

## **Sun Virtual Desktop Infrastructure**

VDI Demo (Featuring Microsoft Hyper-V) for Version 3.1

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**ORACLE**

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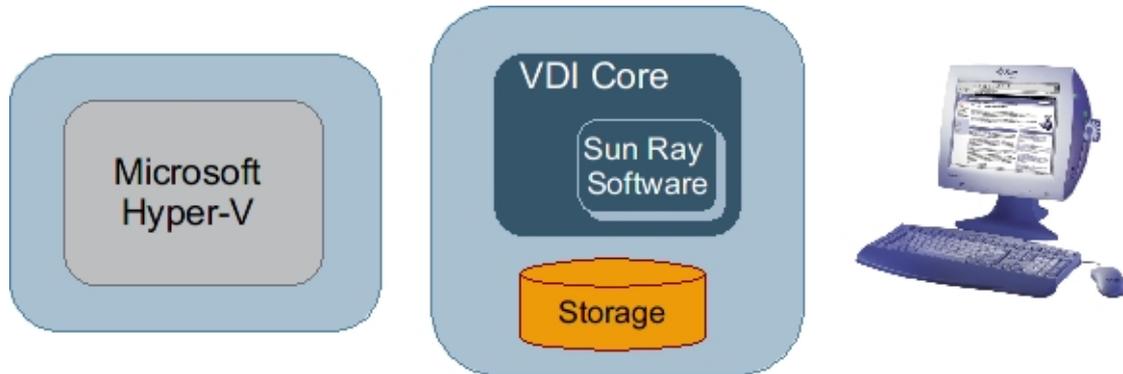
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# VDI Demo (Featuring Microsoft Hyper-V)

## VDI Demo (Featuring Microsoft Hyper-V)

The following information describes how to install and configure the VDI components (VDI Core and virtualization platform). You will need two separate hosts to be able to perform this install.



**i** The VDI Demos are not supported production environment configurations. For more information about supported production environment VDI configurations, please see the Supported Configurations page.

## System Requirements

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

- 1 Hyper-V server - this can be any of the following:
  - Microsoft Windows Server 2008 with Service Pack 2 installed
  - Microsoft Windows Server 2008 R2
  - Microsoft Hyper-V Server 2008

Information on system requirements is available from the following product pages:

[Microsoft Windows Server 2008](#)

[Microsoft Hyper-V Server 2008](#)

- 1 host for VDI Core
  - At least one 2.0GHz x86 CPU
  - At least 4GB RAM
  - At least 32GB disk space

Refer to the [VDI 3.1 Release Notes](#) for more details.

## 1. Install and Configure Microsoft Hyper-V

Use the following information to install and configure Microsoft Hyper-V for your VDI Demo. It assumes you have referred to the Microsoft documentation for installing and configuring a Windows Server. For general information about how Hyper-V works with VDI, see the [About Microsoft Hyper-V Virtualization Platforms](#) section.

## How to Install Microsoft Hyper-V

Microsoft Hyper-V can be installed either as a (free) standalone product, or it can be enabled as a role in Windows Server 2008.

- To install the standalone product, please refer to the [Microsoft Hyper-V Server 2008 site](#).
- To install the Hyper-V role, please refer to the [Microsoft Hyper-V Getting Started Guide](#).



Errors will be seen if the Hyper-V host is running a locale other than English. For more information refer to Bug ID 6918323 in the [VDI 3.1.1 Release Notes](#).

## How to Prepare a Windows Server for VDI

After installing Microsoft Hyper-V or Microsoft Remote Desktop Services you must prepare your Windows server to communicate with the VDI Core. VDI does not require any agents to be installed on the Windows servers, instead the VDI Core communicates with Windows servers using Windows Remote Management (WinRM) over HTTPS (a secure protocol). For HTTPS, WinRM requires a server certificate to operate properly. This certificate is used for encryption of the communication channel. For more details, see "Windows Remote Management" or "Configuration and Security" in the Microsoft documentation.

Preparing the Windows server for communication with the VDI Core is a two-step process. First, you must generate the self-signed certificate using the Microsoft Internet Information Services (IIS) 6.0 Resource Kit Tools (Step 1, below). Then configure `winrm` to listen for HTTPS requests (Step 2, below).



These steps are necessary for Remote Desktop Services (or Terminal Services) Windows servers so that critical information about the server can be displayed in the VDI Manager (including CPU usage, memory usage, and number of user sessions). The delivery of desktop sessions from RDS pools is still provided by a regular RDP connection. For information about how to configure the RDP settings per desktop pool, see the [How to Configure RDP Options Per Pool](#) page.

### Before You Begin



The following commands should be executed in Command shell, not Powershell.

### Steps

1. Generate a self-signed certificate on the Windows server.  
Use the `selfssl.exe` tool which is part of the IIS 6.0 Resource Kit and can be downloaded from the [Microsoft Support web site](#).
  - a. Copy `selfssl.exe` to your Windows Server.
  - b. Create a self-signed certificate:

```
C:\Program Files\IIS Resources\SelfSSL\selfssl /T /V:<days>
```

There parameter `/V:` dictates the number of days the certificate will be valid. There is no maximum value.

- c. Run the `certutil` command, and make note of the Cert Hash of the new certificate:

```
certutil -store MY
```



If the Windows server and VDI server are not in time sync, you might not be able to connect VDI to the server as the certificate is not valid for the delta between both servers.

## 2. Configure Windows Remote Management for HTTPS.

The `winrm` tool is used to configure remote management settings on the server. You must specify the certificate hash to be used, and the authentication settings to allow the VDI Core to send requests.

- a. Install WS-Man (WinRM).

 This step is for Windows Server 2003 only. Windows Server 2008 and Hyper-V Server 2008 come with WinRM pre-installed.

- b. Download the WS-MAN v1.1. installation file (`WindowsServer2003-KB936059-x86-ENU.exe`) from [www.microsoft.com](http://www.microsoft.com).

- c. Proceed to the installation by running the installation file `WindowsServer2003-KB936059-x86-ENU.exe`.

- d. Create a listener on the Windows Server.

In a command shell run:

```
winrm create winrm/config/listener?Address=IP:<HYPER_IP>+Transport=HTTPS
@{Hostname="<HOST>";CertificateThumbprint="<CERTHASH>";Port="443" }
```

- Replace `<HYPER_IP>` with the IP address of the Windows Server.
- Replace `<HOST>` with the Computer Name of the Windows Server.
- Replace `<CERTHASH>` with the Cert Hash value, with no spaces, noted from the self-signed certificate created with `selfssl`.

- e. Open that port so that the Windows Server can receive requests from the VDI Core:

```
netsh firewall add portopening TCP 443 "Sun VDI Remote Management"
```

Port 443 is the port the VDI Core listens on by default.

- f. Enable Basic authentication on the server by running the command:

```
winrm set winrm/config/service/auth @{Basic="true" }
```

 If you use a port other than 443 for VDI communication with Hyper-V or RDS, you must remember to specify this port when adding the host in VDI Manager.

 Be Sure

- WinRM is enabled on the server and the firewall is configured appropriately.
- A Virtual Network has been created on the server. Note, there may be problems managing the Hyper-V server from VDI if the Virtual Network uses the same network device that is used for WinRM.

## 2. Install and Configure the VDI Core Software

### How to Install and Configure the VDI Core Software (Demo)

#### Steps

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

```
# unzip vda_3.1_amd64.zip
# cd vda_3.1_amd64
# ./vda-install
```

After accepting the license agreement, the installation process begins, and all VDI components are installed. These components include:

```
Sun VDI 3.1 Installation
+ Installing Sun VDI Core...
+ Installing MySQL Database...
+ Installing Web Administration...
+ Installing Apache Tomcat...
+ Installing RDP Broker...
+ Installing Sun Ray Client...
+ Installing Java Runtime Environment...
+ Installing Sun Ray Server Software...
+ Installing Sun Ray Connector for Windows Operating Systems...
```

2. After successful installation reboot your machine.

```
# reboot
```

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

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

You will see the following configuration script:

```

Sun Ray Server Software Configuration
+ Providing configuration data...
+ Loading Sun Ray data store...
+ Populating Sun Ray data store...
+ Creating Sun Ray core services configuration...
+ Restarting Sun Ray data store daemon...
+ Configuring Sun Ray Server Software Web Administration...
+ Adding 10 user accounts for Sun Ray sessions...

Sun Ray Client Configuration
+ Setting Kiosk Mode Session Type to 'vda'...
+ Enabling Kiosk Mode Policy for All Card and Non-Card Users...
+ Enabling LAN Connections...
+ Configuring Sun Ray Connector for Windows Operating Systems...
+ Restarting Sun Ray Server Software...

MySQL Database Configuration
+ Creating MySQL group (vdadb)...
+ Creating MySQL user (vdadb)...
+ Setting up MySQL directory...
+ Setting up MySQL cluster directory...
+ Initializing database...
+ Starting Sun VDI database (MySQL)...
+ Setting user rights...
+ Creating database tables...
+ Configuring database connection...

Sun VDI Web Administration Configuration
+ Enabling Sun VDI web administration...
+ Restarting Sun VDI web administration...

RDP Broker Configuration
+ Starting RDP broker...

System Configuration
+ Restarting Common Agent Container service...

```

For more information about the settings of the default configuration, see the [VDI 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 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 Desktop Providers and Pools

### How to Create Desktop Providers (Microsoft Hyper-V)

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.

#### Before You Begin

The Windows Server hosting Hyper-V must be prepared to communicate with the VDI Core before a desktop provider can be created. Refer to the [How to Prepare a Windows Server for VDI](#) page for detailed information.

#### VDI Manager Steps

1. Sign into the VDI Manager.
  - a. Go to <http://<server name>:1800> (or <http://localhost:1800> if remote administration has been disabled), and use root user credentials. For a multi-host configuration, use one of the VDI Secondary hosts.
  - b. 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.

2. Select the Desktop Providers category in the left sidebar.
3. Select New in the Microsoft Hyper-V Desktop Providers overview.  
The New Desktop Provider for Microsoft Hyper-V wizard is displayed. It enables you to add multiple Hyper-V hosts as well as multiple Hyper-V storage servers.
  - a. Type the host name or IP address and the administrator credentials for the Hyper-V host server.
  - b. When you are finished adding new Hyper-V hosts, select the Select Existing Hosts option.
  - c. Type the host name or IP address and the administrator credentials for the Hyper-V storage server.  
You can configure multiple Hyper-V storage servers.
  - d. When you are finished adding new storage hosts, select the Select Existing Storage option.
  - e. Click Finish.  
The new desktop provider is displayed in the VDI Manager. You can now view the provider details, including CPU and memory utilization. You can add or remove additional MS Hyper-V hosts or storage servers as needed.

## How to Create Desktop Pools

Sun VDI 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 at your company might have different desktop requirements than the marketing department.



### Sun VirtualBox 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.

### VDI Manager Steps

1. Sign into the VDI Manager.
  - a. Go to <http://<server name>:1800> (or <http://localhost:1800> if remote administration has been disabled), and use root user credentials. For a multi-host configuration, use one of the VDI Secondary hosts.
  - b. 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.
2. Select the Pools category in the left sidebar.
3. Click New in the All Pools overview.  
A New Pool wizard is displayed.
  - a. For Sun VirtualBox 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.

- b. Select a template.

If you have already imported a desktop from Sun VirtualBox or Microsoft Hyper-V, you can select it as a template to clone desktops from.

If no desktop has been imported yet, select None from the drop down menu. After a desktop has been imported, you can select it as a template from the pool's Cloning tab.

- c. If you chose a template in the previous step, select the pool size or enable automatic cloning. You can modify your choice at any time in the pool's Cloning tab.
- d. Click Finish.
  - A new pool is displayed in the Pools overview.

## 4. Create, Import, and Clone Virtual Machines

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### How to Create Virtual Machines (Microsoft Hyper-V)

Sun VDI presents users with easy access to their virtual desktops, typically instances of Microsoft Windows XP executed in a virtual machine. You can manually create virtual machines, or you can configure Sun VDI to create or clone additional virtual machines automatically from a template.

#### Steps

1. Create a virtual machine with Microsoft Windows.
  - Use your standard process for creating virtual machines. For information on how to create a virtual machine in Microsoft Hyper-V, refer to the [Microsoft documentation](#).
  - Follow these recommendations:
    - Use Microsoft Windows XP SP3 as the baseline. The license must be a volume license.
    - Define one disk. It should be as small as possible, for example, 4 GB. The size impacts system performance and overall storage consumption.
    - RAM also should be as small as possible, for example, 384 MB.
2. Install the Microsoft Hyper-V Integration Components.
  - Once you have created a virtual machine with Microsoft Windows XP installed on it, install the Hyper-V Integration Components. The Integration Components allow Microsoft Hyper-V and Sun VDI to interoperate with the virtual machine. Installing the Integration Components in the guest operating system is vital.
  - The installation can be easily triggered from within the Hyper-V Management Console: Connect to the virtual machine from the console and select the Insert Integration Services Setup Disk option from the Action menu.
3. Enable remote desktop access.
  - RDP is the main access method to the Microsoft Windows XP desktop. By default, this access method is disabled and rejected through the firewall. To enable remote desktop access, connect to the virtual machine from the Hyper-V Management Console and follow these steps:
    - a. In the console, click the virtual machine's Start button.
    - b. Right-click on My Computer in the start menu, and select Properties.
    - c. In the System Properties window, select the Remote tab.
    - d. Under Remote Desktop, check the box marked Enable Remote Desktop on this computer so that this item is selected.
    - e. Make sure that the desired users have been granted remote access rights.
    - f. Click OK to save the settings and close the dialog.
      - Before you try to connect to a virtual desktop remotely, ensure that no firewall blocks the remote access: Make sure that port 3389 is enabled in any firewall that may be active on the system.
4. Install the Sun VDA Tools.
  - Sun VDI 3.1 has a tools component that notifies the VDI service when a desktop is in use and handles RDP connections when the guest OS initiates Standby. The VDA Tools must be installed on the guest operating system for recycling to work correctly and so that the RDP connection is correctly closed when the virtual machine goes into Standby or Suspend mode.
    - a. Locate the `vda-tools.msi` installer file in the directory where you unzipped the VDI archive.
      - The `vda-tools.msi` is located in the `/var/tmp/vda_3.1_amd64/vda_3.1/Windows/Packages` subdirectory. Copy the installer to the desired VM.
    - b. Within the VM's console double-click the installer and follow the prompts to complete installation.
      - The default target location for the VDA Tools on Windows is `C:\Program Files\Sun\Virtual Desktop Access\Tools`.
    - c. The VM services list should now contain a new service named Sun VDA Tools, running and set to start

automatically.

## How to Import Desktops (Microsoft Hyper-V)

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

 Importing snapshots of virtual machines is not supported.

### Before You Begin

A virtual machine must be created in Microsoft Hyper-V before it can be imported into the VDI Core database. Refer to the [How to Create Virtual Machines \(Microsoft Hyper-V\)](#) page for detailed information.

### VDI Manager Steps

1. Export the virtual machine template from the Hyper-V server.
  - a. In the Hyper-V management console, select the Hyper-V virtual machine template.
  - b. Select Export from the Actions menu and choose a directory on the Hyper-V server to which you want to export the virtual machine.  
After the export has completed, you will have a directory containing a number of files and subdirectories. Copy the entire directory from the Hyper-V server to a directory on your VDI server or to a shared directory on a remote server (the shared directory must be accessible to the VDI server).
2. Sign into the VDI Manager.
  - a. Go to <http://<server name>:1800> (or <http://localhost:1800> if remote administration has been disabled), and use root user credentials. For a multi-host configuration, use one of the VDI Secondary hosts.
  - b. 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. Import the desktop into VDI.
  - a. Open the Pools tab, then select the previously created empty pool.
  - b. Select the Desktops tab, and click Import. An import dialog will be displayed.
  - c. In the Server property, select the server you copied the Hyper-V desktop directories to (if you copied them to your VDI server then choose the VDI Host '<servername>' option otherwise if you copied them to a shared directory on a remote server then choose the Other Server option and enter the remote server name where the shared directory resides).
  - d. In the Path property, enter the path to the directory that contains the Hyper-V desktop directories.
  - e. Select the correct desktop name from the Desktop dropdown, and click OK.

After the desktop has been imported successfully, it will display in the Desktops tab of the Pools page. A page refresh might be necessary.

## 5. Set Up a User Directory

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### How to Set Up a User Directory for a Demo

Now the desktops must be made available to users. 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 VDI Core.

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

**New Page!**

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.

**Steps**

1. Select the Settings category in the left sidebar.
2. Then select the User Directory subcategory.
3. Click Add User Directory... to launch the User Directory wizard. Continue depending on your directory type.

- 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`
- e. Click Next to review your choices before completing the configuration.

- 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.
- g. Click Next to review your choices before completing the configuration.

## 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, Sun VDI 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.

#### VDI Manager Steps

1. Sign into the VDI Manager.
  - a. Go to `http://<server name>:1800` (or `http://localhost:1800` if remote administration has been disabled), and use root user credentials. For a multi-host configuration, use one of the VDI Secondary hosts.
  - b. 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.

2. Select the Users category.
  - To assign a user or a group, select the Users and Groups subcategory in the left sidebar.
    - a. Search for users and groups in the user directory.  
You can specify user name or user ID.
    - b. Select a user or group name, and then the Assignment tab in the corresponding profile.
    - c. Select Add in either the user's Assigned Desktops or Assigned Pools table, or the group's Assigned Pools table.
  - To assign a custom group, select the custom group name in the left sidebar.
    - a. Select the Assignment tab in the custom group's profile.
    - b. Select Add in the custom group's Assigned Pools table.
3. In the pop-up window, choose the pool or desktop to be assigned, 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 will take advantage of smart cards (tokens) to initiate a session on a Sun Ray thin client (DTU). With VDI 3.1, 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.

### VDI Manager Steps

1. Sign into the VDI Manager.
  - a. Go to `http://<server name>:1800` (or `http://localhost:1800` if remote administration has been disabled), and use root user credentials. For a multi-host configuration, use one of the VDI Secondary hosts.
  - b. 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.
2. Select the Users tab and Users and Groups entry in the left sidebar.
3. Search for a known user in the user directory.
4. Click on the user's name, and then select 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 into the server with root credentials.  
For a multi-host configuration, use one of the VDI 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 Virtual Desktop

The two easiest desktop access methods for a demo setup are Sun Ray and Remote Desktop Connection because they are already configured with 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 (Demo)

Sun Ray in VDI 3.1 supports [Sun Ray Desktop Unit \(DTU\)](#) and [Sun Desktop Access Clients](#) as virtual desktop access methods. The steps below refer describe desktop access via a DTU. For detailed information about desktop access with Sun Ray, see the [Accessing Desktops](#) page.

#### Steps

If you have already directed your DTU to your 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 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 VDI host:

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

 If you are already working from a DTU directed at a server other than your VDI Core host, you will need to redirect the DTU. 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 (Demo)

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 VDI Core host and provide a user ID as the connection parameter.
3. Establish the connection to access your desktop.