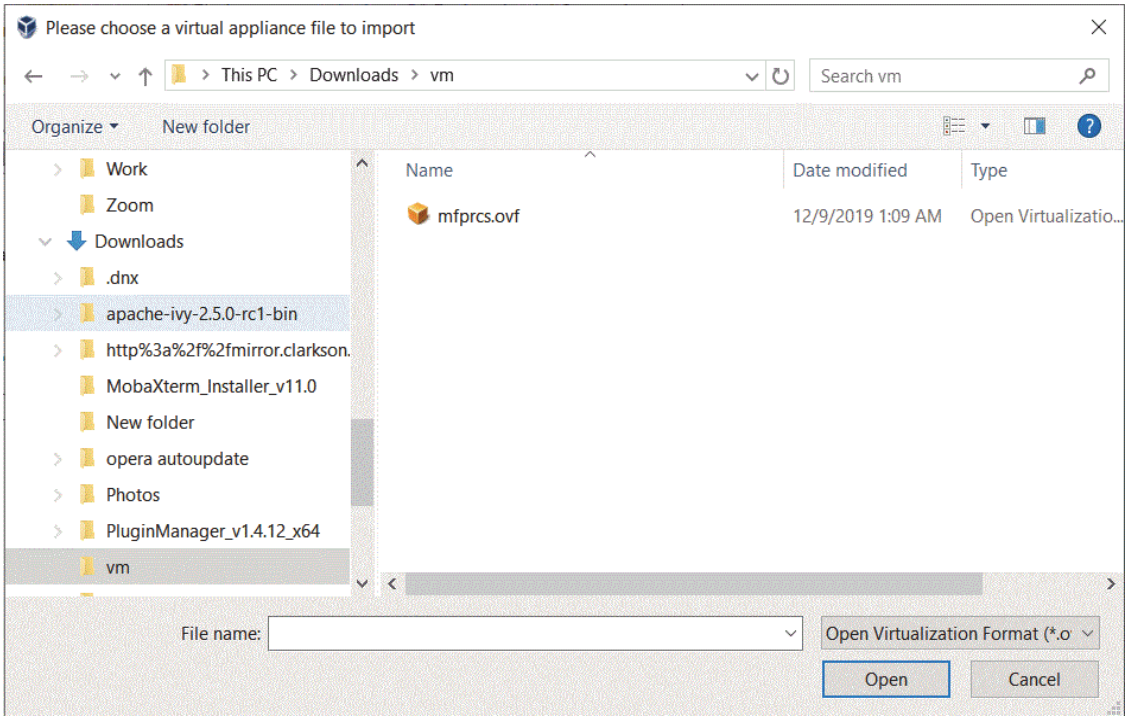
1. Start the VirtualBox software
2. From the main menu, click **File** and then select **Import Appliance…** as shown in Figure 3–3

Figure 3–3 Main Menu: Import Appliance…



3. Browse to the downloaded VM base image (`.ovf` file). Select the VM file with the `.ovf` extension and click **Open**.

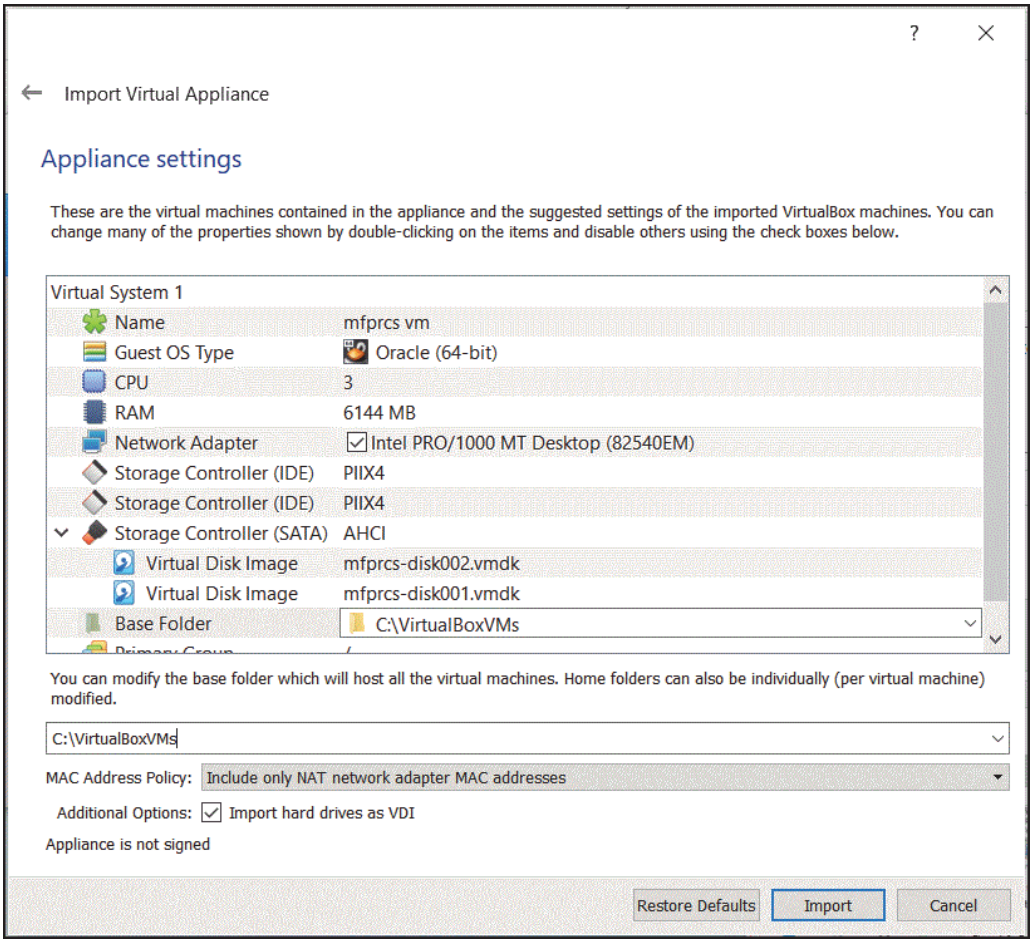
Figure 3–4 Downloaded VM Base Image



4. You can change the name of the VM or increase the RAM used from 8 GB to a higher number, but choose the RAM setting carefully. The memory given to VM will not be available to your host OS while the VM is running, and this can significantly impact the performance of your host OS if the available RAM to host OS is running low.

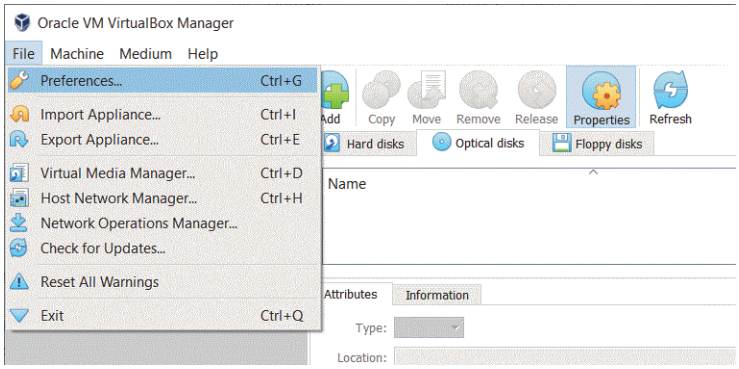
   Click **Import**.

Figure 3–5 Change the Name and RAM of the VM file

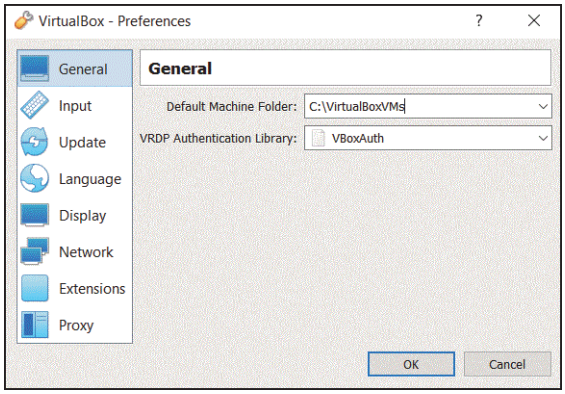


Note: This step creates a large file of around 20GB on your local disk. The default location of these files is the location where VirtualBox is installed (usually the C drive for Windows). If the default location does not contain at least 20 to 30GB of free space, then change the default location as described here:

- Click **File** and then select **Preferences…**



- Change the location of Default Machine Folder to a drive that has enough space.

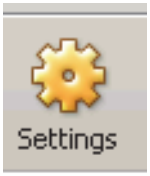


5. Wait for the image to get imported. It might take a few minutes.

   VM is by default setup to use 8 GB of memory since most machines now have at least 16 GB memory. If your machine has more than 16GB memory, then consider increasing the default of 8 GB to a higher value for better VM performance. Some Online Administration Batch tasks will not work without at least 12 GB of memory allocated.

   Click the Settings icon to change the settings for the selected VM.

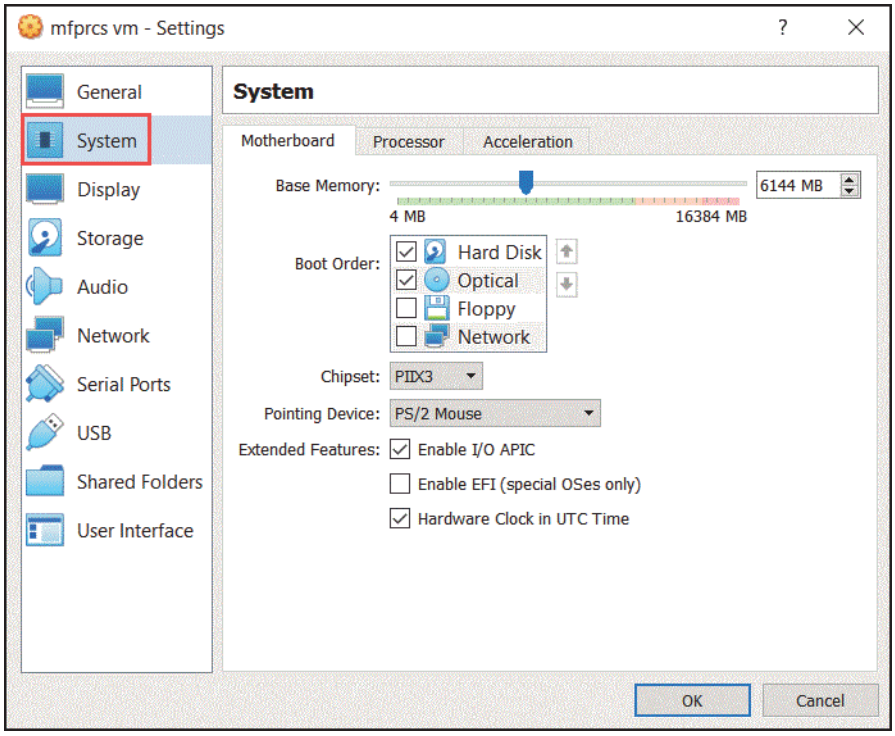
Figure 3–6 Settings Icon



6. From the left panel, click **System** and then move the slider to desired memory.

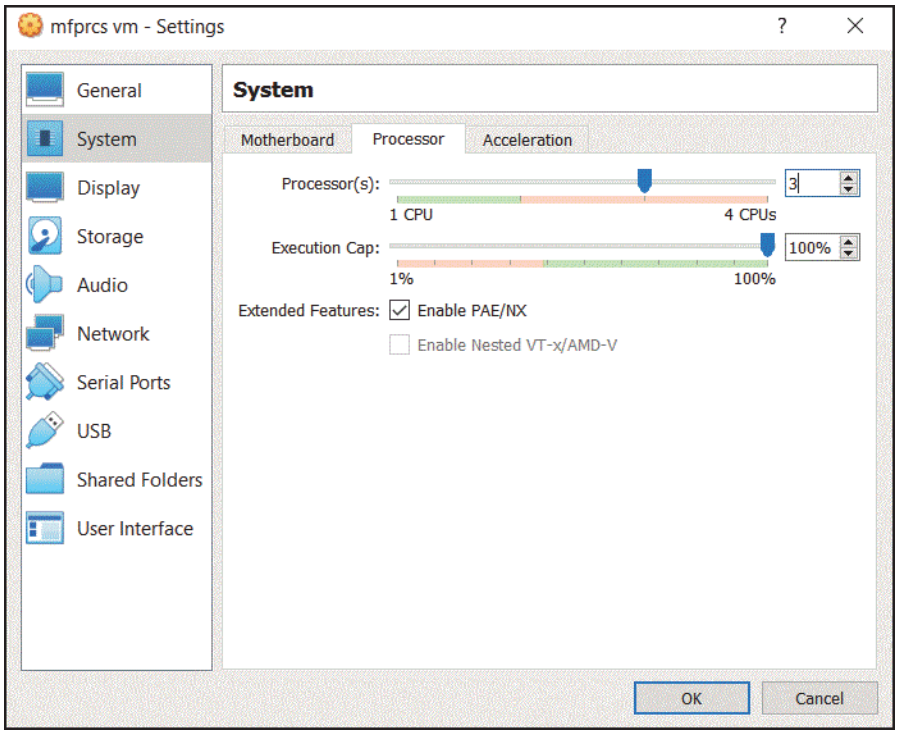
> **Note:** When setting up the VM Starter Kit, you could receive an invalid settings warning in Display. This warning can be ignored.

Figure 3–7 System Memory Slider



7. Select the Processor tab. If you run into performance issue during workbook build and your host OS has multi-core processors, you may increase the available CPU for the VM by increasing the number of processors in the Processor configuration (Figure 3–8).

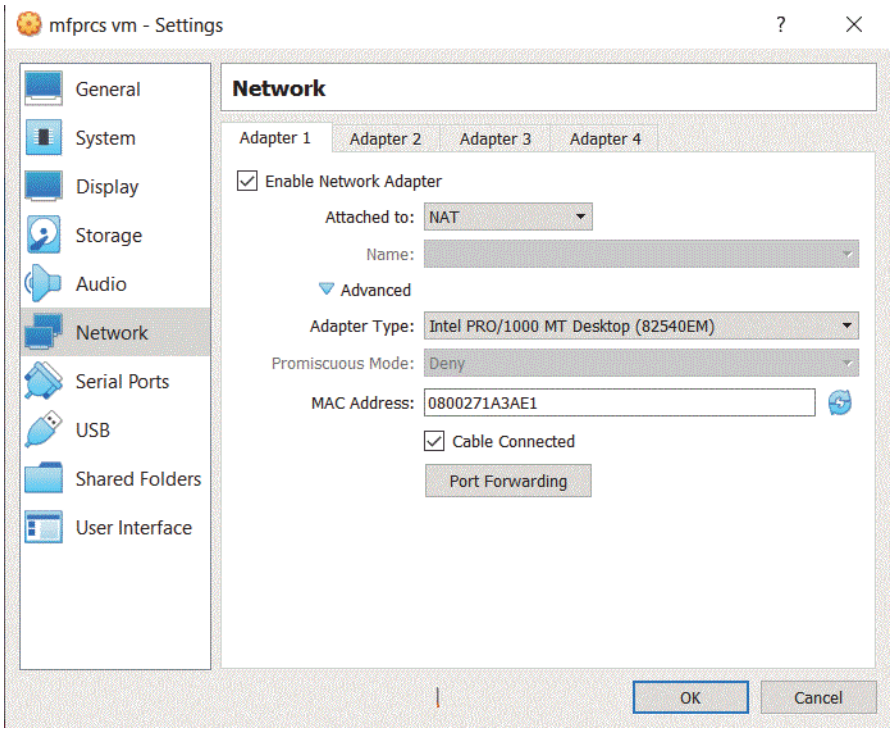
Figure 3–8 System Processor CPU Change



8. Optional - Only perform this step if someone else will use an RPAS CE VM on the same network.

   From the left panel, click **Network** and then click the Circle icon next to the MAC Address text box. This gives the virtual network card in the VM a new random MAC address. If the MAC Address setting is not visible, then click the Advanced icon.

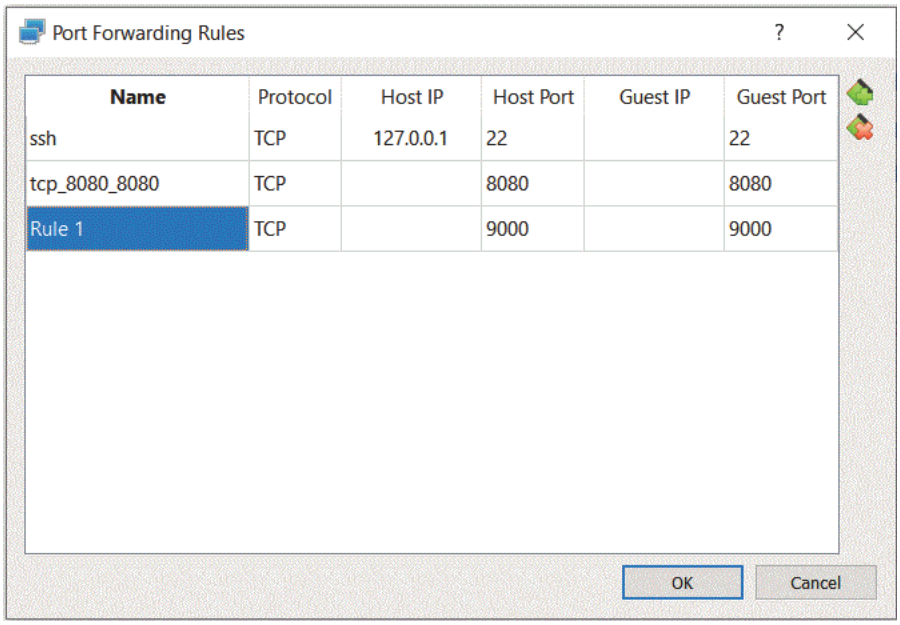
Figure 3–9 New Random MAC Address for the Virtual Network Card



9. Click **Port Forwarding**.

   You should see the rule that forwards port 8080 inside the VM to port 8080 on the host machine. If you have some other application running on port 8080 on the host machine, then change the host port to an unused port number. If you plan to use Portainer for diagnosing issues or managing the Docker deployment inside the VM, define Rule 1 with Port 9000 in the Port Forwarding Rules configuration. The SSH rule using Guest Port 22 is for sharing files and folders between the host OS with the VM using SCP. For additional information, refer to the section, Using SCP.

Figure 3–10 Port Forwarding Rules

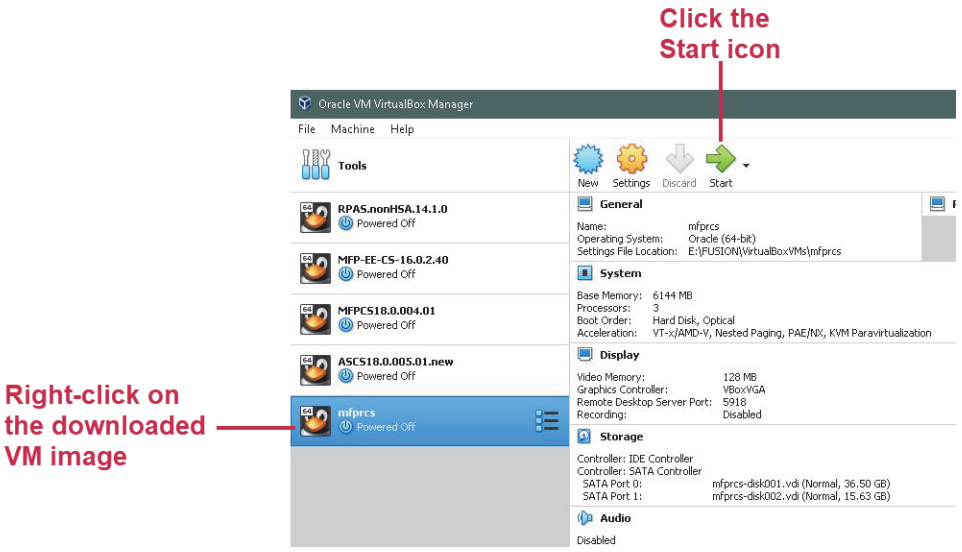


Click **OK**.

10. Start the imported image.

    From the left panel of the VirtualBox, right-click on the VM image you downloaded and select **Start**. Alternately you can select the image and click the Start icon from the top menu.

Figure 3–11 Starting the VM Image

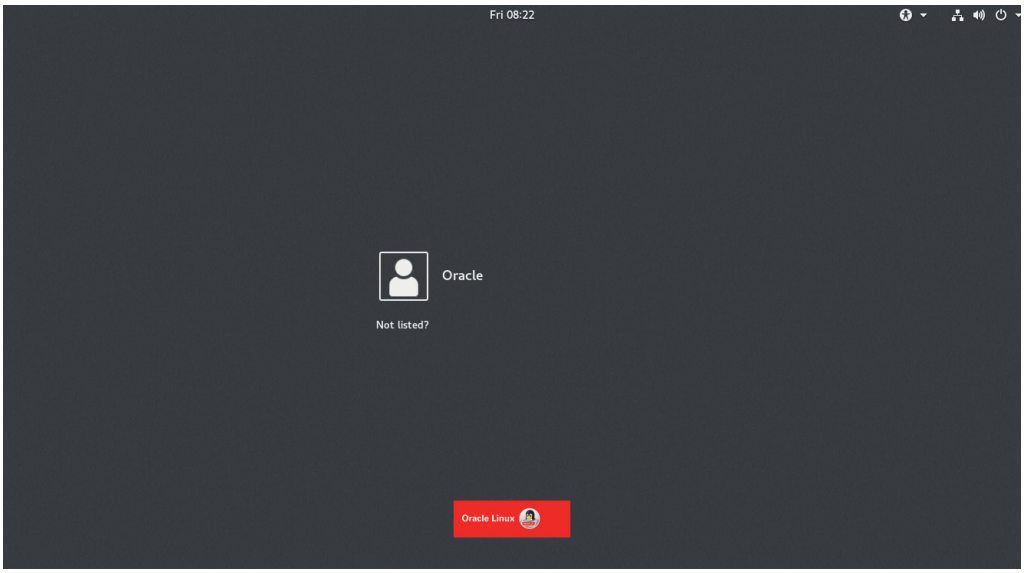


11. In the grub boot-loader screen there is no action required. Let the VM automatically boot the default kernel.

    Wait for OS to finish loading and show the login screen. There maybe a few seconds of black screen before the VM image displays the login screen.

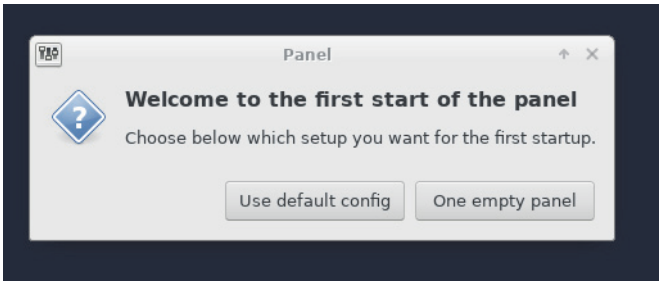
12. From the login screen, click the Oracle User icon and then enter the password: *oracle*.

Figure 3–12 Login Screen



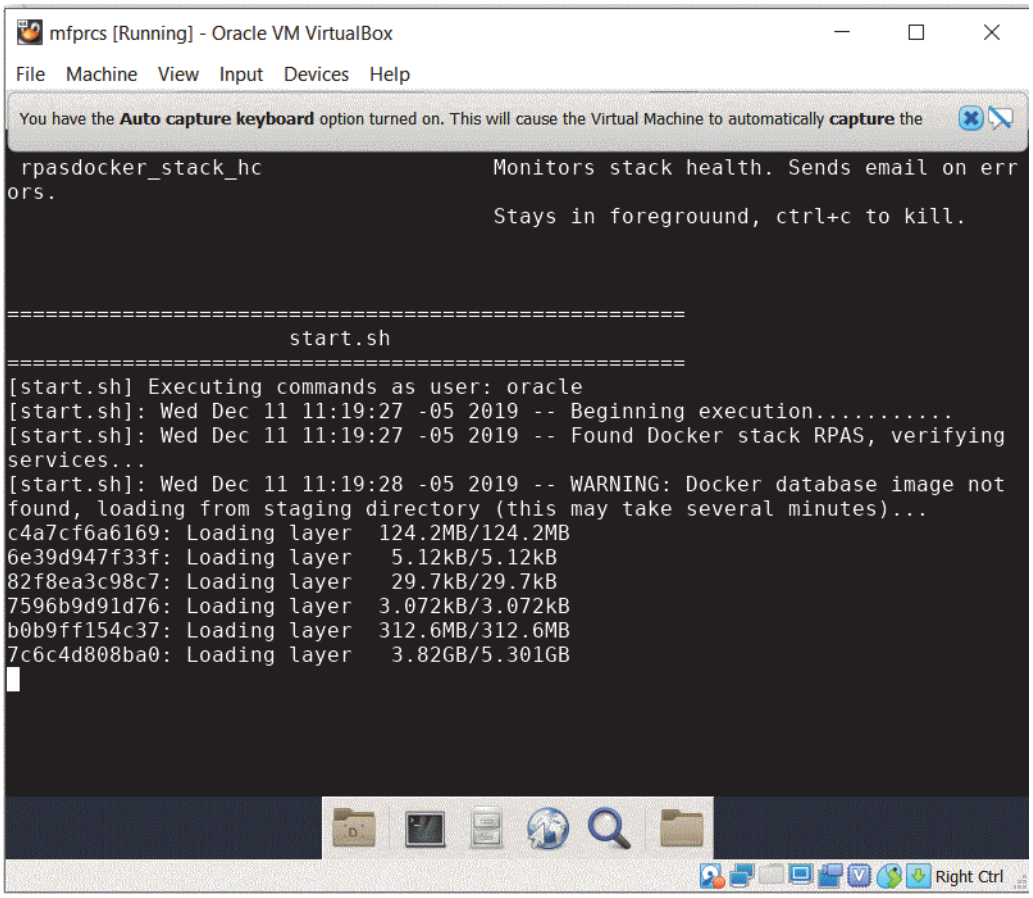
13. Once logged in, click **Use default config**.

Figure 3–13 First Startup Setup



14. This process takes several minutes. You will see messages like the one in Figure 3–14.

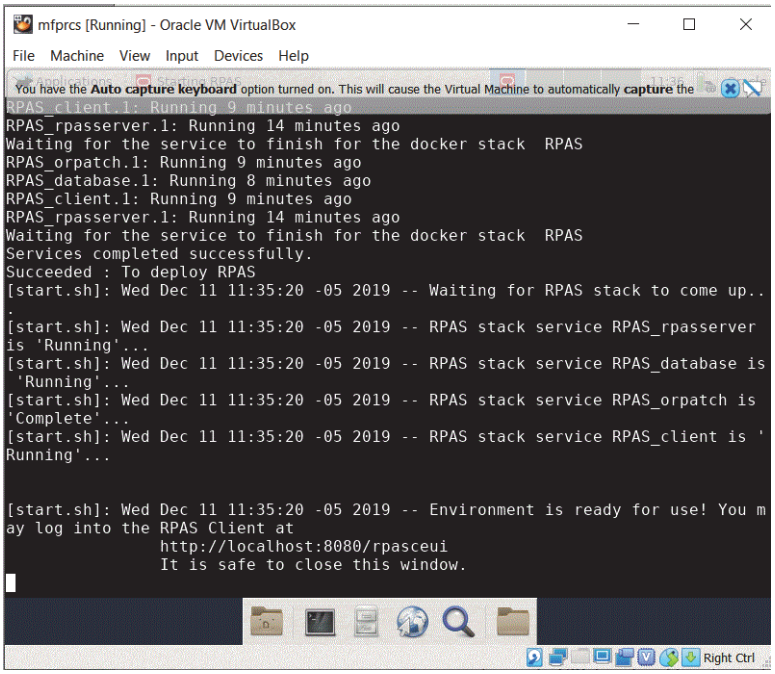
Figure 3–14 Running the Oracle VM VirtualBox Processing



15. The database takes a long time to setup; however it is one time only. At end of successful setup you will see the *Services completed successfully* message as shown in Figure 3–15.

While you are waiting, you can proceed to Step 16.

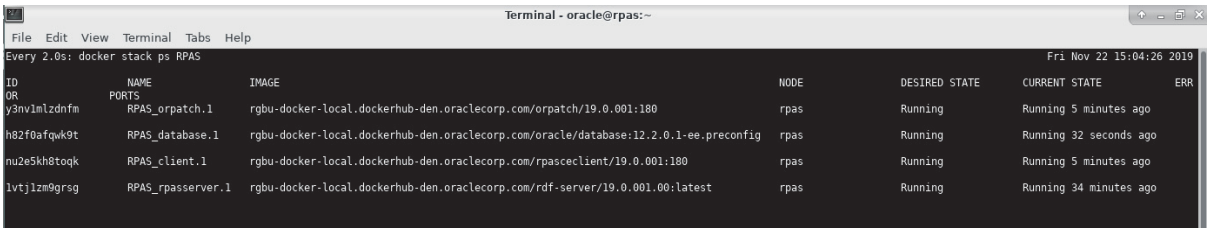
Figure 3–15 Successful Setup



16. Open another terminal and run the following command to check the progress:

```
watch docker stack ps RPAS
```

Figure 3–16 VM Progress



17. Confirm that all four containers change the CURRENT STATE to **Running**. The ORPatch process is shutdown after the initial install, so wait until its state is changed to Complete.

    Then the setup is complete and the VM is ready to be used.

Using the VM

All the necessary processes for the UI and server starts automatically when the VM boots up. The system just needs a few minutes even after the login screen appears to bring up all of the necessary processes for interacting with the RPAS CE Application and its UI with the browser on your host machine. There is no need to login to the VM. However depending on the resources available to the VM, the time required for startup will differ.

To check the progress of the boot-up processes anytime, login to the VM and open a terminal as described in Step 16 in the section,VM Setup, and run the following command:

```
watch docker stack ps RPAS
```

Launching the RPAS CE User Interface

To launch the RPAS CE User Interface (UI), open a browser on the host machine where you started the VirtualBox software and paste the URL into the address bar and press **Enter**

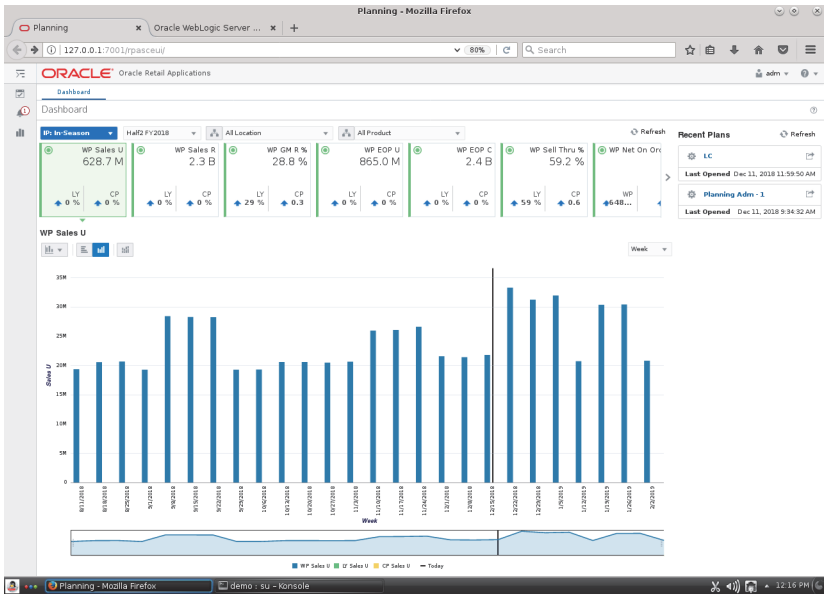
```
http://localhost:8080/rpasceui/
```

Figure 3–17 shows the RPAS CE UI Sign In, enter the Username: *oci.admin* and the Password: *Orcl1234*.

Figure 3–17 RPAS CE UI Sign In

The VM displays the RPAS CE UI Dashboard.

Figure 3–18 RPAS CE UI Dashboard



Adding Users to the VM

To add a user to the VM log into the UI container using the following command:

```
docker exec -it $(docker ps | grep client| awk '{ print $1 }')/bin/bash
```

Add the new user to the file, **/u01/rgbu_ui/tomcat/conf/tomcat-users.xml**.

Exit the container and restart the client service using the following command:

```
docker service update RPAS_client
```

The same users need to be added to the RPAS domain using the steps detailed in the section Adding Users to the RPAS domain.

The following users are already present in that file and only need to be added to the RPAS domain to be ready to use in the application.

> **Note:** All users have password **Orcl1234**

Add the following users the RPAS domain:

- oci.user1
- oci.user2
- oci.user3
- adm1
- adm2
- adm4
- adm7
- adm10
- user1
- user2
- user3
- user4
- user5
- user6
- user7
- user8
- user9
- user10
- user11
- user12
- user13
- user14
- user15
- user16

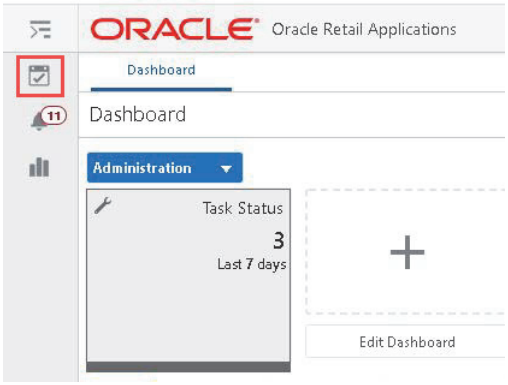
- user17
- user18
- user19
- user20
- nonadm1
- nonadm2

Adding Users to the RPAS domain

To add a user to the domain, login to the UI as described in Launching the RPAS CE User Interface.

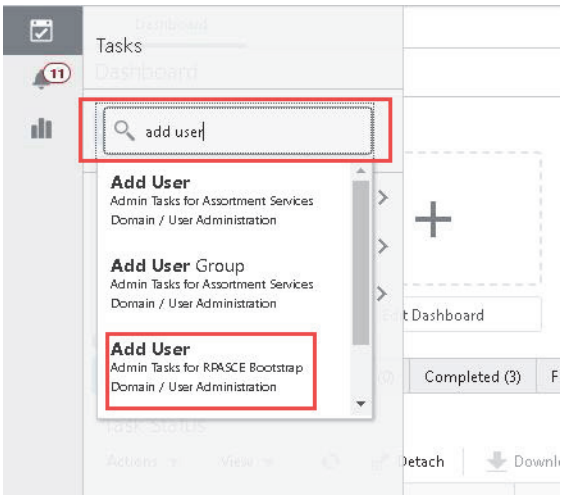
1. Click the **Check Box** icon in the left panel.

Figure 3–19 Check Box Icon



2. In the Search bar, type ***add user*** and then select the Add User task.

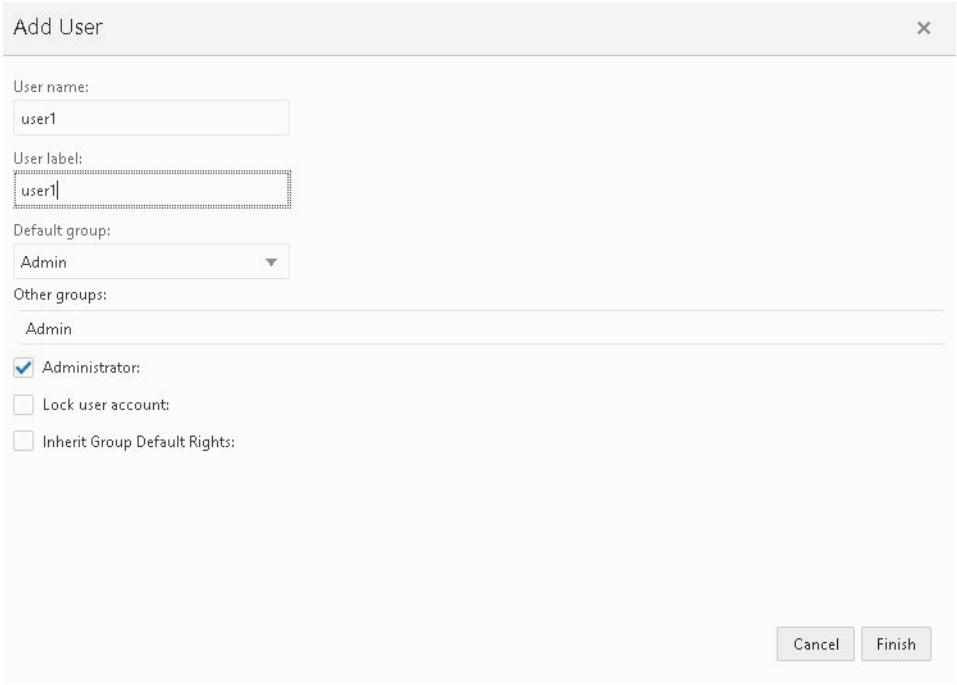
Figure 3–20 Adding a User



3. In the Add User Window, update these fields:
   - Enter the User name

- Enter the User label
- If the user is expected to be an administrator, then select the Administrator check box

Figure 3–21 Add User Window



4. Click **Finish**. Now the user is added and ready to use.

Note: For more information about user management, refer to the chapter, User Maintenance in *Oracle Retail Predictive Application Server Cloud Edition Administration Guide*,

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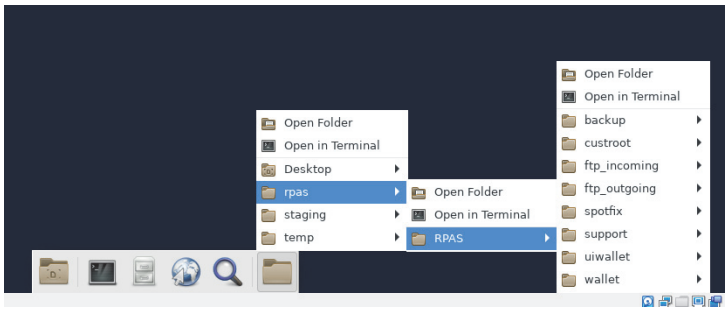
Copying Files between the VM and the Host Desktop

Inside the VM there is a shortcut that can be used for accessing the main folders in the VM as shown in Figure 3–22.

To access the shortcut, click the Folder icon, and then select **rpas**, then **RPAS**, and then **Open Folder**.

Figure 3–22 VM Shortcut



This is the bind root that is used for all the Docker containers. The full path of this folder is **/home/oracle/rpas/RPAS**. The incoming FTP folder and outgoing FTP folder are present under it along with all the wallets. The wallets are setup automatically and should not need any changes.

To drop input files for use with batch and OAT tasks, use the ftp_incoming folder.

To access the output files from batch and OAT tasks, use the ftp_outgoing folder.

Refer to your application's documentation for more information on how to use these folders during a batch or OAT task execution.

For file transfer between the VM host and these folders inside the VM, refer to these sections:

- Using Shared Folders
- Using SCP
- Copying Text between the Desktop and VM

Additionally this section provides information on:

- VM Shortcut Keys
- Shutting Down

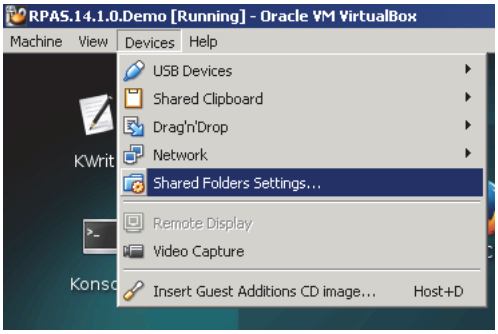
Using Shared Folders

Using the Shared Folders Settings is the best way to share files and folders between the desktop and the VM.

Perform the following steps to share files and folders between the desktop and the VM using the Shared Folders Settings.

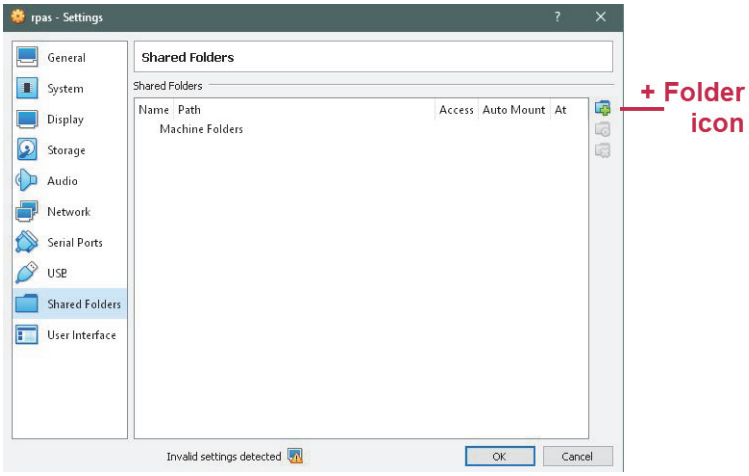
1. To use the Shared Folders Settings, from the Main Menu, click **Devices** and then select **Shared Folders Settings…**

Figure 3–23 Shared Folders Settings



2. To add the shared folder, click the +Folder icon.

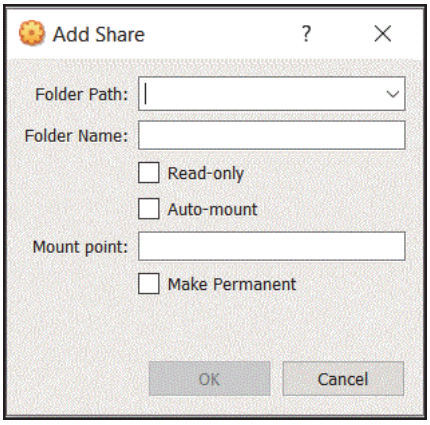
Figure 3–24 +Folder Icon



3. The VM opens the Add Share window.

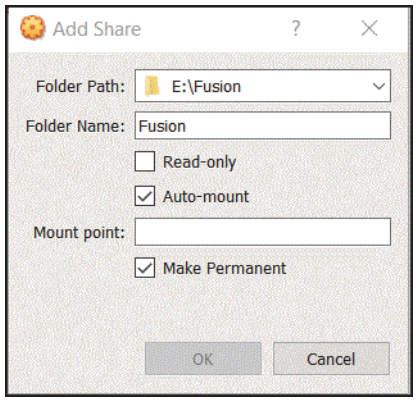
   a. In the Add Share window, select the Auto-mount and Make Permanent check boxes.

Figure 3–25 Add Share Window



b. In the Add Share window, select Other from the Folder Path list and then browse to the folder that you want to share files with the VM and click **OK**.

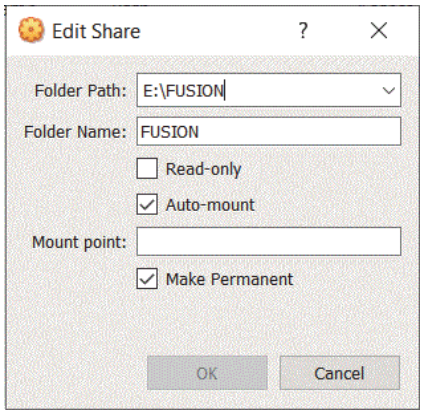
Figure 3–26 Folder Path in the Add Share Window



The VM automatically fills in the folder name. Remember this name as it will be used later. In Figure 3–26, the example folder name is FUSION.

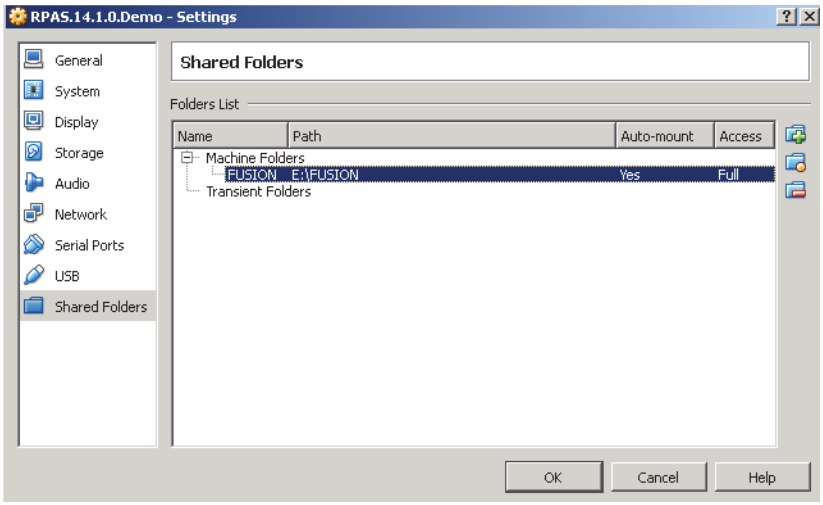
c. In newer versions of VirtualBox, the Shared Folders settings include a Mount point text box. Ensure that this box is empty. The logged-in user, *oracle*, will not be able to use this folder if the Mount point text box contains any text.

Figure 3–27 Leave the Mount Point Text Box Empty



d. Click **OK**. The VM displays the new folder in the list of shared folders. This does not require restart of VM.

Figure 3–28 New Folder in the List of Shared Folders



4. To mount the shared folder (for example, *FUSION*) from your host machine onto the VM, open a terminal by clicking the Terminal icon located at the bottom the VM screen. Make sure the directory to be mounted on (for example, **`/media/fusion`**) is an existing, empty directory on the VM server. If the directory **`/media/fusion`**is not empty, its content will be overwritten by the content from the shared folder FUSION.

Figure 3–29 Terminal Icon

5. If you are the root, enter the following command:

```
mount -t vboxsf -o rw FUSION /media/fusion
```

```
sudo mount -t vboxsf -o rw FUSION /media/fusion
```

> **Note:** This example uses FUSION for the shared folder name. If you used a different folder name, then replace that name with FUSION in the command.

6. Drag and drop files between the host folder mounted on the VM at **`/media/fusion`** and the FTP folders using the file manager under **/home/oracle/rpas/RPAS**.

> **Note:** Here the source and destination folders involved in the drag and drop are both on the VM. The direct drag and drop of files between host machine and the VM is not supported.

Click the Open Folder icon at the bottom of the VM screen and select the Open Folder option to open the oracle-File Manager window, from which you can go to either the **ftp_incoming** or **ftp_outgoing** directory (Figure 3–30).

You can also click the Open Folder icon again to open another oracle-File Manager window, from which you can go to the mounted shared folder **`/media/fusion`**. Then you can drag and drop files between the shared folder and the **ftp_incoming** or **ftp_outgoing** directory (Figure 3–31.

Figure 3–30 Directories for ftp_incoming and ftp_outgoing

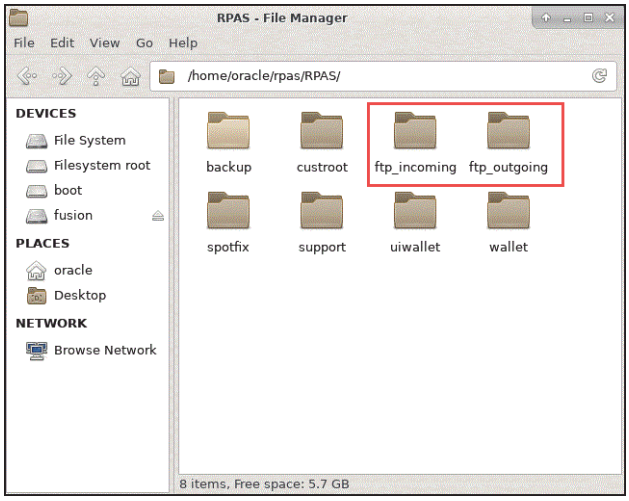
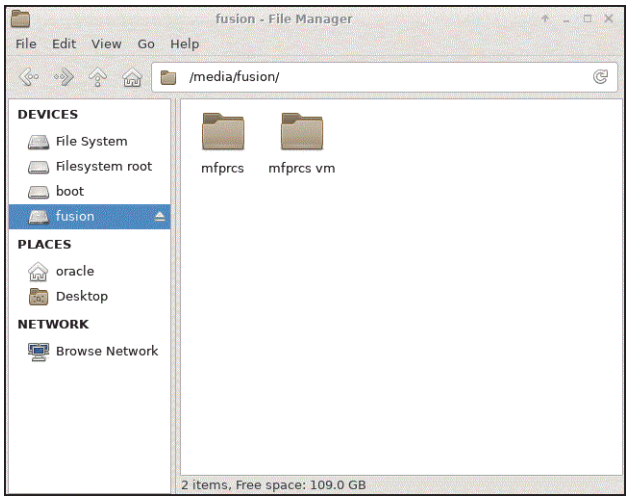


Figure 3–31 Shared Folders



The default file manager is Thunar which is similar to Explorer on Windows. Thunar can be accessed using any of the icons on the VM's desktop shown in Figure 3–32.

Figure 3–32 VM Desktop Icons

Using SCP

If the SSH rule for port 22 exists in the Port Forwarding Rules configuration (Figure 3–10) during VM setup then you can use SCP as an alternative method to move files to the VM.

Perform the following steps to share files and folders between the desktop and the VM using SCP.

1. Open a terminal on the host machine, for example the Cygwin mintty terminal using the following command:

   `scp <file on host machine> oracle@localhost:<path on VM>`

   For example:

   `scp drlyslsr.csv.ovr oracle@localhost:/home/oracle/rpas/RPAS/ftp_incoming/input`

2. If prompted for a password, enter: *oracle*.

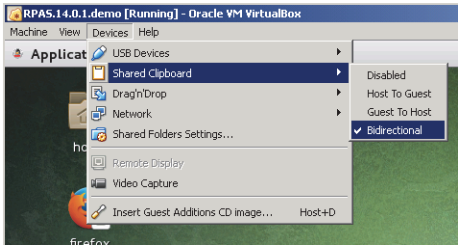
Note: For additional information on SCP transfers, go to: **`https://linux.die.net/man/1/scp`**

Copying Text between the Desktop and VM

This option to the copy and paste of text between VM and desktop is enabled by default. To disable this option, from the Main Menu, click **Devices** and then select **Shared Clipboard** and then select **Disabled**.

To enable this option, from the Main Menu, click **Devices** and then select **Shared Clipboard** and then select **Bidirectional**.

Figure 3–33 Disabling Text Copy and Paste



VM Shortcut Keys

Here are shortcut keys for your VM:

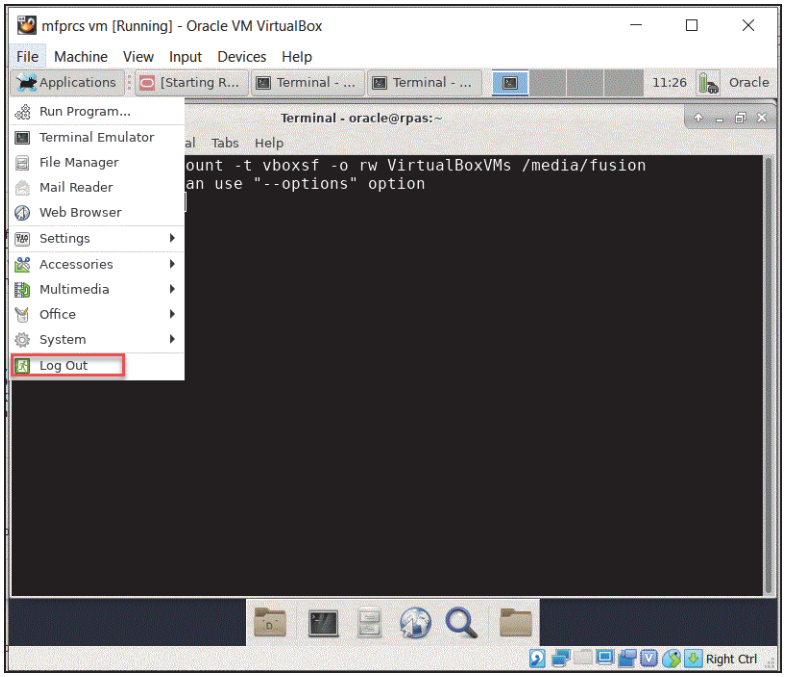
Function	Shortcut
To make the VM window full screen	host key + F
To capture a screen shot inside the VM	host key + E

Note: For Windows, the host key is the right-hand side Ctrl keyboard key.

Shutting Down

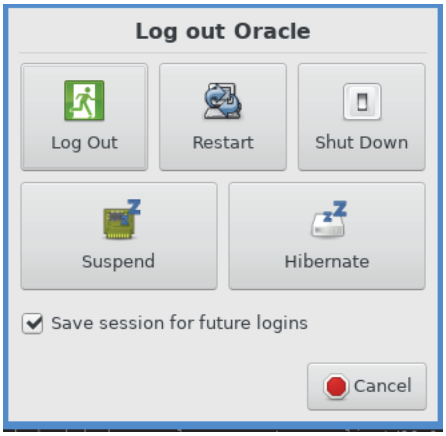
To stop using the VM, from the Main Menu, click **Applications** and select **Log Out**.

Figure 3–34 Main Menu Log Out



Note: Only restart or shutdown if necessary. Do not use other options such as suspend or hibernate.

Figure 3–35 Log Out Options



Workaround for Converting a GA APP VM into an EE VM

Perform the following steps for a workaround conversion for a GA APP VM into an EE VM.

1. Open the console by clicking the Terminal icon.

Figure 3–36 Terminal Icon

2. Login to the server container using the following command:

```
docker exec -it $(docker ps | grep rpasserver | awk '{ print $1 }')
/bin/bash
```

Figure 3–37 Running Containers

```
[oracle@rpas docker]$ docker ps
CONTAINER ID        IMAGE                                                                                COMMAND                  CREATE
D                   STATUS              PORTS               NAMES
e0994fc93a48        rgbu-docker-local.dockerhub-den.oraclecorp.com/rdf-server/19.0.001.00:latest   "/rpasce/server/rpas…"   2 hour
s ago               Up 2 hours (healthy)   22/tcp              RPAS_rpasserver.1.nexji4c4eh9lt73i9kj160lsz
7838850a95e2        rgbu-docker-local.dockerhub-den.oraclecorp.com/rpasceclient/19.0.001:180       "/bin/sh -c 'ksh $OR…"   2 hour
s ago               Up 2 hours (healthy)   8080/tcp            RPAS_client.1.z1mmx1tmfuffczdswh21gm4kr
[oracle@rpas docker]$
```

Note: In Figure 3–37, the docker ps shows the running containers. The container ID of the RPAS CE server container is used to login to the running container.

3. Make a backup of the existing bootstrap OAT xml file using the following command:

```
mv $RPAS_BOOTSTRAP_DOMAIN/repos/adminTasks/<appName>Bootstrap_
AdminTasks.xml $RPAS_BOOTSTRAP_
DOMAIN/repos/adminTasks/<appName>Bootstrap_AdminTasks.xml.bkp
```

4. Copy the bootstrap xml from rpasHome using the following command:

   ```
   cp $RPAS_HOME/domain/adminTasks/Bootstrap_AdminTasks.xml $RPAS_
   BOOTSTRAP_DOMAIN/repos/adminTasks/
   ```

5. Make a backup of exiting patch OAT xml file using the following command:

   ```
   mv $RPAS_CUST_ROOT/domains/<appName>/repos/adminTasks/<appName>Patch_
   AdminTasks.xml $RPAS_CUST_
   ROOT/domains/<appName>/repos/adminTasks/<appName>Patch_
   AdminTasks.xml.bkp
   ```

6. Copy patch xml from rpasHome using the following command:

   ```
   cp $RPAS_HOME/domain/adminTasks/Patch_AdminTasks.xml  $RPAS_CUST_
   ROOT/domains/<appName>/repos/adminTasks/
   ```

7. Create a folder as shown in the following example. Your custom java special expression jar files are stored here during the domain build.

   ```
   mkdir $INCOMING_FTP_PATH/jse
   ```

8. Restart the VM.
9. Use the bootstrap and patch OAT tasks to build a new domain and patch a domain using the RPAS CE EE scripts.

Using Portainer

Portainer allows you to monitor and interact with the server, client and database containers inside the VM.

Note: For more information, refer to the Portainer documentation:

https://portainer.readthedocs.io/en/stable/

Perform the following steps to set up Portainer:

1. Open the console by clicking the Terminal icon.

Figure 3–38 Terminal Icon

2. Once the VM has restarted, open a terminal and run the following command:

   ```
   docker stack deploy -c /home/oracle/staging/portainer.yml portainer
   ```

Figure 3–39 Restart Commands

```
[oracle@rpas ~]$ cd staging
[oracle@rpas staging]$ ls
88446.png         database.yml    orpatch.yml    start.sh     yml.tar.gz
client.tar.gz     docker.sh       portainer.yml  wallets.tar
database.tar.gz   orpatch.tar.gz  rpas.tar.gz    yml
[oracle@rpas staging]$ docker stack deploy -c /home/oracle/staging/portainer.yml
 portainer
Creating network portainer_agent_network
Creating service portainer_agent
Creating service portainer_portainer
[oracle@rpas staging]$
```

3. Run the following command and wait until both Portainer containers are up and running:

   `watch docker stack ps portainer`

Figure 3–40 DESIRED STATE is Running

```
Every 2.0s: docker stack ps portainer

ID                  NAME                                    IMAGE                          NODE                DESIRED STATE       CURRENT STATE
nqd1rug6g3l1        portainer_agent.qkrnu7029vvkhd61dxw4romg4   portainer/agent:latest       rpas                Running             Running 2 minutes ago
2sx9kf3zc7xk        portainer_portainer.1                   portainer/portainer:latest   rpas                Running             Running 2 minutes ago
```

4. Refer to the VM setup section, Port Forwarding Rules for information on forwarding the port 9000 used by Portainer.
5. Open the browser on the host machine and enter the following URL:

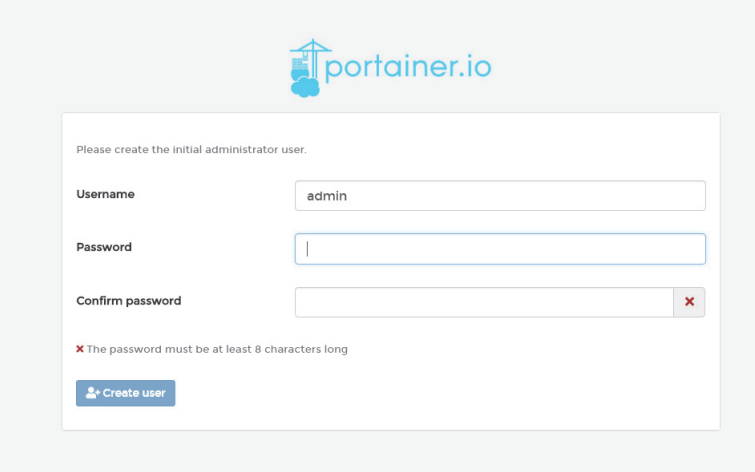
   `http://localhost:9000/`

6. During the initial setup, if the Loading Portainer screen hangs up, then clear your browser cache or open the link in an incognito/private window.

Figure 3–41 Loading Portainer Screen

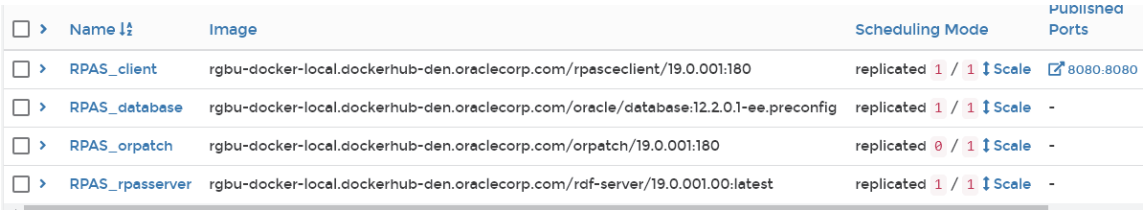
7. Set up the admin username and create a password. Click **Create user**.

Figure 3–42 Portainer Administrator Setup



8. Use Portainer to monitor and interact with the server, client and database containers inside the VM.

Figure 3–43 Using Portainer to Monitor and Interact with the Server, Client and Database Containers



Debugging Java Special Expressions using the VM

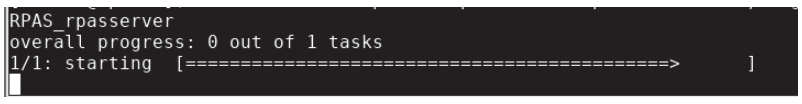
To debug JSE in the VM, you must export the RPAS_JAVA_DEBUG_PORT environment variable to the server container.

1. Open a terminal in the VM and run the following command:

   ```
   docker service update --publish-add published=8197,target=8197 RPAS_
   rpasserver
   ```

   The VM displays messages as show in Figure 3–44.

Figure 3–44 RPAS_rpasserver Message



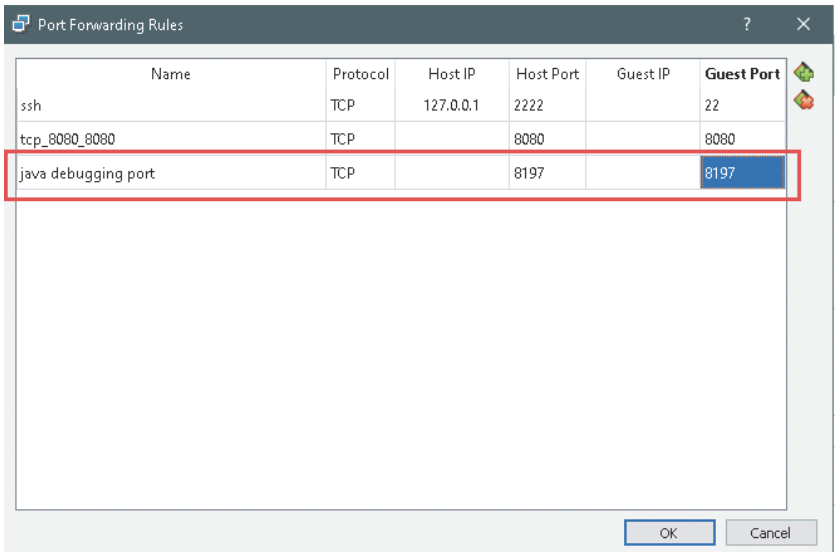
   a. Wait for the run to finish and then display a message that states: **`verify: Service converged`**, as shown in Figure 3–45.

Figure 3–45 Verify Message

```
[oracle@rpas ~]$ docker service update --publish-add published=8197,target=8197 RPAS_rpasserver
RPAS_rpasserver
overall progress: 1 out of 1 tasks
1/1: running   [==================================================>]
verify: Service converged
[oracle@rpas ~]$
```

2. Proceed to the Port Forwarding Rules window. To access the Port Forwarding Rules Window, click **Network** in the left panel of the VirtualBox software and then click **Port Forwarding**.
3. Click the **Plus** icon and add the new rule to forward the Java Debugging Port. In this example, it is *8197.*

Figure 3–46 Java Debugging Port Rule



4. Perform the following steps:
   a. Open a terminal in the VM and run the following command:

      ```
      docker exec -it $(docker ps | grep rpasserver | awk '{ print $1 }')
      bash
      ```

      This command logs you into the server container and the following commands should be run inside the server container.

   b. To set a pds property, run the following command:

      ```
      pdsProperties -pds $RPAS_CUST_ROOT/rdm -property r_cloud_
      deployed=false -sysProp
      ```

   c. To list RPAS functions, run the following command:

      ```
      regfunction -d $RPAS_CUST_ROOT/rdm -list
      ```

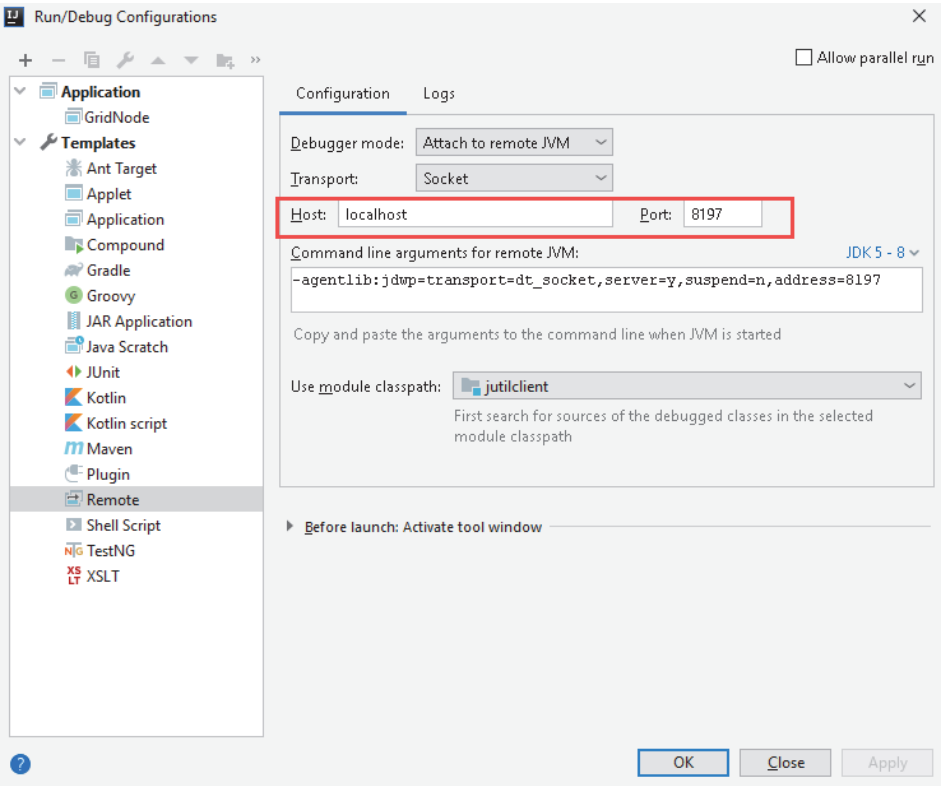
   d. Check if the `RpasJavaExpression` is included in the output.

      If it is not there, then run the following command:

      ```
      regfunction -d $RPAS_CUST_ROOT/rdm -l RpasJavaExpression -add
      ```

5. Run the java special expression you are trying to debug. RPAS will halt and wait for the debugger to attach to the Java debug port.
6. Start the Java development environment on the host machine. Edit the debug configuration and select **Remote Debugging**. Figure 3–47 shows how to access this in the IntelliJ debugger. Notice the host is set to `localhost` and port is set to the java debug port `8197`. Apply changes and click **OK** to start debugging.

Figure 3–47 Run/Debug Configurations Window



You should be able to step through your Java special expression code in the debugger.

Note: For additional information, refer to section *Debugging Java Expressions* in the *Oracle Retail Predictive Application Server Extension White Paper*.

Troubleshooting

If you have any of the following issues, follow the steps for troubleshooting:

- Config Tools Startup
- Network Issues
- No Full Screen for VM
- VirtualBox Error
- RPAS CE UI Login Issues

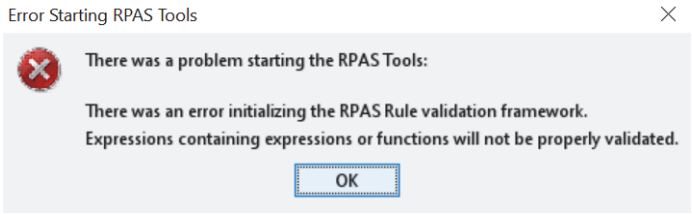
- Time Out

Config Tools Startup

When starting RPAS Config Tools, you may encounter an error message as shown in Figure 3–48

To fix this issue, exit Config Tools and go to the `$RIDE_HOME/resources` directory and delete the `tempjnidomain_tools` directory. Restart Config Tools.

Figure 3–48 Error Starting RPAS Tools Message

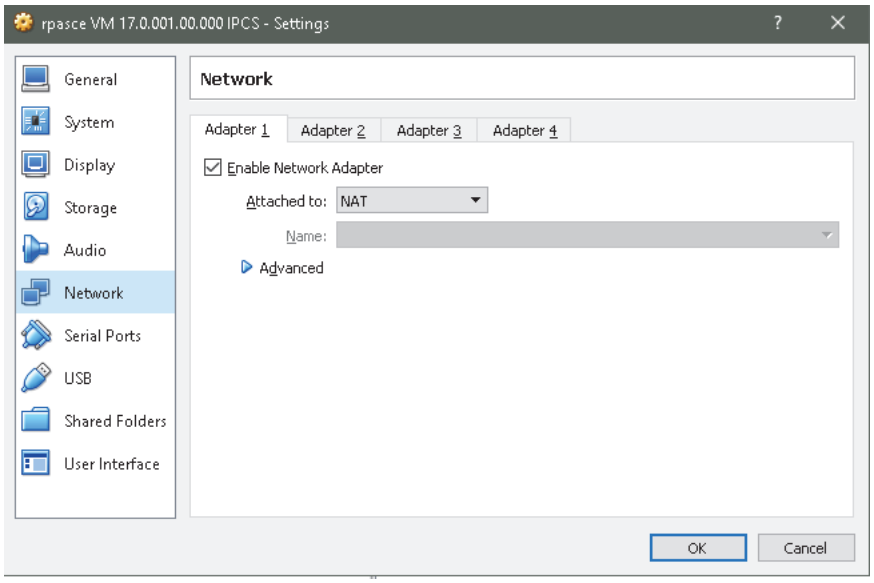


Network Issues

If you have many network interfaces you might have to make changes to Network Settings screen before starting the VM as shown in Figure 3–49. The VM image has been tested only with Ethernet and Wi-Fi. If you use power line Ethernet or a network dongle or you have multiple network interface cards in your system you might need to make changes in the VM network settings screen.

Depending on your system configuration, you might need to enable additional adapters.

Figure 3–49 Network Settings



No Full Screen for VM

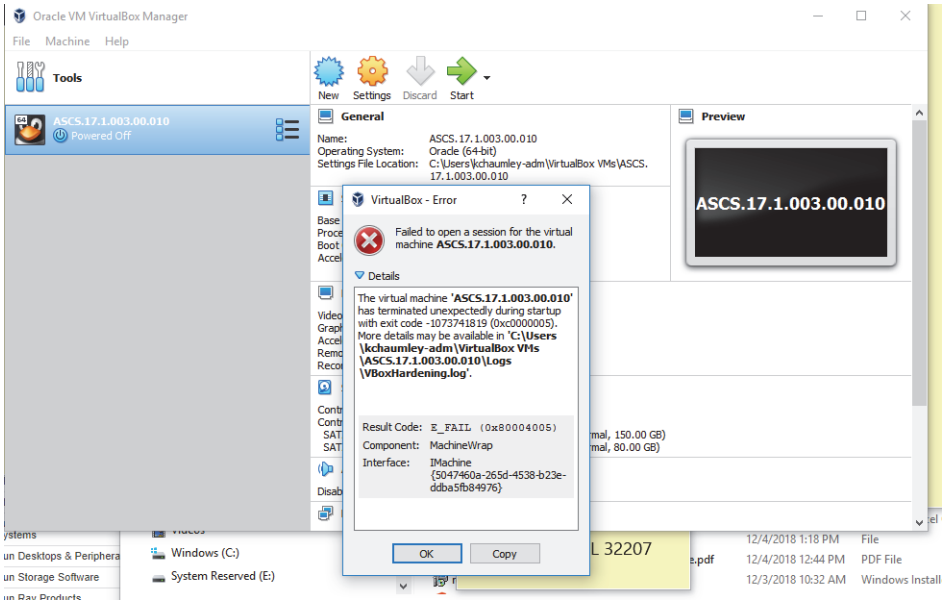
If you have trouble with VM not going into full screen you might have booted one of the non-default kernels. If you did not change the selection in the grub boot loader during boot up then you might have installed updates that downloaded a new kernel

image and changed boot order automatically. Try booting one of the older kernels in the boot image selection screen during boot up.

VirtualBox Error

If you receive the following error shown in Figure 3–50 while starting the image, you might have an unsupported version of VirtualBox. Version 6.0.12 is known to work well with the RPAS CE VM image. Later versions are expected to work but have not been tested.

Figure 3–50 VirtualBox Error



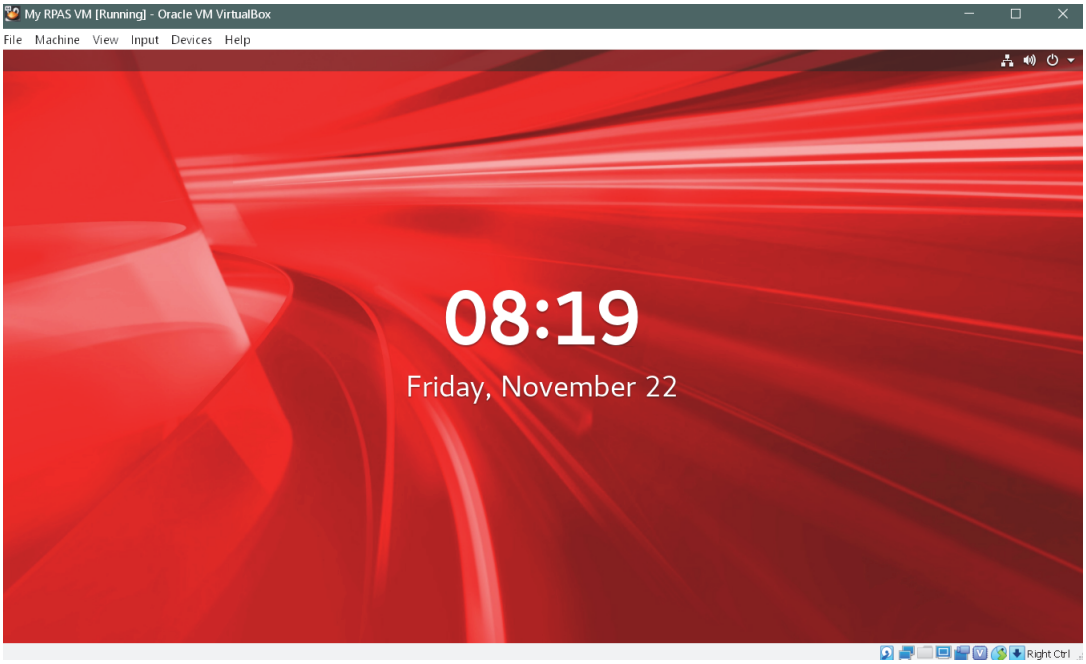
RPAS CE UI Login Issues

If you have trouble logging into RPAS CE UI, check if port 8080 is being used by some other application on your host machine. Change the port mapping in the VM setup and use the new port.

Time Out

The login screen has a time limit and you might see a screen similar to Figure 3–51. The same screen can appear once you start using the VM and there is a brief period of inactivity. Left-click anywhere on the empty screen and drag your mouse up to access the login screen.

Figure 3–51 Inactivity Screen



A

Appendix: Generating the Configuration for Plug-in Options

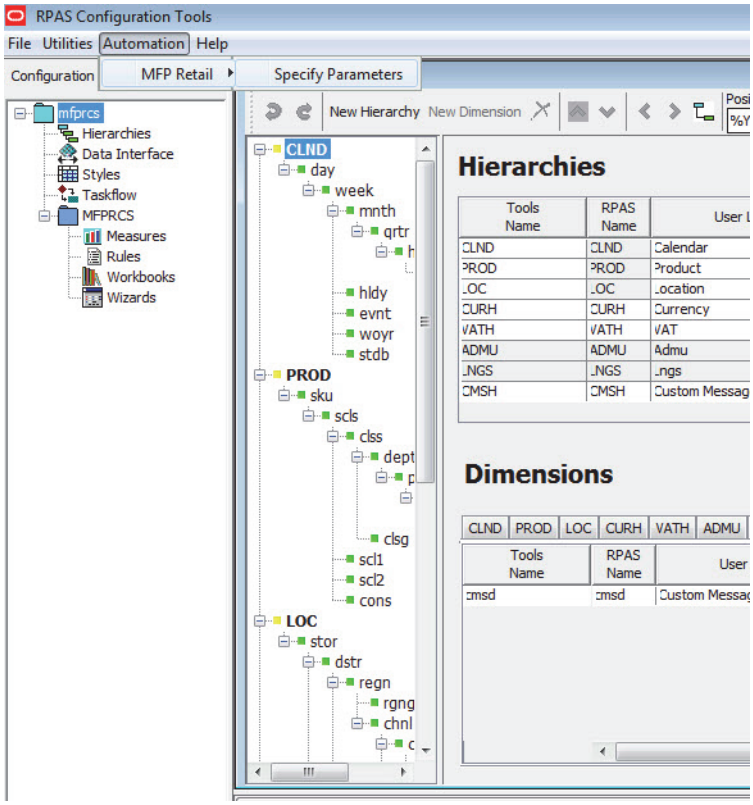
Merchandise Financial Planning Cloud Service supports generating different configurations using plug-in automation for different configuration options. Default configuration available in the Starter Kit includes all solutions and all plug-in-options enabled. If you want to use the different configuration options, then copy the plug-ins folder from the package to the RIDE_HOME/resources directory and then run generate the configuration with the required configuration options.

Creating the Configuration Using Plug-ins

To create the configuration using plug-ins:

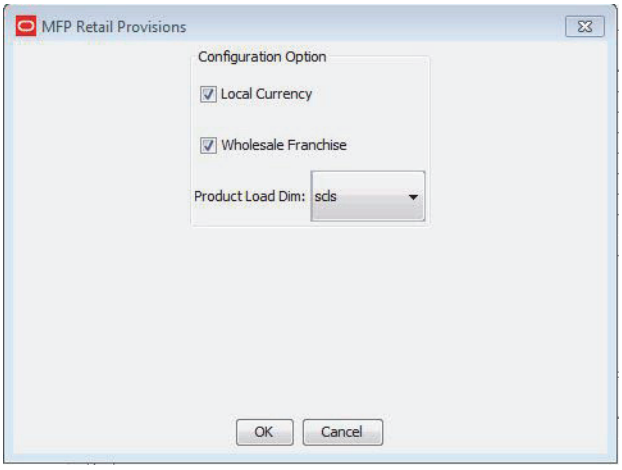
1. Copy the entire contents of plug-ins from the Starter Kit package to the **`RIDE_HOME/resources/plugins`** directory.
2. Open the base GA configuration using RPAS Cloud Edition Configuration Tools.
3. From the RPAS Cloud Edition Configuration Tools toolbar, select the Automation menu. Select the **MFP Retail** or **MFP Cost solution** and then select **Specify Parameters**.

Figure A–1 RPAS Cloud Edition Configuration Tools



4. A window opens with the available configuration options. Select the configuration options needed for the configuration by checking or clearing each option. Click **OK.** The automation will run and generate the configuration for the selected option.

Figure A–2 Available Configuration Options



5. The automation will run and generate the configuration for the selected option.
6. Save the generated configuration and use that configuration for subsequent domain builds.