

Oracle® Virtual Desktop Infrastructure
VDI Demo (Oracle VDI Hypervisor) for Version 3.2

April 2011

ORACLE®

Copyright © 2011, Oracle and/or its affiliates. All rights reserved.

This software and related documentation are provided under a license agreement containing restrictions on use and disclosure and are protected by intellectual property laws. Except as expressly permitted in your license agreement or allowed by law, you may not use, copy, reproduce, translate, broadcast, modify, license, transmit, distribute, exhibit, perform, publish, or display any part, in any form, or by any means. Reverse engineering, disassembly, or decompilation of this software, unless required by law for interoperability, is prohibited.

The information contained herein is subject to change without notice and is not warranted to be error-free. If you find any errors, please report them to us in writing.

If this software or related documentation is delivered to the U.S. Government or anyone licensing it on behalf of the U.S. Government, the following notice is applicable:

U.S. GOVERNMENT RIGHTS Programs, software, databases, and related documentation and technical data delivered to U.S. Government customers are "commercial computer software" or "commercial technical data" pursuant to the applicable Federal Acquisition Regulation and agency-specific supplemental regulations. As such, the use, duplication, disclosure, modification, and adaptation shall be subject to the restrictions and license terms set forth in the applicable Government contract, and, to the extent applicable by the terms of the Government contract, the additional rights set forth in FAR 52.227-19, Commercial Computer Software License (December 2007). Oracle USA, Inc., 500 Oracle Parkway, Redwood City, CA 94065.

This software is developed for general use in a variety of information management applications. It is not developed or intended for use in any inherently dangerous applications, including applications which may create a risk of personal injury. If you use this software in dangerous applications, then you shall be responsible to take all appropriate fail-safe, backup, redundancy, and other measures to ensure the safe use of this software. Oracle Corporation and its affiliates disclaim any liability for any damages caused by use of this software in dangerous applications.

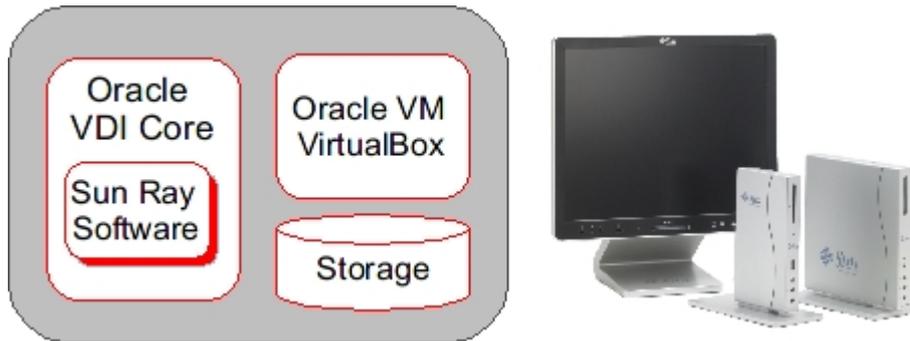
Oracle and Java are registered trademarks of Oracle and/or its affiliates. Other names may be trademarks of their respective owners. Intel and Intel Xeon are trademarks or registered trademarks of Intel Corporation. All SPARC trademarks are used under license and are trademarks or registered trademarks of SPARC International, Inc. AMD, Opteron, the AMD logo, and the AMD Opteron logo are trademarks or registered trademarks of Advanced Micro Devices. UNIX is a registered trademark licensed through X/Open Company, Ltd.

This software and documentation may provide access to or information on content, products, and services from third parties. Oracle Corporation and its affiliates are not responsible for and expressly disclaim all warranties of any kind with respect to third-party content, products, and services. Oracle Corporation and its affiliates will not be responsible for any loss, costs, or damages incurred due to your access to or use of third-party content, products, or services.

Oracle Virtual Desktop Infrastructure Demo (Oracle VDI Hypervisor)

Oracle Virtual Desktop Infrastructure Demo (Oracle VDI Hypervisor)

The following information describes how to install and configure the Oracle Virtual Desktop Infrastructure components (Oracle VDI Core and virtualization platform). Only one host is required to be able to perform this install.



i The Oracle Virtual Desktop Infrastructure Demos are not supported production environment configurations. For more information about supported production environment Oracle Virtual Desktop Infrastructure configurations, refer to the [Configurations](#) page.

You can also make a multi-host demo version of Oracle Virtual Desktop Infrastructure. Be sure to consult the Supported Software tables in the [Oracle Virtual Desktop Infrastructure 3.2.2 Release Notes](#). Also refer to [Configurations](#) to learn more about which hardware configurations will and will not work.

System Requirements

You must perform the installation on a physical machine (bare metal). Installing the Oracle VDI Core software in a virtual machine will not work.

The machine must meet the following requirements:

- At least one 2.0GHz x86 CPU
- At least 4GB RAM
- At least 32GB disk space - it is recommended to use a system with two disks so that the Solaris OS uses one disk and the ZFS storage uses the other (see below).

Refer to the [Oracle Virtual Desktop Infrastructure 3.2.2 Release Notes](#) for more details.

1. Install and Configure Oracle VM VirtualBox

Use the following information to install and configure Oracle VM VirtualBox for your Oracle Virtual Desktop Infrastructure Demo. For more general information, see the [About Oracle VDI Hypervisor Enhancements](#) section.

How to Install and Configure Oracle VM VirtualBox (Demo)

1. Install a current Solaris operating system.

Refer to the [Oracle Virtual Desktop Infrastructure 3.2.2 Release Notes](#) for specific version numbers.

- Install the operating system on the first disk.
 - You should perform a default installation using either UFS or ZFS as the file system.
 - We recommend adapting the default partition layout:
 - All of the Oracle VDI Core components will be installed under `/opt` - ensure that sufficient disk space is available here.
 - (For Release 3.2 and earlier) Swap space must be equal to or greater than the physical memory - if you have 4 GB memory, your swap space must also be 4 GB or more.
 - Templates for virtual machines will be stored under `/var/tmp` - you should reserve enough disk space for storing at least one or two virtual machine images.
- Refer to the [Solaris documentation](#) for more details.

2. Configure the ZFS storage.

Oracle Virtual Desktop Infrastructure (in combination with the Oracle VDI Hypervisor) uses the ZFS filesystem to create snapshots of virtual machine disk images or to clone/replicate virtual machine disks. The interaction with ZFS is handled automatically and is completely encapsulated within Oracle Virtual Desktop Infrastructure. However, initially you must setup the ZFS storage (more precisely a ZFS storage pool aka zpool).

- a. Configure the second disk as ZFS storage by running the following command as root user.

```
# zpool create <name of zpool> <name of second disk>
```

If you do not know the name of your second disk, you can look it up using the `format` or `fdisk` command.

- b. ZFS uses any memory available (up to the limit) for the ARC cache. This can cause issues in a demo setup, because the Oracle VDI Core may falsely report that there is not enough memory for starting up any virtual machine. To resolve this issue, adapt the max value used for the ARC cache.

For example, to restrict the memory to 2GB, add the following line in `/etc/system`:

```
set zfs:zfs_arc_max = 2147483648
```

- c. Enable the SMF service for iSCSI access (iSCSI target daemon) with the command:

```
svcadm enable svc:/system/iscsitgt:default
```

3. Install the virtualization platform.

You must use the Oracle VM VirtualBox archive that is bundled with Oracle Virtual Desktop Infrastructure. This archive includes a specific version of Oracle VM VirtualBox with an installation script (`vb-install`) that automates the necessary configuration steps.

- As root user, unzip the Oracle VDI Core archive if you have not already done so. Then unzip the Oracle VM VirtualBox archive, and run the installation.

```
# unzip vda_3.2.2_amd64.zip
# cd vda_3.2.2_amd64
# unzip vbox_3.2.zip
# cd vbox_3.2
# ./vb-install
```

The installation script installs the Oracle VM VirtualBox packages and starts up the Oracle VM VirtualBox Web service. In addition, the Apache Web server (bundled with Solaris 10) will be configured to act as SSL proxy for the Oracle VM VirtualBox Web service.

2. Install and Configure the Oracle VDI Core Software

How to Install and Configure the Oracle VDI Core for a Demo

Steps

1. As root user, unzip the Oracle VDI Core archive if you have not already done so, and run the installation (shown for x86).

```
# unzip vda_3.2.1_amd64.zip
# cd vda_3.2.1_amd64
# ./vda-install
```

After accepting the license agreement, the installation process begins, and all Oracle VDI Core components are installed.

2. After successful installation reboot your machine.

```
# reboot
```

3. As root user, run the vda-config script, and choose the "0 Evaluation Oracle VDI Host" configuration type:

```
# /opt/SUNWvda/sbin/vda-config
```

For more information about the settings of the default configuration, see the [Oracle Virtual Desktop Infrastructure Defaults](#) page.

Once configuration is complete, go to <http://<server name>:1800> (or <http://localhost:1800> if remote administration has been disabled). Use root user credentials to log into the Oracle VDI Manager. You will be re-directed to https and the browser will ask you to accept the security certificate. After confirmation, you should get the login screen.

3. Set Up a User Directory

How to Set Up a User Directory for a Demo

Typically the user information is already stored in an Active Directory or LDAP server. Before you can assign users to desktops, you must configure the desired Active Directory/LDAP server and the Oracle VDI Core.

 If you do not have a directory already installed, you may use [OpenDS](#) as explained in this [blog entry](#).

 If you would like more details about setting up Active Directory with Kerberos authentication, refer to the new [How to Set Up Active Directory and Kerberos for a Demo](#) page.

Oracle VDI Manager Steps

1. Select the Settings category in the left sidebar.
2. Select the Company subcategory, and click New in the Companies table.
This will activate the New Company wizard.
3. Choose between Active Directory and LDAP user directory types. You can also choose 'none' if you only require token assignments.
 - LDAP directory that supports Anonymous Authentication

 Active Directory does not support Anonymous Authentication.

- a. Select LDAP Type, and click Next.

- b. Select Anonymous Authentication.
 - c. Enter the hostname or IP address, and port number, of the LDAP server. 389 is the default port number used by most LDAP servers.
 - d. Enter the base DN of the LDAP server. Specifying a base DN is optional. It allows you to restrict the part of the LDAP directory used to search for the users. In most cases it is not necessary to provide the base DN.
For example: `cn=Users,dc=my,dc=company,dc=com`
- Active Directory or other type of LDAP directory that does not support Anonymous Authentication
 - a. Select LDAP Type, and click Next.
 - b. Select Simple Authentication.
 - c. Enter the hostname or IP address, and port number, of the LDAP server. 389 is the default port number used by most LDAP servers.
 - d. Enter the base DN of the LDAP server. Specifying a base DN is optional. It allows you to restrict the part of the LDAP directory used to search for the users. In most cases it is not necessary to provide the base DN.
For example: `cn=Users,dc=my,dc=company,dc=com`
 - e. Enter the user name. It must be the fully distinguished name (DN) of a user that has sufficient privileges to search the LDAP directory.
For example: `cn=super-user,cn=Users,dc=my,dc=company,dc=com`.
 - f. Enter the password for the user.

4. Set Up Desktop Providers and Pools

How to Create Desktop Providers

Desktop providers encapsulate the details of the underlying virtualization platform. At a minimum, you must configure one desktop provider before you can continue with the creation of pools. There is no limitation to the number of providers the system can manage. At any time, you can configure additional providers.

Desktop providers can also be configured to run a specified number of synchronous desktop cloning and recycling jobs during and outside of specified peak hours. To specify peak times, go to the Peak Times tab of the desktop provider's profile.

Oracle VDI Manager Steps

1. [Sign into the Oracle VDI Manager.](#)
2. Select the Desktop Providers category, and click New in the Desktop Providers table.
This will activate the New Desktop Provider wizard that enables you to add multiple hosts and multiple storages in a loop.
3. The New Desktop Provider wizard will require different information depending on the virtualization platform in use. For instance, all desktop providers require a host IP address and administrator credentials. Oracle VDI or Microsoft Hyper-V desktop providers require a host and a storage.
4. Once you click Finish, the new desktop provider will appear in the Oracle VDI Manager.
 - Oracle VDI and Microsoft Hyper-V desktop providers - You can now view the details, including CPU and memory use. It is also possible to add or remove additional host or storages as needed.
For Microsoft Hyper-V desktop providers, you should also check the Network tab of the desktop provider to verify that the virtual network you created on your Microsoft Hyper-V machine has been detected correctly.
 - VMware vCenter desktop providers
You can now view the VMware vCenter resource details, including datacenters, VMware clusters, and datastores.
 - Microsoft Remote Desktop providers
You can now view the provider details, including CPU and memory use. It is possible to add or remove additional Microsoft Remote Desktop Services hosts as needed, provided they all belong to the same cluster.
 - Generic desktop providers
Refer to the [How to Import Individual Windows PCs](#) for information about importing individual Windows PCs.

How to Create Desktop Pools

Oracle Virtual Desktop Infrastructure organizes desktops in pools. A pool is a collection (or container) of desktops. Typically you will create different pools for different types of users. For example, the engineering team in your company might have different desktop requirements than the marketing department.



Oracle VDI Desktop Providers Only

When changing pool settings from NAT networking to Host Networking + Windows RDP, existing desktops that are running must be stopped and restarted or else subsequent user requests for these desktops will fail. This issue occurs because existing, running desktops will be using NAT and will not have a public IP address. After the pools settings have been changed, subsequent requests for that desktop will attempt to access the desktop via the private (and unaccessible) NAT IP.



Microsoft Remote Desktop Providers Only

Only one pool can be created per Microsoft Remote Desktop provider.

Oracle VDI Manager Steps

1. Sign into the Oracle VDI Manager.
2. Select a Company in the Pools category.
3. Click New in the Pools table.
A New Pool wizard is displayed.
 - a. For Oracle VDI and Microsoft Hyper-V desktop providers, choose one of the following pool types:
 - Dynamic pools are filled with cloned flexible desktops. If you choose the Dynamic Pool type, the desktops in the pool will be temporarily assigned to users. They will be recycled each time the user logs out. This pool type is considered dynamic because the user-desktop assignments are often changing.
 - Growing pools are filled with cloned personal desktops. If you choose the Growing Pool type, the desktops in the pool will be permanently assigned to users. Users can log in and out without losing their desktop settings. The desktops are not recycled.
 - Manual pools are initially empty. They are filled manually by importing personal desktops. The Manual Pool type should be used if cloned desktop assignment is not an option.



For Microsoft Remote Desktop providers, pool types do not apply.

5. Create, Import, and Clone Virtual Machines

How to Create Virtual Machines (Oracle VDI Hypervisor)

Oracle Virtual Desktop Infrastructure presents users with easy access to their virtual desktops, instances of any desktop operating system executed in a virtual machine. You can manually create virtual machines, or you can configure the Oracle VDI Core to create or clone additional virtual machines automatically from a template.

Before You Begin

After installing Oracle VM VirtualBox, you can create your first virtual machine. It is possible to create virtual machines on the server installation or a local installation of Oracle VM VirtualBox. If you choose to use a local installation of Oracle VM VirtualBox to create virtual machines, be sure to use the same version of Oracle VM VirtualBox that you have installed as part of your Oracle VDI Hypervisor. You can download the Oracle Virtual Desktop Infrastructure supported local version from the [Oracle VM VirtualBox download site](#). See the [Oracle Virtual Desktop Infrastructure 3.2.2 Release Notes](#) for addition version support information.

Steps

1. Launch the Oracle VM VirtualBox Web Console.

```
# /opt/VirtualBox/VirtualBox
```

- a. Click New to launch the New Virtual Machine wizard.
- b. The wizard will guide you through virtual machine creation.
 - Be sure to choose the appropriate hard-disk and RAM space for the desired configuration.
 - i. Windows Vista and Windows 7 - minimum of 1024 MB RAM and 5723 MB hard disk are recommended.
 - ii. Windows 2000 and Windows XP - minimum of 384 MB RAM and 4 GB hard disk are recommended.
 For more information about virtual machine system requirements, refer to the [Oracle VM VirtualBox User Manual](#).

2. Install the operating system.

At this point you have an empty virtual machine, equivalent to a PC without an OS installed. The next step is to choose the boot medium for the OS and install it.

- a. Select the newly created virtual machine and click Settings.
- b. Open the Advanced tab in the Settings GUI.
- c. Ensure that CD/DVD-ROM is set as the first boot device.
- d. Select the CD/DVD-ROM option in the left panel of the Settings dialog.
- e. Select the Mount CD/DVD Drive option.
- f. Click OK to save the changes and close the Settings GUI.
 - At this point the new virtual machine must be started to trigger the OS installation.
- g. Select the new virtual machine and click Start.
- h. Follow the installation prompts, or seek further installation details from the OS manufacturer.

3. Install the Oracle VM VirtualBox Guest Additions.

Oracle VM VirtualBox for VDI 3.2 provides a Windows Guest Addition module for automated logons on Windows XP, Windows Vista, and Windows 7 guest OSes. The Auto-Logon feature can only be enabled during Guest Additions installation. You have the optional to install the traditional Guest Additions or Guest Additions with Auto-Logon.

- Install Guest Additions without Auto-Logon:
 - a. With the virtual machine running and fully booted, select Devices in the virtual machine console.
 - b. Select Install Guest Additions. This will launch the Oracle VM VirtualBox Guest Additions installer inside the virtual machine.
- Install Guest Additions with Auto-Logon:
 - a. In the virtual machine console, load the Guest Additions by selecting Devices, CD/DVD Devices, then VBoxGuestAdditions.iso.
 - b. With the virtual machine running and fully booted, go to the Windows Run console.
 - (Windows XP) In the Start menu, choose Run.
 - (Windows Vista and Windows 7) Search for 'run' in the Start search bar, and select it from the search results.
 - c. Type the following and click OK to launch the Oracle VM VirtualBox Guest Additions installer inside the virtual machine.

```
D:\VBoxWindowsAdditions.exe /with_autologon
```

4. Install additional software, and optimize the desktop image.

Refer to the [Best Practices for Desktop Images](#) for more information.

How to Import Desktops (Oracle VDI Hypervisor)

A pool is empty and has no desktops after initial creation. After you create virtual machines, you must import them into the Oracle VDI Core database.



Importing snapshots of virtual machines is not supported.

Before You Begin

A virtual machine must be created in the Oracle VM VirtualBox interface or using the integrated Oracle VDI Manager Flash console before it can be imported into the Oracle VDI Core database. Refer to the [How to Create Virtual Machines \(Oracle VDI Hypervisor\)](#) page for detailed information.

Oracle VDI Manager Steps

1. [Sign into the Oracle VDI Manager.](#)
2. Select the Pools category, and then a pool.
3. Select the Desktops tab, and click Import.
An import dialog will be displayed.
4. Select a desktop to be imported.
 - If the desktop you would like to import is on the Oracle VM VirtualBox host, select it from the Hypervisor tab, and click OK.
 - If the desktop you would like to import is available on the Oracle VDI Core host in `/var/tmp`, define the corresponding XML and VDI files under the Folder tab.
The virtual machine will be imported as a background job.

After the desktop has been imported successfully, it will be displayed in the Desktop tab of the pool's profile.

 You can move your virtual machine XML file and VDI image to `/var/tmp` using the following command:

```
# scp <path to file> root@<VDI host>:/var/tmp
```

If there is not enough space in `/var/tmp`, you can copy both files to another location on the host and create a symbolic link:

```
# ln -s <path to file> /var/tmp/
```

How to Clone Desktops (Oracle VDI Hypervisor)

Cloning is the fastest and most efficient way to populate a pool. Use the steps below to enable cloning in a pool.

Before You Begin

A desktop must be imported before a template can be cloned. Refer to the [How to Import Desktops \(Oracle VDI Hypervisor\)](#) page for detailed information.

Oracle VDI Manager Steps

1. [Sign into the Oracle VDI Manager.](#)
2. Enable cloning in a desktop pool.
 - To enable cloning in an existing pool:
 - a. Select the Pools category, then select a pool.
 - b. Select the Cloning tab, and select a template from the Template menu. For Oracle VDI and Microsoft Hyper-V desktop providers, all desktops will be cloned from the master revision of the selected template.
 - c. To start cloning, check Enable Automatic Cloning and click Save.
 - To enable cloning in the New Pool wizard during pool creation:
 - a. Choose the desktop template and select Enable Automatic Cloning.
 - b. Click Finish to finalize the pool creation, and begin the automatic cloning.

Cloning can take up to a minute to start, after which you will see clone jobs begin to display in the Jobs window. To access the Jobs window, click the Jobs Running link in the top left of the Oracle VDI Manager. After a clone job has been finished successfully, the new desktop will be displayed in the Desktops tab of the pool's profile. A page refresh might be necessary.

CLI Steps

1. Open a terminal window and sign into the server with root credentials.
For a multi-host configuration, use one of the Oracle VDI Core Secondary hosts.
2. Start automatic cloning in a pool.

```
# /opt/SUNWvda/sbin/vda pool-start <pool name>
```

- Example – Starting automatic cloning in a pool

```
example% /opt/SUNWvda/sbin/vda pool-start MyPool
```

6. Add Users to Pools, and Assign Tokens to Users

How to Assign Users to Pools or Desktops

You can either assign a user to a specific desktop, or you can assign a user (or user group) to a desktop pool. If a user is assigned to a pool and requests a desktop, the Oracle VDI Core will automatically deliver any available desktop from the pool.

For Microsoft Remote Desktop providers, users cannot be directly assigned to desktops. Instead, users or groups are assigned to Remote Desktop Services pools.

Oracle VDI Manager Steps

1. [Sign into the Oracle VDI Manager.](#)
2. Select a Company in the Users category.
 - To assign a user or a group, select the Users and Groups tab in the Company's profile.
 - a. Search for users and groups in the user directory.
You can specify user name or user ID.
 - b. Click on the user name, and click the Assignment tab in their profile.
 - c. Select Add in the Assigned Desktops or Assigned Pools table, depending on your preference.
 - To assign a custom group, select the Custom Groups tab in the Company's profile.
 - a. Click the Assignment tab in the custom group's profile.
 - b. In the Assigned Pools table, select Add.
3. Select the checkbox for the desktop or pool assignment, and click OK.

You can always see which pools and desktops are associated with a user by clicking the Summary tab of the user or group's profile.

How to Assign Tokens to Users

In a Sun Ray environment, users may take advantage of smart cards (tokens) to initiate a session on a Sun Ray Thin Client (DTU). With Oracle Virtual Desktop Infrastructure, you can assign a token to a user. It is also possible to assign desktops directly to specific tokens. Once tokens have been created, they can be assigned to pools and desktops.

Oracle VDI Manager Steps

1. [Sign into the Oracle VDI Manager.](#)

2. Select a Company in the Users category, and the Users and Groups tab in the Company's profile.
3. Search for a user in the user directory.
4. Click on the user name, and click the Token tab in their profile.
5. Assign the token.
 - If you are assigning a new token, click New in the Tokens table. Then Enter the ID of the new token (e.g. Payflex.500d9b8900130200).
 - If you are assigning an existing token, select Add in the Tokens table. Then search for the desired token.



Token IDs can be copied directly from the SRSS Admin GUI (see the Tokens tab and display Currently Used Tokens).

CLI Steps

1. Open a terminal window and sign in to the server with root credentials.
For a multi-host configuration, use one of the Oracle VDI Core Secondary hosts.
2. Assign a token.
 - Assign a new token to a user.

```
# /opt/SUNWvda/sbin/vda token-create -p token-id=<token ID>,user=<user ID>
```

- Example – Creating a new token and assigning it to a user

```
# /opt/SUNWvda/sbin/vda token-create -p
token-id=Payflex.600a7c5600130200,user=jd123456
Token Payflex.600a7c5600130200 created
```

- Assign an existing token to a user.

```
# /opt/SUNWvda/sbin/vda token-create -p token-id=<token ID>,user=<user ID>
```

- Example – Assigning an existing token to a user

```
# /opt/SUNWvda/sbin/vda token-setprops -p user=jd123456
Payflex.600a7c5600130200
Token properties updated
```

7. Access a Desktop

The two easiest desktop access methods for a demo setup are Sun Ray and Remote Desktop Connection because they are already configured with Oracle VDI Core configuration. The following information will explain a quick way to get them up and running. If you would like to configure the advanced options for these software, or use Sun Secure Global Desktop Software (SGD) as your desktop access method, please refer to the main documentation set on the [Accessing Desktops](#) page.

How to Access Desktops with Sun Ray

Sun Ray Software supports [Sun Ray Thin Clients](#) and [Oracle Virtual Desktop Clients](#) as virtual desktop access methods. The steps below refer describe desktop access with a Thin Client. For detailed information about desktop access with Sun Ray, see the [Accessing Desktops](#) page.

Steps

If you have already directed your Thin Client to your Oracle VDI Core host, you will not need to do any extra configuration. Simply insert a user smartcard, and enter user credentials to access your desktop.

- Turn off authentication (optional).
This information is included to simplify a demo setup, but it is not a required step. If you decide to turn off authentication, no password will be required at the Oracle VDI Desktop Selector screen. If you required authentication for the guest operating system during virtual machine creation, the user must still authenticate themselves in the guest operating system.

Executed the following command on the Oracle VDI Core host:

```
/opt/SUNWvda/sbin/vda settings-setprops -p clientauthentication=Disabled
```



If you are already working from a Thin Client directed at a server other than your Oracle VDI Core host, you will need to redirect the Thin Client. Refer to the [How to Redirect a DTU Session](#) on the SRSS 4.2 information site for further details.

How to Access Desktops with Microsoft Remote Desktop Connection

For detailed information about desktop access with Microsoft Remote Desktop Connection, see the [Accessing Desktops](#) page.

Steps

1. Open a Windows Remote Connection client either on Windows or Mac OSX.
2. Enter details for the Oracle VDI Core host and provide a user ID as the connection parameter.
3. Establish the connection to access your desktop.