StorageTek Service Delivery Platform

SDP2 User's Guide

Version 2.3

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Contents

Preface

This guide provides configuration and administration information for the StorageTek Service Delivery Platform (SDP2) 2.3.x software. This guide is intended for storage administrators or operators responsible for installation and administration of the SDP2 software are their site.

1

Service Delivery Platform v2 Overview

Oracle Auto Service Request (ASR) is a feature of Oracle hardware warranty, Oracle Premier Support for Systems, and Oracle Platinum Services. ASR resolves problems faster by automatically opening service requests for Oracle's qualified server, storage, and Engineered Systems when specific faults occur. The Service Delivery Platform v2 (SDP2) Software and system, which is an implementation of ASR for Oracle, accepts fault telemetry data sent from one or more StorageTek tape product assets.

Visit the Oracle ASR product page (http://www.oracle.com/asr) for details on the features and benefits of ASR. For a list of products supported by SDP2, see:

http://docs.oracle.com/cd/E37710_01/nav/products.htm

Note: ASR is not a monitoring solution and is not a substitute for the normal monitoring processes/services that customers have.

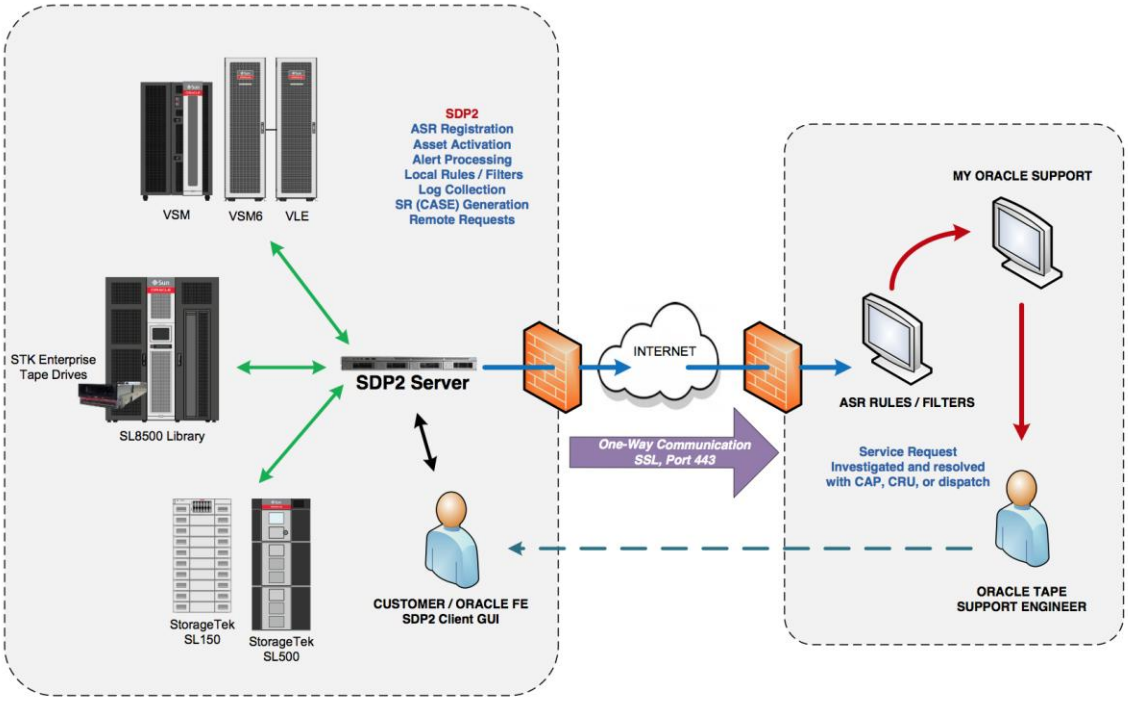
The following chapters provide information on installation, configuration, and troubleshooting of the Service Delivery Platform v2 (SDP2) Software.

1.1 SDP2 Concepts and Components

To be successful in implementing SDP2, it is necessary to understand the underlying concepts and components.

1.1.1 SDP2

Service Delivery Platform v2 (SDP2) is a central system that accepts fault telemetry data from Oracle StorageTek tape assets. The SDP2 software, installed on a dedicated Linux server, monitors the assets through well-established network ports and protocols, intelligently manages this fault data, and securely forwards it – using HTTPS across port 443 – to the Oracle Backend Infrastructure.



This backend infrastructure collects the telemetry/alert data forwarded from all of the different types of ASR managers. The fault-rule technology on these backend systems ascertains the reality of the fault telemetry, and forwards recognized faults to Oracle's Service Request system. From there, the following actions occur:

- A Service Request, also called a case, is created and assigned to an Oracle Support Engineer. At the same time, an e-mail notification of the Service Request is sent to your support contact on record associated with the system reporting a fault.

- The Service Request is handled in accordance with the asset's Support or Warranty contract. For more information about ASR, refer to the ASR publications available at the following URL

http://www.oracle.com/asr

1.1.2 Asset

SDP2 Assets are Oracle StorageTek tape devices that have been qualified to send alert telemetry to the SDP2 server. For a list of SDP2 supported Oracle StorageTek tape assets see:

http://docs.oracle.com/cd/E37710_01/nav/products.htm

1.1.3 Registration

To be allowed to properly create service requests, the SDP2 server must be associated with an Oracle customer and corresponding support identifier by registering the SDP2 server with an appropriate customer My Oracle Support (MOS) username and password. For more information on MOS accounts and Customer Support identifier requirements see:

https://support.oracle.com/rs?type=doc&id=1070936.1

1.1.4 Activation

Once the SDP2 server is registered to a customer account, the monitored assets must be activated with Oracle in order to be permitted to create Automated Service Requests. This is a two-step process that includes actions taken in both the SDP2 application as well as the My Oracle Support customer portal.

1.1.5 Heartbeat

Once configured, the SDP2 server will periodically communicate with the Oracle Backend Infrastructure. These encrypted messages are sent every twelve hours and serve as a mechanism to demonstrate proper communication pathways between the SDP2 server and Oracle.

1.1.6 Remote Request

Since the connection between the SDP2 server and Oracle is outbound HTTPS only, Oracle is not able to access the SDP2 server remotely. However, if enabled, the SDP2 software does allow for certain activities to be requested remotely by qualified Oracle Support personnel. Each SDP2 server monitors a unique message queue on the Oracle Backend Infrastructure. A service engineer can place a standard, predetermined message into the queue to request additional information from the SDP2 server. These predetermined actions consist of:

- Requests for additional machine log bundles from activated assets.
- Requests for SDP2 server log bundles
- Requests for Oracle Shared Shell sessions to the SDP2 server

The ability to perform remote requests of a specific SDP2 server is customer configurable and may be enabled or disabled at any time.

1.1.7 Entitled Tape Drive Tray Serial Numbers

Oracle StorageTek tape drives are equipped with two different serial numbers, one that is associated with each individual drive, referred to as the DMOD serial number, and one that is associated with the tape drive library tray. The drive tray serial number is used to entitle the tape drive on the support contract, and therefore the necessary component to enable the drive for ASR through SDP2.

Previously these entitled serial numbers were not available electronically through the tape libraries such as the StorageTek SL8500, but recent changes allow for them to be added to the electronic library configuration. Please refer to the Library documentation for more information on how to add the drive tray serial numbers to the library using StorageTek Library Console (SLC).

SL8500 Library Documentation

http://docs.oracle.com/cd/E24306_05/index.html

StorageTek SL8500 Users Guide

7 – Configuring Drives / Configuring the Drive Tray Serial Numbers

http://docs.oracle.com/cd/E24306_05/SLEUG/sl8500drivemgmt.htm

2

Requirements

2.1 SDP2 Server Requirements

The SDP2 solution consists of two main components:

- SDP2 server software
- SDP2 Java Client (Virtual Op Panel / VOP)

2.1.1 Server Hardware

SDP2 is a JAVA application that runs on Oracle Enterprise Linux. To get the best user experience, Oracle recommends the following hardware specifications as a recommended minimum. These recommendations will scale based on the SDP2 software release, the number of monitored assets and number of VOP clients used simultaneously.

- Quad-core Processor
- 8-16GB Ram
- 250GB Hard disk space for the following directories (created by the application during software installation)
  - **`/home/sdp2admin`**
  - **`/opt/Oracle/MdvopServer`**
- Two to three RJ45 Ethernet connections
  - Outbound Internet Access (HTTPS 443 only), example: eth0
  - Device service network - example: eth1
  - Secondary Customer Network port - GUI Management (optional)
- Layer 2 switches for connectivity to service network devices

Note: Virtual servers such as Oracle VM are supported with the understanding that they are configured to meet all the same requirements as a physical server. A particular focus on the networking side is important since we need to guarantee a good quality connection (in terms of latency and bandwidth) between the devices and the SDP2 server.

Alerts from devices such as the SL8500 are sent to the SDP2 server as SNMP traps. These traps are sent via UDP protocol, which by its nature is unacknowledged. If traps are not properly delivered due to substandard or congested network environments, the SDP2 will not be able to create an SR for the failure.

2.1.2 Linux Operating System

For SDP2 installations, Oracle supports **Oracle Enterprise Linux (OEL) 6.4**, **6.5**, and **6.6** in both 32 bit and 64 bit versions.

Note: SDP2 requires the English version of Oracle Enterprise Linux

As OEL is very similar to Red Hat® Enterprise Linux (RHEL), equivalent versions are also supported but do not receive the same amount of testing as the Oracle Enterprise Linux releases.

The SDP2 application requires installation as the root user to be able to perform all the necessary installation tasks such as:

- Creating the **sdp2admin** user
- Setting up the installation directories
  - **`/home/sdp2admin`**
  - **`/opt/Oracle/MdvopServer`**
- Making changes to the firewall rules*
- Modifying SELinux to allow a local copy of Java to be run by SDP2

However, once installed, the SDP2 application does not run as ***root***, but as ***sdp2admin***.

It is important to allow the software to perform the installation itself. Creating the sdp2admin user ahead of time or limiting the ability for the application to properly implement the `/home/sdp2admin` or `/opt/Oracle/MdvopServer` directories can potentially lead to application functionality issues.

SNMP traps from assets such as the SL8500 tape library are sent using UDP on port 162, while alerts from legacy devices such as the StorageTek T9840D tape drive uses FTP and port 21. Since SDP2 services run as ***sdp2admin*** and not as ***root***, the software cannot directly monitor those low level ports.

* SDP2 configures the Linux firewall (iptables) at installation to redirect the 162 and 21 ports' traffic to higher ports 50001 and 50021 that the ***sdp2admin*** user can monitor. This must be done for all interfaces monitoring assets.

Example:

```
[root@sdp2server]# ifconfig -a
eth0      Link encap:Ethernet  HWaddr 00:E0:81:5E:42:8E
    inet addr:10.123.123.123  Bcast:10.123.123.255  Mask:255.255.255.0
    inet6 addr: 2606:b400:410:852:2e0:81ff:fe5e:428e/64 Scope:Global
    inet6 addr: fe80::2e0:81ff:fe5e:428e/64 Scope:Link
    UP BROADCAST RUNNING MULTICAST MTU:1500  Metric:1
    RX packets:31436036 errors:2 dropped:5618 overruns:0 frame:2
    TX packets:28111760 errors:0 dropped:0 overruns:0 carrier:0
    collisions:0 txqueuelen:1000
    RX bytes:4286403241 (3.9 GiB)  TX bytes:4272932454 (3.9 GiB)
    Interrupt:23

[root@ sdp2-server]# iptables -t nat -L -n
Chain PREROUTING (policy ACCEPT)
target     prot opt source      destination
REDIRECT   udp  --  0.0.0.0/0   10.123.123.123    udp dpt:162 redir ports 50001
REDIRECT   tcp  --  0.0.0.0/0   10.123.123.123    tcp dpt:21  redir ports 50021
```

2.1.3 Additional Server Software Requirements

MySQL™ Client - MySQL Client RPMs are required for SDP2 database administration and backup and are not included or installed by the SDP2 software. The SDP2 database upgrades, and backups will not function without this client software installed properly.

The installation of this software can be accomplished by any means that conforms to customer Linux administration practices. If the ***yum*** package management utility is available and configured, the MySQL client software can be installed using:

```
[root@sdp2server]# yum install mysql
```

Note: The MySQL server RPMs should NOT be installed, as they will conflict with SDP2 Functionality

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Depending on the distribution of Oracle Enterprise Linux, the MySQL client software can consist of different individual RPMs

For 32bit OEL linux MySQL client should consist of:

- mysql-community-libs
- mysql-community-common
- mysql-community-client

Whereas for 64bit OEL MySQL client should consist of:

- mysql.x86_64
- mysql-libs.x86_64

Note: It is important to note that in some yum repositories, MySQL might be replaced with mariaDB. This should pose no problems as it is advertised as MySQL compatible, but all SDP2 testing is done using original MySQL client software.

Java - Java is required for SDP2 to function. Currently only the Java 7 versions are supported in the Linux server environment.

The SDP2 RPM installation includes a 32-bit local copy of Java that can be used in 32-bit Linux installations. This included Java is located in the **`/opt/Oracle/MdvopServer`** installation directory

If running SDP2 on a 64bit distribution of Linux then the 64Bit Java software must be installed and configured manually. The appropriate Java 7 release can be obtained from the Oracle Technet.

http://www.oracle.com/technetwork/java/javase/downloads/index.html

2.2 SDP2 Client

As previously stated, the SDP2 server software runs on Oracle Enterprise Linux and is a centralized system that monitors the Oracle StorageTek tape assets for alert telemetry. Once this server has been properly installed and started, it can

be configured for ASR using its companion client software, Virtual Op Panel (VOP.)

Note: VOP is also referred to as Multi-Drive VOP (MDVOP)

2.2.1 User Roles

VOP is available in two versions, designed for the following customer roles:

- System Administrator - This version of VOP is designed for the system administrator who configures and controls the VOP configuration.
- Operator - This version of VOP is designed for the operator who monitors the configuration.

2.2.2 Operating System Requirements

VOP is supported on the following operating systems:

- Windows 7, Windows 8, or Windows 10
- Solaris 10/Solaris 11 (SPARC and x86)
- Linux Graphical installation with the 32-bit linker libraries

Note: Some Linux distributions may require the installation of additional software libraries.

2.2.3 Client / Server Communication

The VOP client software communicates with the SDP2 server software through a method called Remote Method Invocation (RMI). This Java method communication is only able to communicate across one server Ethernet interface at a time, and requires specific network ports to be open to function properly.

Required open ports between server and client:

15000 – Java RMI Registry
15001 through 15150 – Java RMI

The RMI communication is also specific to features and functionality. This requires the VOP client to be at the same version as the SDP2 server for proper and expected functionality. If there is a version mismatch between client and server, issues from small GUI inconsistencies to fundamental connection issues can arise.

Note: Some windows firewall/intrusion prevention programs have been found to interfere with the VOP/SDP2 RMI communication. This can manifest in the client taking 5-20+ minutes to bring up the configuration. If possible, configure these applications to ignore the VOP application.

2.3 Networking Requirements and Recommendations

There are three types of network communication for the SDP2 solution.

- Communication between the SDP2 server and its monitored assets.
- Communication between the SDP2 server and the VOP client.
- Communication between the SDP2 server and the Oracle Backend.

The following chart illustrates the difference between the types of communication and the ports required for each:

SDP2 Ports and Protocols:

Protocol/Port Requirements - Between SDP2 Server and Devices		
Port	**Protocol**	**Device(s)**
161 / 162	SNMP	SL8500 / SL3000 / SL500 / SL150 / T10000A/B/C/D
443	HTTPS	SL150 (Log Gathering)
20 / 21 / 23	FTP / Telnet	T10000A/B/C/D / 9840B/C/D
22	SSH	SL8500 / SL3000 / SL500 / SL150 / T10000C/D / VSM6/VLE
9877 / 9878	VSHELL	VSM4 / VSM5
50004	HTTP	VSM6 / VLE
Protocol/Port Requirements - Between SDP2 Server and Client		
Port	**Protocol**	**Notes**
15000	RMI Registry	RMI Registry details which higher ports are required for functionality
22	SSH	Server administration
15001-15500	RMI	Required for full Client functionality
Protocol/Port Requirements - Between SDP2 Server and Oracle		
Port	**Protocol**	**Notes**
443	HTTPS	This can be a direct connection or through a customer proxy server url: https://transport.oracle.com/v1/ url: https://sharedshell.oracle.com

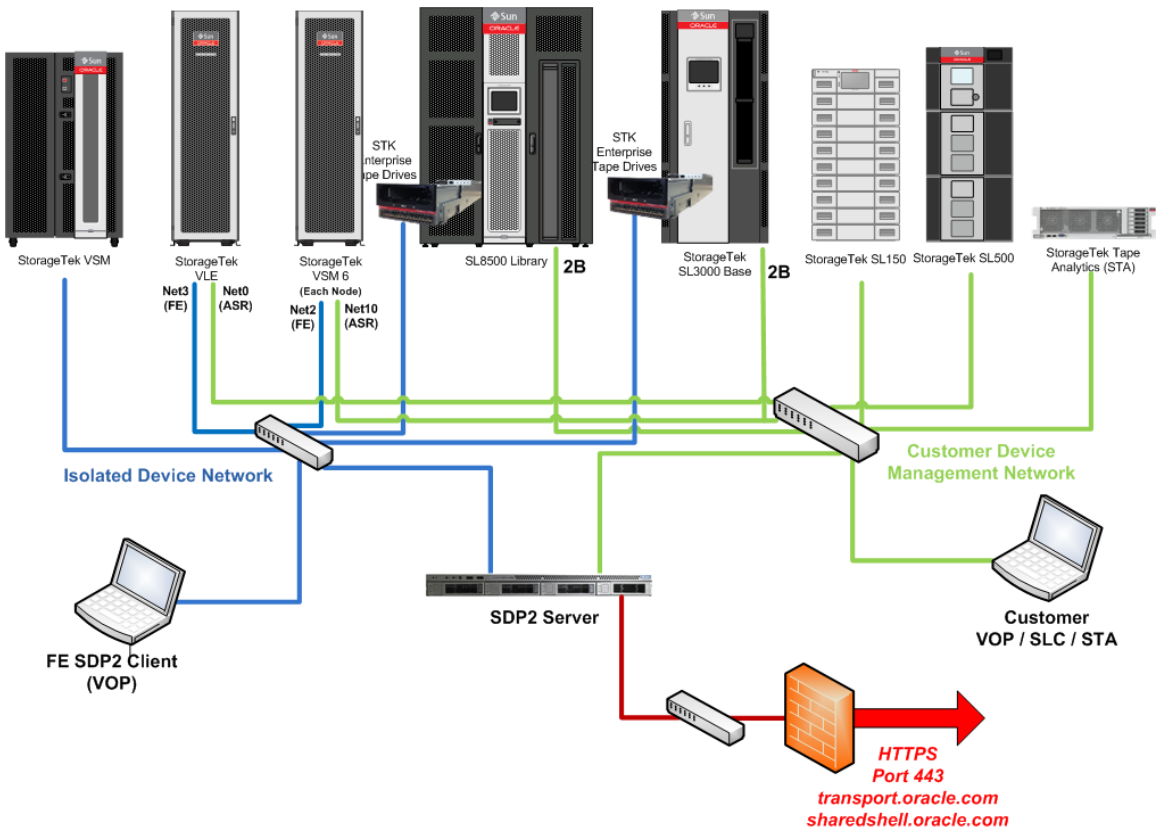
2.3.1 Asset Communication

The SDP2 software uses Ethernet communication to monitor the Oracle StorageTek tape assets. The protocols and corresponding network ports required vary with the types of assets it is monitoring.

Oracle recommends the asset device traffic be separated onto a private service network where possible. This recommendation is primarily intended for the tape drives due to their numbers and as they are much more active on the network.

SDP2 will need to interface with Oracle StorageTek Tape Libraries such as the SL8500 and SL3000 using the customer Ethernet port, 2B. Since this is a customer facing port, it can be maintained on the customer network, if needed, to allow for proper use of StorageTek Library Console (SLC) and StorageTek Tape Analytics (STA). This is illustrated in the following example diagram:

Recommended Customer Installation Network Topology Example:



2.3.2 VOP Client Communication

The SDP2 server and VOP client communicate using JAVA RMI. For more details on this communication, please refer to section ***2.2.3 Client / Server Communication***.

2.3.3 Oracle Backend Communication

SDP2 requires a connection between customer site and the Oracle Backend to facilitate the ASR functionality. This is accomplished by a secure, outbound only connection using HTTPS and port 443.

Note: SDP2 must communicate with Oracle using HTTPS (port 443) to https://transport.oracle.com/v1/

The SDP2 software utilizes this outbound connection on port 443 to send communication in the form of encrypted, proprietary XML messages to the Oracle Backend, which processes the messages and performs accordingly.

For more detailed information on the ASR communication and procedures, please refer to http://www.oracle.com/asr.

3

SDP2 Installation

3.1 Server Software Installation

The SDP2 software is an RPM package (e.g. MdvopServer-2.2.2-1.i686.rpm) that needs to be installed as the root user. Please refer to section ***2.1.2 Linux Operating System*** for more information on what tasks are completed during the RPM installation.

3.1.1 Edit the /etc/hosts file

The Client/Server RMI communication is bound to one server Ethernet interface. The interface to be used is selected during the start of the SDP2 services from the Linux **`/etc/hosts`** file. To ensure proper client communication, edit the **`/etc/hosts`** file to include the current system hostname and the IP address of the appropriate Ethernet address.

Determine the IP address of the interface that the VOP GUI will use to communicate:

```
[root@sdp2server]# ifconfig eth0
eth0      Link encap:Ethernet  HWaddr 00:E0:81:5E:42:8E
    inet addr:10.123.123.123  Bcast:10.123.123.255  Mask:255.255.255.0
    inet6 addr: 2606:b400:410:852:2e0:81ff:fe5e:428e/64 Scope:Global
    inet6 addr: fe80::2e0:81ff:fe5e:428e/64 Scope:Link
    UP BROADCAST RUNNING MULTICAST MTU:1500  Metric:1
    RX packets:31436036 errors:2 dropped:5618 overruns:0 frame:2
    TX packets:28111760 errors:0 dropped:0 overruns:0 carrier:0
    collisions:0 txqueuelen:1000
    RX bytes:4286403241 (3.9 GiB)  TX bytes:4272932454 (3.9 GiB)
    Interrupt:23
```

Determine the hostname of the server:

```
[root@sdp2server ~]# hostname
sdp2server.customer.com
```

Add the appropriate IP address and hostname to the **/etc/hosts** file:

```
[root@sdp2server ~]# cat /etc/hosts
127.0.0.1   localhost localhost.localdomain localhost4 localhost4.localdomain4
::1         localhost localhost.localdomain localhost6 localhost6.localdomain6
10.123.123.123      sdp2server.customer.com
```

3.1.2 Install the SDP2 (MdvopServer) RPM

As **root**, install the MdvopServer RPM:

```
[root@dr-sdp2-x2100 ~]# rpm -i MdvopServer-2.3.1-1.i686.rpm
pre 2.3.1
Installing........
     -Checking for Dependencies and creating a list that is needed. Please Wait....
     -(sdp2admin) exists!, No changes to Users Account
     -INFO, Updating Password To be more Secure
   Working.....
   post 2.3.1
   Post Script Running..........
     -(sdp2admin) exists!, No changes to Users Account
     -INFO, Updating Password To be more Secure
     +Installing a local copy of Java into /opt/Oracle/MdvopServer/jre-7u80-linux-i586!
     -WARNING, not successful with JVM Installation! Compressed file located in
   /opt/Oracle/MdvopServer/install
     +Modify sdp2admin Bash Profile, Please check SDP2_JAVA_HOME Environment to be set
   correctly!
     +Runnning MDVOP (SDP2) Server Setup
     +Creating sdp2admin cron entry!
     -User:sdp2admin Previous FTP/9xxx Server settings detected. No changes will be made!
     -User:sdp2admin Previous FTP/Mainframe Server settings detected. No changes will be
   made!
     +Attempting to run Administration Activities for Mdvop Server for first time with
   (root) privileges!
     +Configured System for use with Mdvop Server with java preference (standalone)
     +Enabling the default Firewall Configuration
   (/opt/Oracle/MdvopServer/profiles/sdp2/networking/sdp2-default.fw)
     +Enabling ip4 Firewall for runlevels 2,3,4,5
     +Attempting to setup Mdvop Server for first time with (sdp2admin) privileges!
     +Configuring system wide init scripts! Selected runlevel will be (3,5)
     -Configuring logrotate for Mdvop Server Application Logs!
     +Checking network hosts file for IP configuration needed for RMI services
     +Attempting to Check Database Configuration with (sdp2admin) privileges!
   Finished with Package Installation
   posttran 2.3.1
   ################################################################################
   BASIC SETUP AND RUNNING:
   Please Verify and Configure the Mdvop Server (SDP2) Basic Settings
   Login in as (sdp2admin) or <su - sdp2admin> as root
   1. <cd /opt/Oracle/MdvopServer> alternatively use <cd SDP2_HOME> and then <ls>
   2. Verify permissions are sdp2admin:sdp2admin on folders
   3. If a local java was installed this is the top level directory.  Look for a Java
      Folder (i.e. jre1.7.0.80)
   4. <cd bin> and do < ls>
   5. Verify pre installation has been completed. If the file (jreConfig) is present
      than a suitable Java has been found.
      a) If file (jreConfig) file is not present, than do a manual configuration
        i. Issue the command <./Server.sh config>
        ii. If Successful then the file will exist otherwise you can manual configure.
            See Documentation for examples and topics
          1) Alternatively you can run <./detectJava.sh> and review its output to
             determine if a JVM was found
   6. Verify there is a directory (bin/setup) via <ls /setup>.
       a. If change (changeSnmpPort) exists then the firewall was modified
       b. If change (secureJava) exists then the SE Linux has been told that we are
          using a local copy of Java.
   7. As an Administrator verify that /etc/hosts file contains the server ip address
      and correct DNS name.
```

```
   8. Start the Mdvop Server <./Server.sh start>. After Services are started verify
      with <./Server.sh status>
   ################################################################################
   FAQ:
- You can run the Server from anywhere with the following command <mdvop_server start>.
Please do not run as root!
 - General logs of the Process are kept under /opt/Oracle/MdvopServer/logs
 - If you get a general message of port in use, please verify that there are not other
   rmi process currently running
 - Local Server Documents are located in /opt/Oracle/MdvopServer/docs for further
reference
 - Java Search Order is as follows
     a) If ths install process was able to detect the correct machine architecture (i686)
        than a JRE was installed
        under the top level directory as described above
     b) If you are running under a x64 architecture the JRE was not installed and the
        installation most likely used
        the native (OS) version if it was able to detect it.
     c) If the installer was not able to detect (a or b) then a correct version of Java
will
        have to be installed manually.
        Once a a Java has been installed then point the
(/opt/Oracle/MdvopServer/bin/jreConfig)
        file to the parent directory
echo!
of the JVM.
  Example:
   <which java> yields (/usr/bin/java)
   </usr/bin/java -version> yields (java version 1.7.0_80)
   <echo /usr > /opt/Oracle/MdvopServer/bin/jreConfig> Note: Use double quotes with
   Verify with -> <cat /opt/Oracle/MdvopServer/bin/jreConfig> yields (/usr)
   ################################################################################
   FINISHED
```

3.1.3 Verify the SDP2 Java configuration

SDP2 requires the Java Runtime Environment (JRE) to function properly. As it states in the installation output, the SDP2 installer attempts to configure the Java location automatically.

Note: SDP needs access to the Java binary executable files, including, but not limited to, `java` and `rmiregistry`

- If installed on a 32-bit system, SDP2 installs and uses local copy of the JRE
- If installed on a 64-bit system, SDP2 attempts to locate a system-level Java to utilize.

If the installation procedure cannot detect an appropriate Java version to use, it will need to be configured manually in the **`/opt/Oracle/MdvopServer/bin/jreConfig`** SDP2 configuration file.

That file should contain the location of the directory *ABOVE* the java bin directory. For example:

```
[root@sdp2server ~]# which java
/usr/bin/java
[root@sdp2server ~]# ls -l /usr/bin/java
lrwxrwxrwx. 1 root root 26 Mar 26 15:03 /usr/bin/java ->
/usr/java/default/bin/java
```

Therefore the contents of the jreConfig file should contain either:

```
[root@sdp2server ~]# cat /opt/Oracle/MdvopServer/bin/jreConfig
/usr
```

or

```
[root@sdp2server ~]# cat /opt/Oracle/MdvopServer/bin/jreConfig
/usr/java/default
```

3.1.4 Start the SDP2 Services

As seen above, the RPM installation creates the `sdp2admin` user as well as installs the software. Although the software requires `root` privileges for installation, SDP2 needs to run as `sdp2admin` NOT `root`.

Change to the newly created `sdp2admin` user and start the services.

```
[root@sdp2server ~]$ su - sdp2admin
```

```
[sdp2admin@sdp2server ~]$ mdvop_server start
Starting RmiRegistry:                      [OK]
Starting MDVOPServer:                      [OK]
Starting BeanService:                      [OK]
Starting ASPService:                       [OK]
Starting SnmpService:                      [OK]
Starting FtpService:                       [OK]
```

If the SDP2 services fail to start, there is likely a problem with the Java configuration. Please refer to the previous section ***3.1.3 Verify the SDP2 Java configuration*** to ensure SDP2 can properly find the **`java`** and **`rmiregistry`** executable files.

```
[sdp2admin@sdp2server ~]$ mdvop_server start
Problem Starting RmiRegistry.sh
Stopping due to dependency failure!
Stopping due to dependency failure!
Stopping due to dependency failure!
Stopping due to dependency failure!
Problem Starting RmiRegistry.sh
```

3.1.5 Client Installation

For detailed information on installing the SDP2 Client (VOP), please refer to the Oracle Virtual Operator Panel (VOP) User Guide.

http://docs.oracle.com/cd/E56041_01/index.html

3.1.4 RPM Upgrades

The SDP2 (MDVOPServer) RPM currently does not support direct `rpm -u` upgrades. SDP2 Version 2.3.2 comes with an automated script to assist in upgrading from previous versions.

The install.sh script can be used with the upgrade option to perform this function. Please refer to the Appendix for more detailed information on the upgrade capabilities of this install script.

4

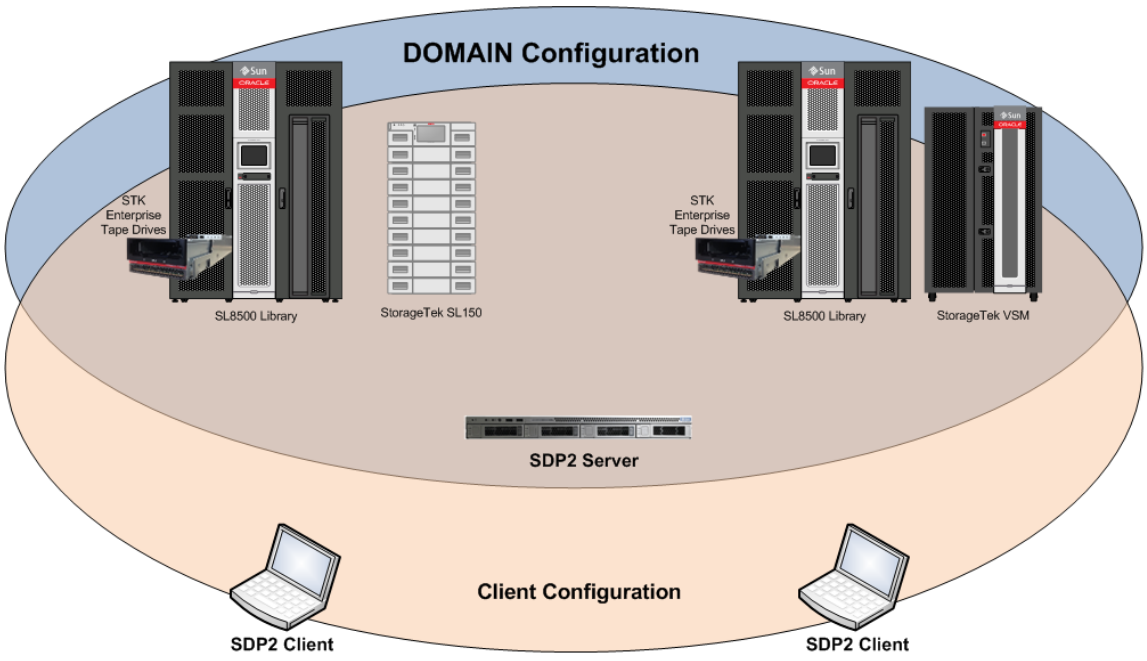
SDP2 Configuration

Once the SDP2 software has been successfully installed and properly started on the Linux server, it is ready to be configured through the Virtual Op Panel (VOP) GUI application.

4.1 Domain Configuration

The SDP2 server employs a master configuration file, called **`domain.vop`** that must contain all tape assets the SDP2 software is to monitor. This file is contained on the server and is only used internally by the server processes. When connecting to the server, the VOP client doesn't access this **`domain.vop`** configuration file directly, but a copy or perhaps even subset of the file, referred to as a client configuration.

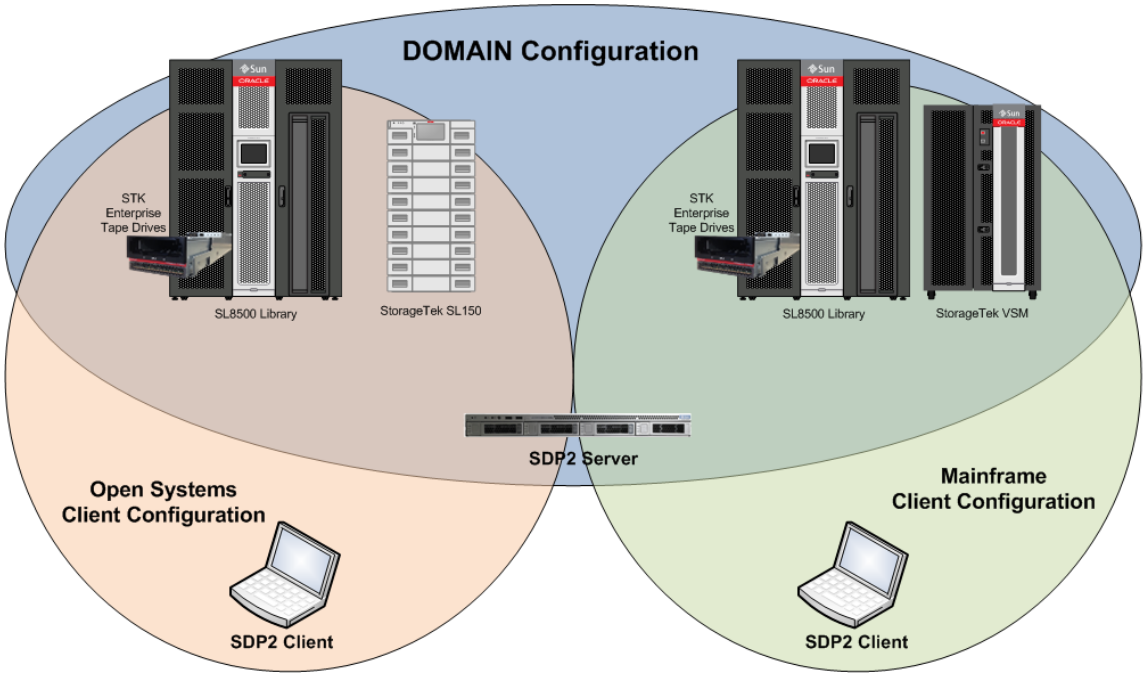
Domain Configuration and Single Client Configuration:



It is possible to create subsets of the domain.vop, if it would be desirable to split the asset *view* between different sub-teams or departments. However it is

important to note that this is only the client's view of the assets, as the centralized SDP2 server still has the charter to monitor *all* assets in its master configuration.

Domain Configuration and Subset Client Configurations:

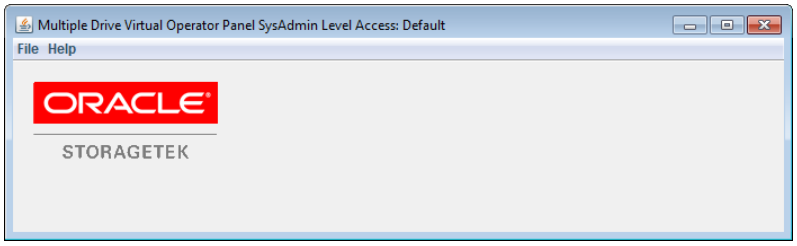


When assets are added or modified in the environment, it is necessary to edit the master configuration domain.vop file to ensure the changes will be reflected in the SDP2 software's ASR functionality. After changing the **`domain.vop`**, it is necessary to also save the changes made to *each* client configuration that is affected. Failing to do so will lead to discrepancies in that client configuration's view of the environment.

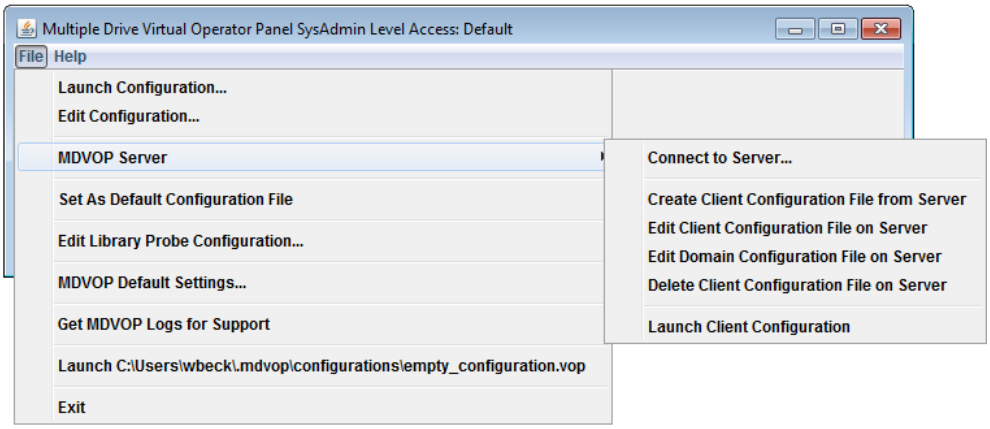
Note: The SDP2 services need to be restarted to activate any change to the `domain.vop` configuration file. This action can now be done through the VOP client in version 2.3.1

4.1.1 Create the Domain Configuration

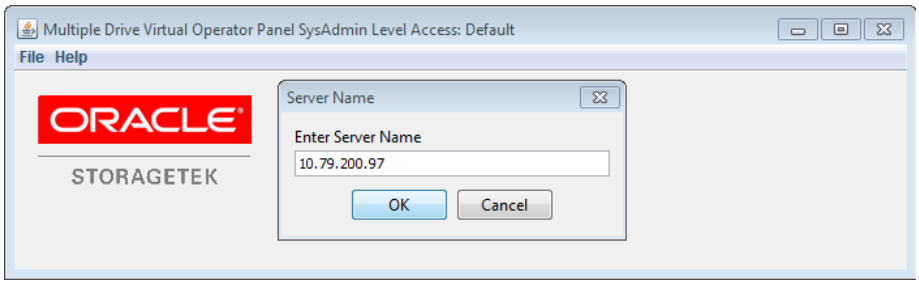
Step 1: Launch the Multi-drive VOP GUI and connect to the SDP2 server.



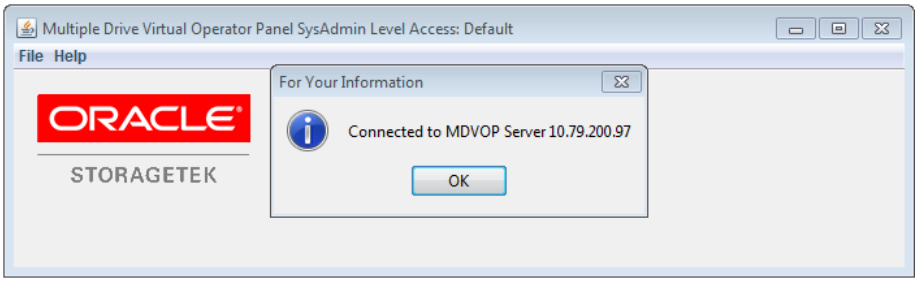
Select *File –> MDVOP Server –> Connect to Server …*



Insert the IP Address of the SDP2 Server and click *OK*



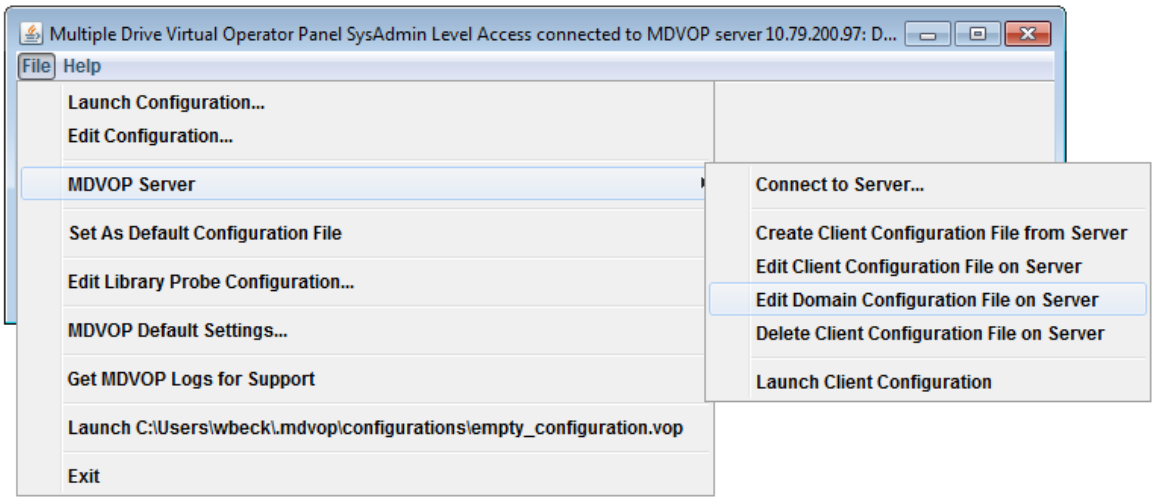
The system should prompt back with connected status



If the client fails to connect to the server, verify the services are indeed started on the server. If failures persist, refer to section ***2.2.3 Client / Server Communication*** for more information.

Step 2: Create a domain configuration.

Select *File –> MDVOP Server –> Edit Domain Configuration File on Server*



The **`domain.vop`** configuration screen allows for "top-level" tape assets to be added to the master configuration. Top-level assets consist of:

- Tape Libraries
  - SL8500 StorageTek Modular Library System
  - SL3000 StorageTek Modular Library System
  - SL500 StorageTek Modular Tape Library
  - SL150 StorageTek Modular Tape Library
- VSM
  - StorageTek Virtual Storage Manager 4
  - StorageTek Virtual Storage Manager 5
  - StorageTek VSM6
  - StorageTek VLE

Note: Although the *Library Type* dropdown menu contains 9310, L1400 and L700, they are not supported for SDP2 ASR. They are virtual containers exclusively used for legacy MDVOP tape drive administration functionality.

Choose the desired top-level asset from the dropdown and select ***Add Library*** to start the configuration process for that device type.

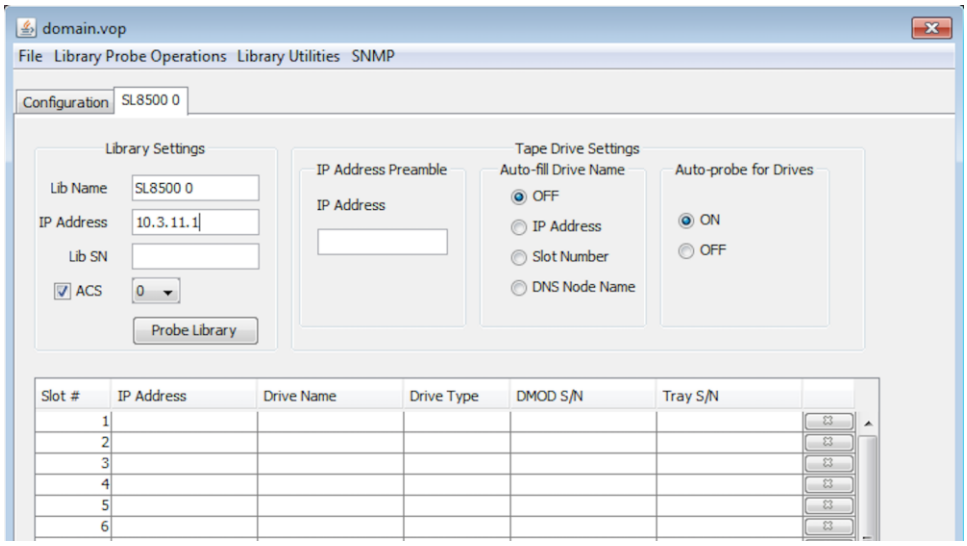
4.1.2 Adding an SL8500 / SL3000 / SL500 Tape Library

The process to add the SL8500, SL3000, or SL500 is the same for all three assets.

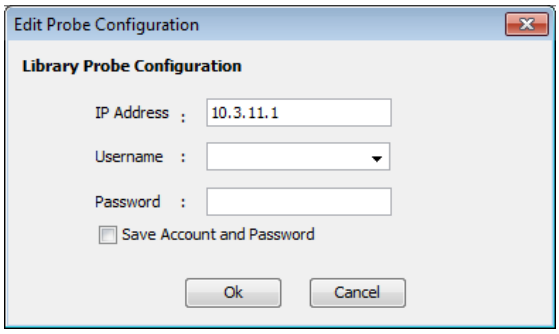
- Probe the Library for its configuration.
- Assign the appropriate entitled tray serial numbers to the tape drives.
- Enable SNMP on the library

SL8500 Example:

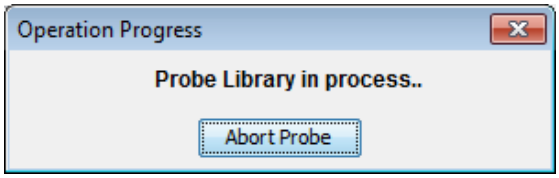
Supply the Library IP Address and select *Probe Library*



At the log in prompt, Supply an appropriate set of credentials for the library and select *Ok*

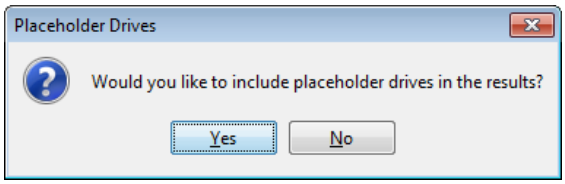


After validating the credentials, the probe will commence automatically.



When the probe is complete, select if placeholders should be included for unsupported drives.

Drive placeholders are only used for customer reference, and will only be shown in the **`domain.vop`** file and configuration screen. Drives that are not natively supported for drive administration or ASR, such as LTO drives, will not be monitored. Also, these unsupported drives will not show in the Multi-Drive VOP GUI with or without these placeholders.



Note: When the drives are properly placed in the library configuration, ensure that all the Enterprise Tape Drives (T9x40, T10000) are cabled and have available IP addresses. Any drive that is inaccessible to the SDP2 server through the network should be removed from the configuration, as it will only serve to waste SDP2 server cycles attempting to establish communication.

The probe process is designed as a convenience to fill in the appropriate drive information into the **`domain.vop`** file automatically. Any changes that need to be made can be done by additional probes or by editing library slot entries manually.

SDP2 is currently unable to automatically populate the entitled tray serial numbers. To enable the supported tape drives for ASR, the appropriate tray serial numbers need to be added manually.

Note: The Entitled tray serial number step is not applicable for the SL500, as it does not support T9x40 or T10000 tape drives

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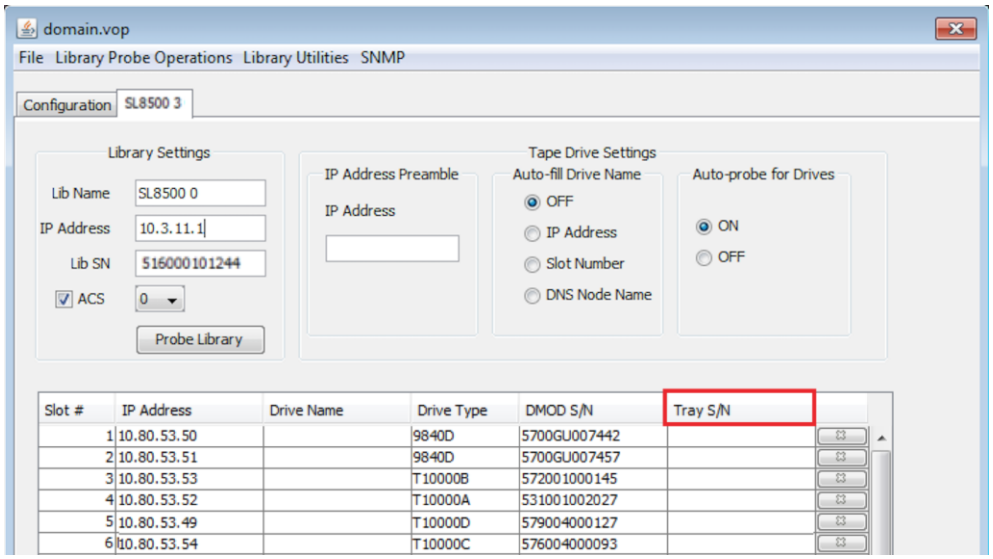
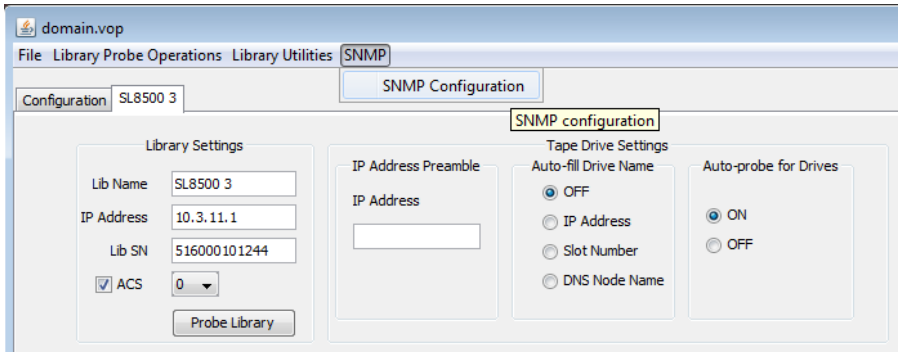


Library SNMP configuration: select *SNMP –> SNMP Configuration*

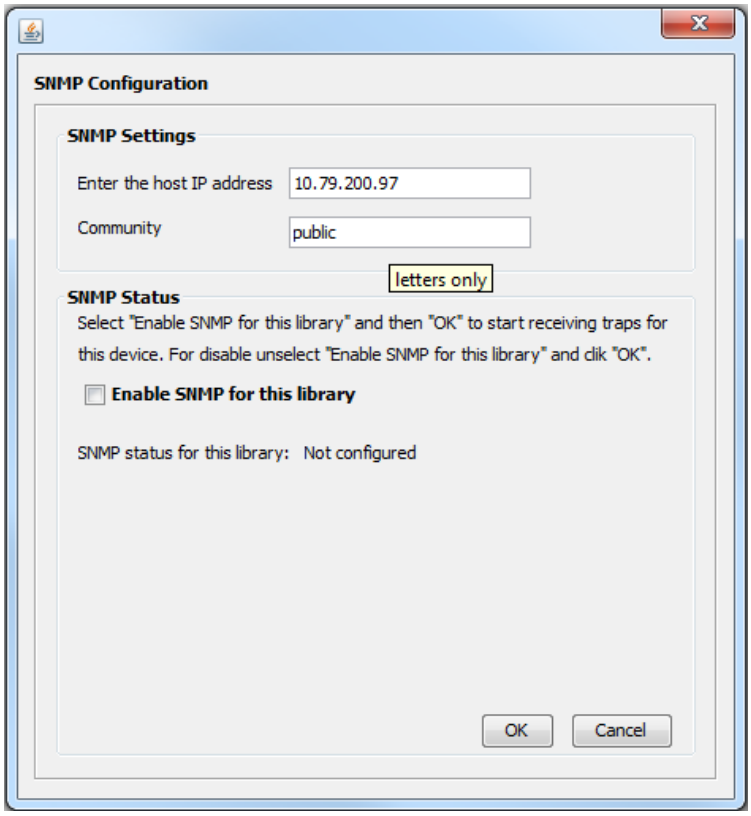


The SNMP configuration screen will automatically configure the library to send SNMP alerts to the SDP2 server. To perform this configuration provide the needed information:

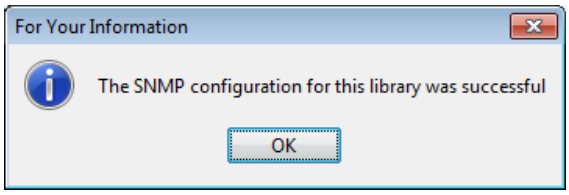
- IP address the Library will use to communicate to the SDP2 server
- The community string for the v2c trap recipient (default is *public*)
- Check box confirmation to enable SNMP

Note: The community name must not contain numbers, spaces or special characters

Provide the requested information and select *OK*



The SDP2 application will log into the library and configure the SNMP parameters, including the trap recipient. A dialog box will appear when completed.



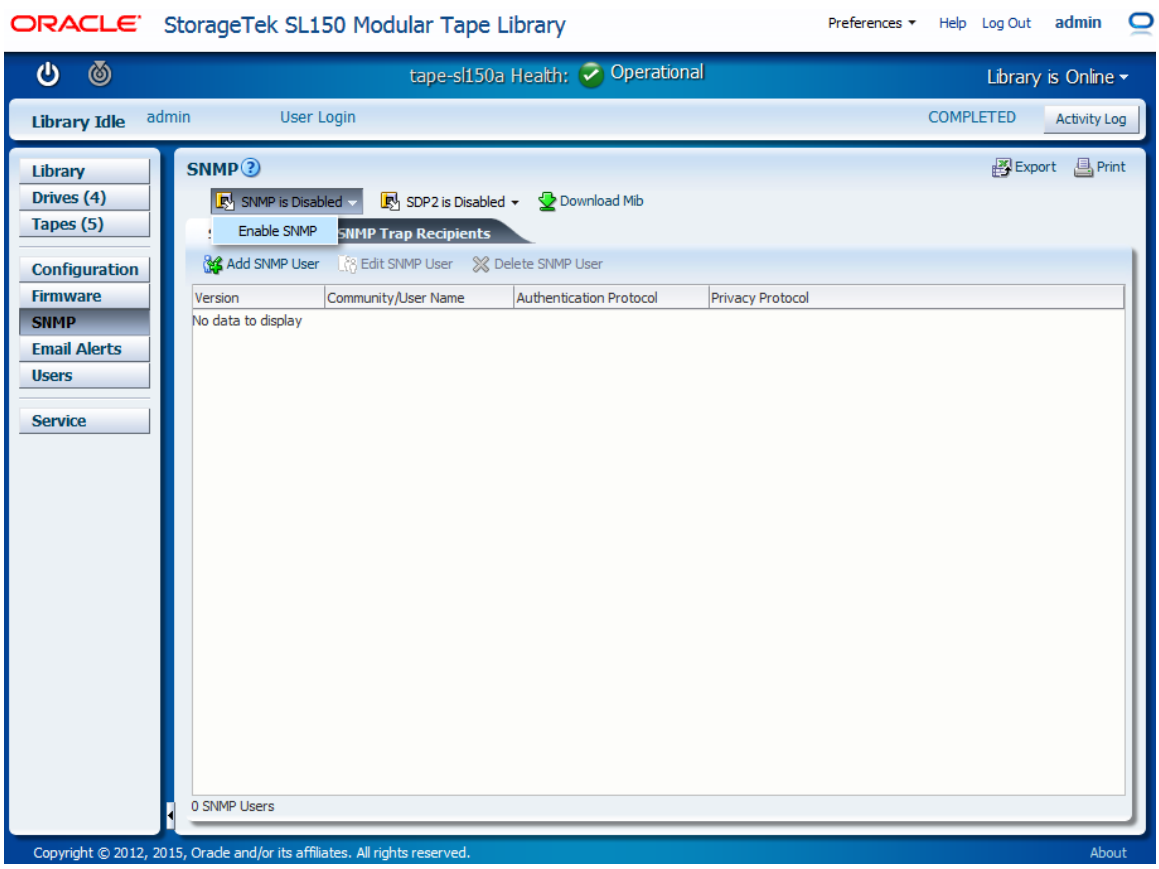
More information as to the nature of any SNMP configuration failures can be found in the following SDP2 server transcript file:

`/home/sdp2admin/.mdvop/transcripts/snmp_`*`ip-address`*`.0.txt`

4.1.3 Adding an SL150 Tape Library

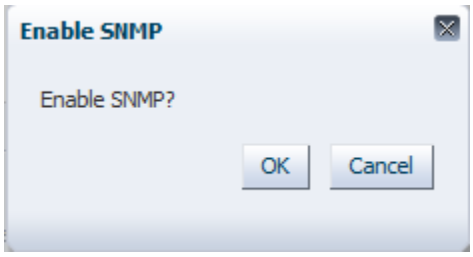
The process to add an SL150 to SDP2 is slightly different than the other libraries because the library does not have a command line interface. The SNMP is unable to be configured automatically by the SDP2 server; therefore it needs to be completed manually.

Log into the SL150 Browser User Interface and navigate to the SNMP tab



If SNMP has never been configured on the library, the option at the top of the page will state ***Enable SNMP*** as seen in the above example.

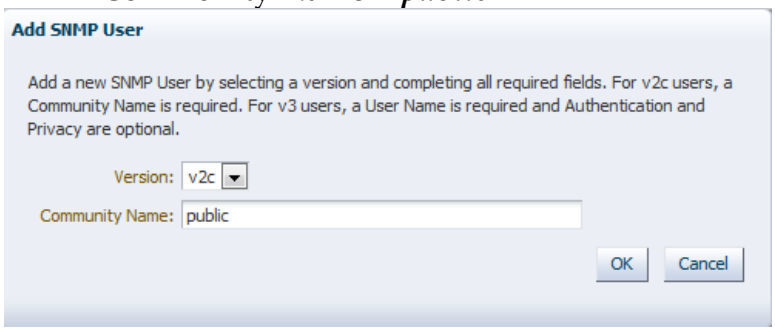
Select *Enable SNMP* and then confirm by selecting *OK*



Add an SNMP user for the SL150

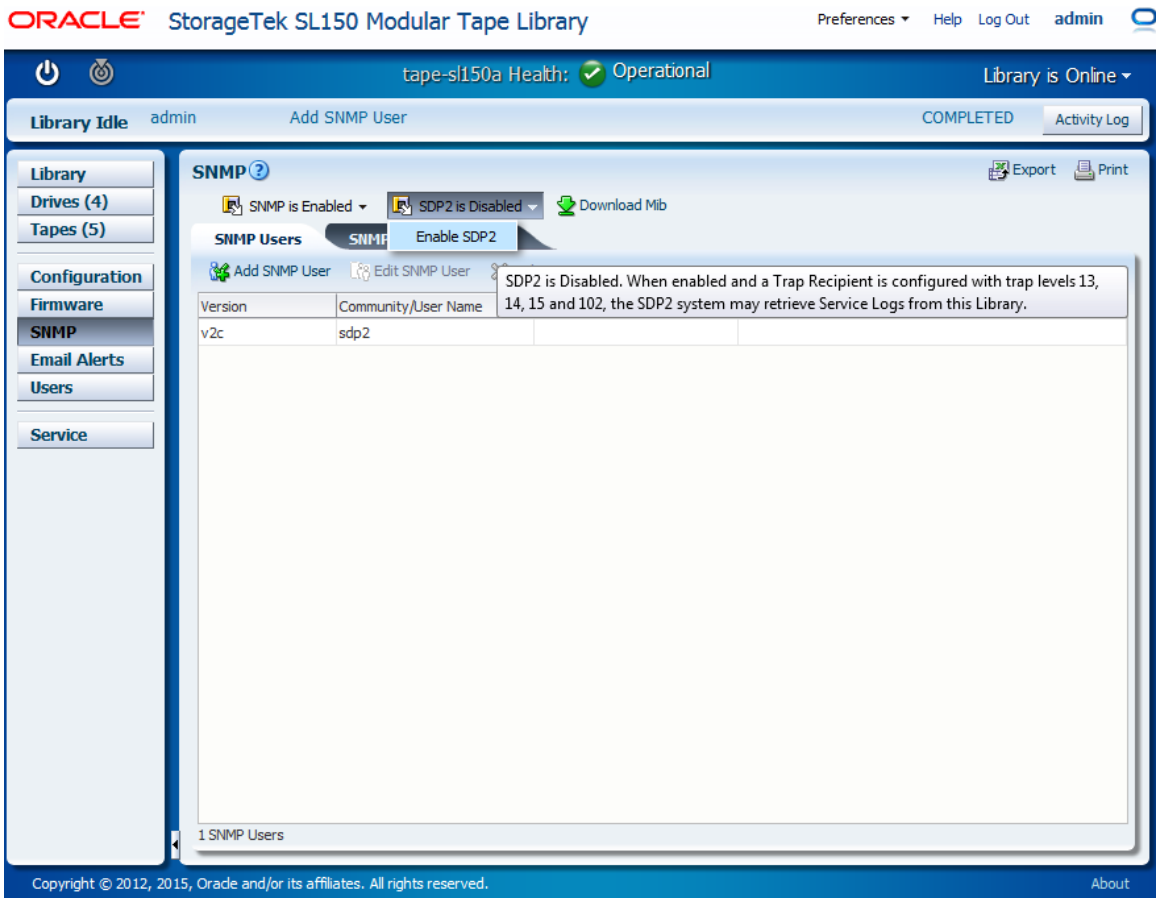
- Version = *v2c*

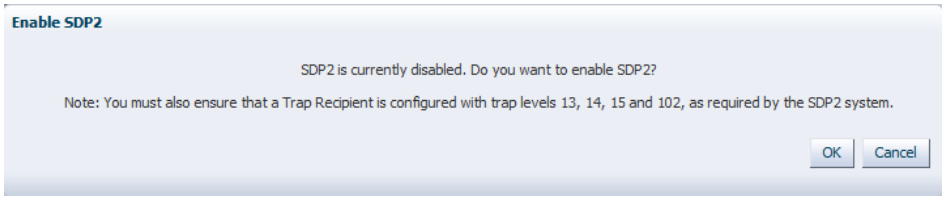
- Community Name = ***public***



Enable SDP2

If the SL150 tape library is running firmware version 2.50 or higher, it is capable of sending diagnostic logs to SDP2 using a secure HTTPS connection. This secure connection is enabled by selecting the option ***Enable SDP2.***





Add a Trap Recipient

- Host Address = ***IP Address of the SDP2 server***
- Trap Level = ***13,14,15,102***
- Version = ***v2c***
- Community Name = ***public***

Note: There are no spaces between the trap levels. Also, the community name must not contain numbers, spaces or special characters

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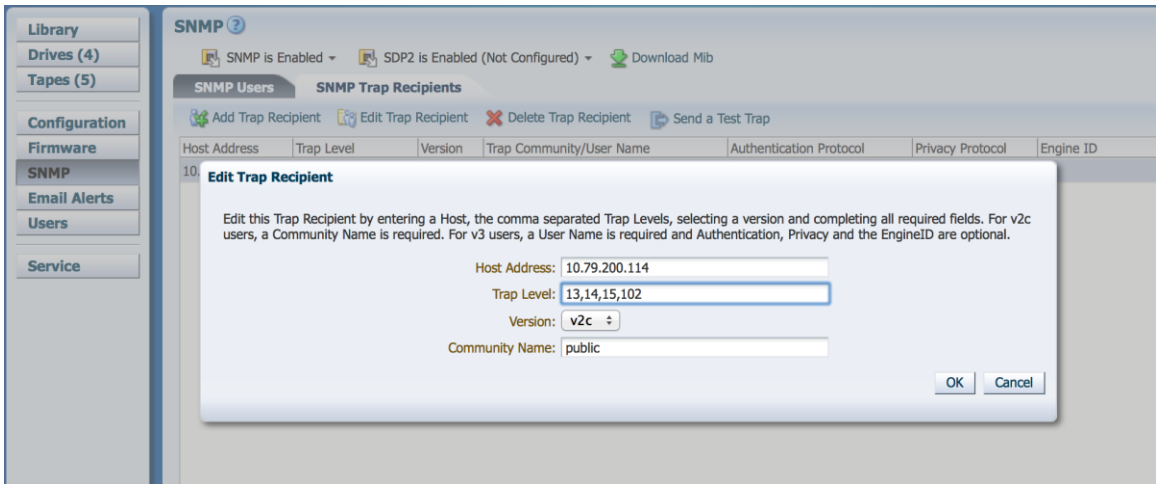
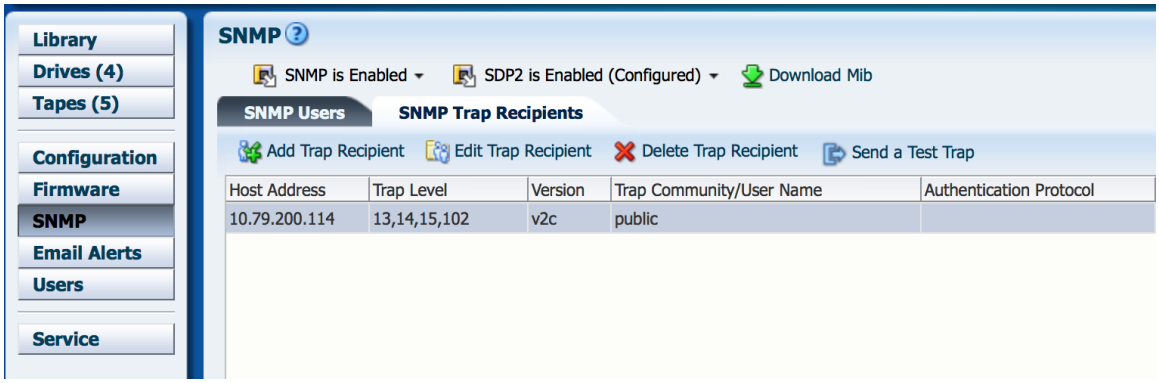


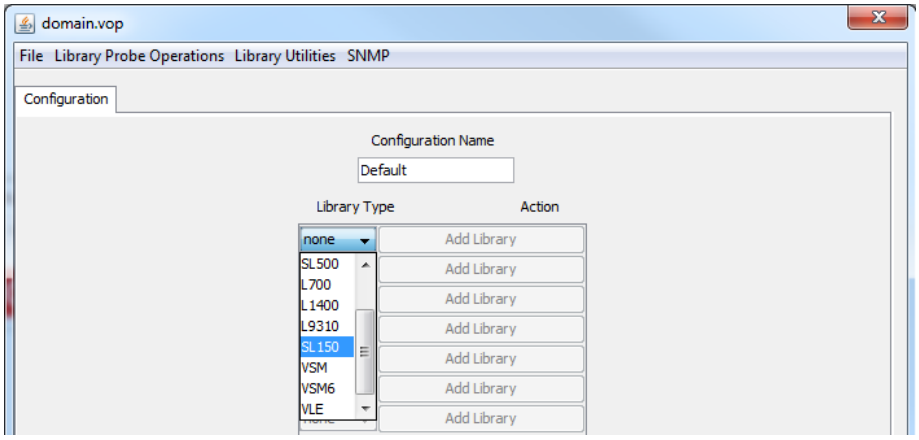
After the SNMP has been manually configured on the SL150, the library can be properly added into the SDP2 configuration.



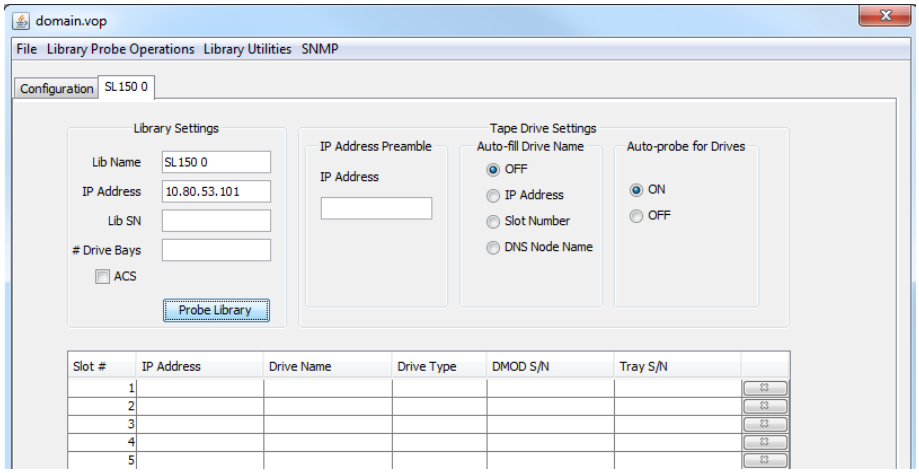
Edit the domain configuration in SDP2 and add the SL150 library

For more information on connecting to the server and opening the **`domain.vop`** configuration, refer to section ***4.1.1 Create the Domain Configuration***.

Select to add the SL150 library to the configuration

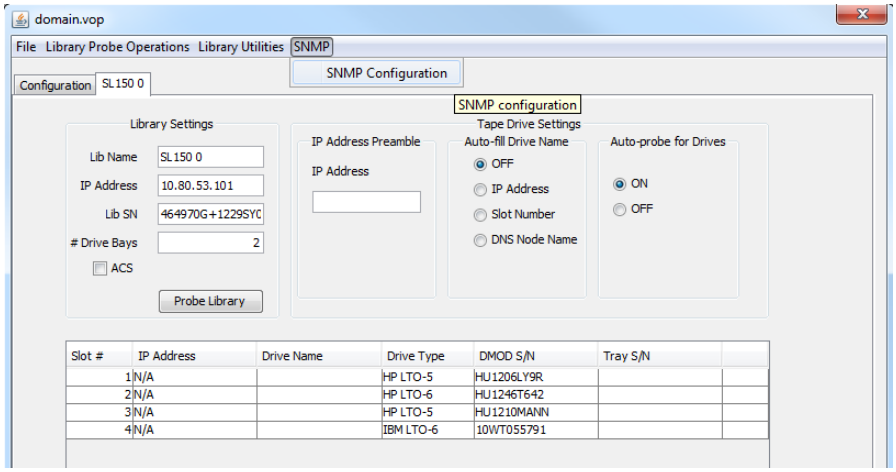


Supply the SL150 IP Address and select *Probe Library*

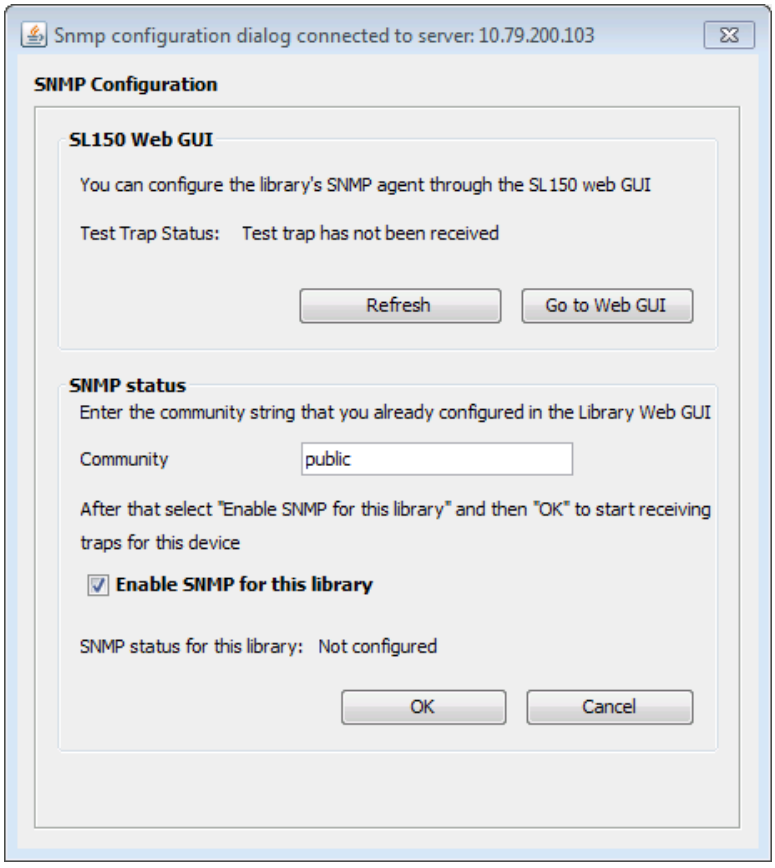


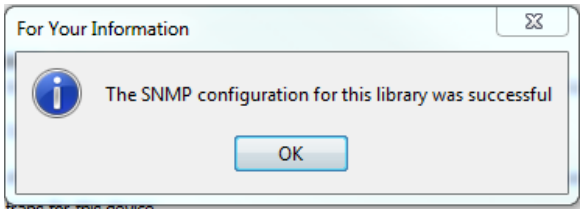
If the library probe fails, revisit the SL150 SNMP configuration to ensure the information supplied in the previous step is complete and correct.

Select the SNMP tab to complete the SDP2 configuration



Provide the community name that was configured on the library and Mark the check box next to *Enable SNMP for this library* and select *OK*





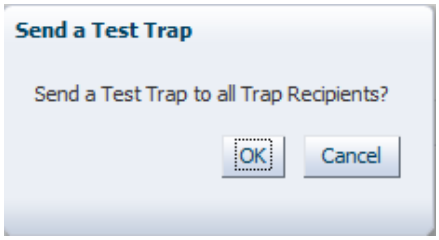
That final step doesn't communicate with the SL150 as with the other libraries but is still as important as it adds the SL150 to the SDP2 SNMP configuration.

4.1.4 SL150 Configuration Validation

It is possible to perform a test of the communication pathways between the SL150 and SDP2. This is accomplished by the use of a test trap that is sent from the library to SDP2. The receipt of the trap is documented, but it will not create a service request with the Oracle Backend.

Log into the SL150 browser GUI and select *SNMP*

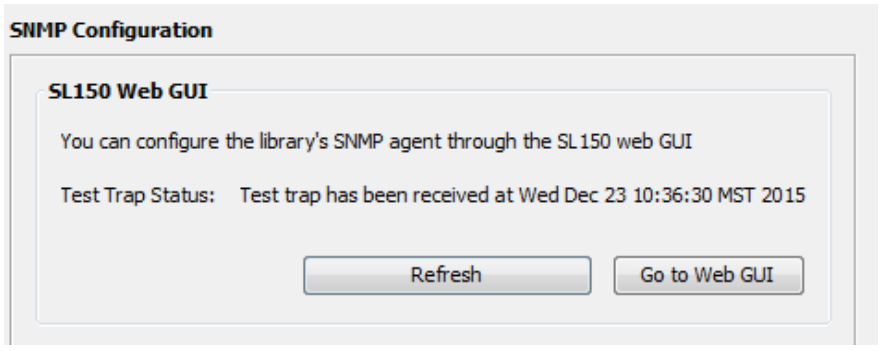
Select *Send a Test Trap* under the trap recipient section, and confirm by selecting *OK*



Open the SDP2 client, connect to the SDP2 server and edit the domain configuration.

Choose the appropriate SL150 tab and select the SNMP tab

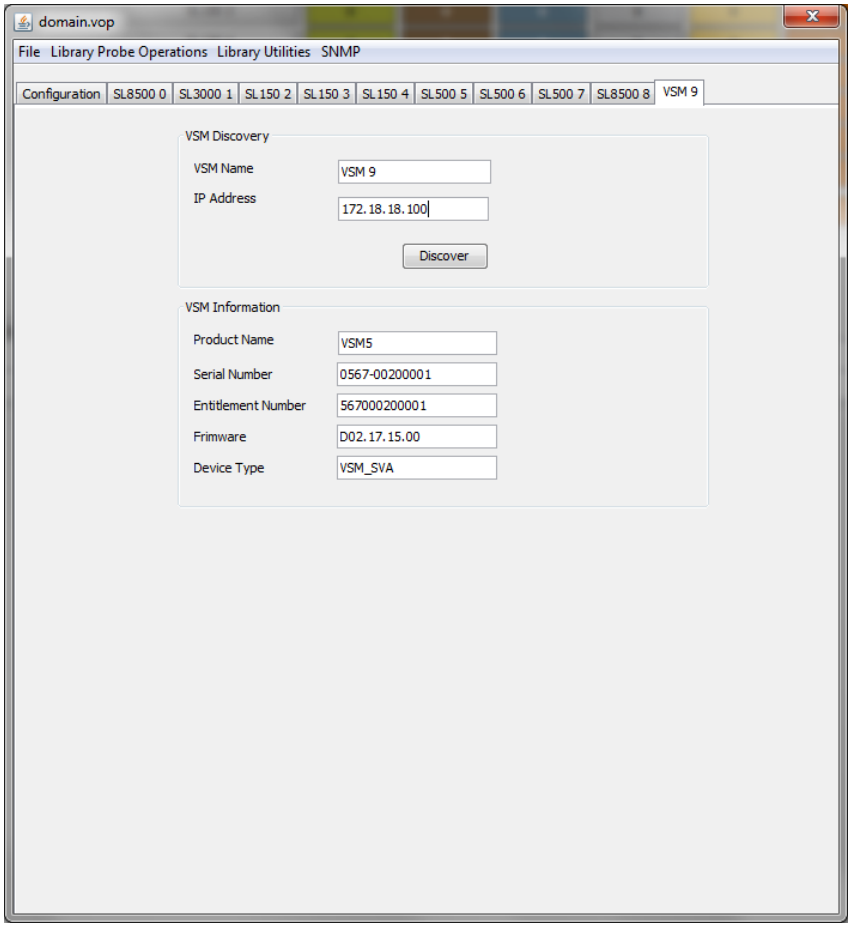
- Check the Test trap status under the ***SL150 Web GUI***.
- Click Refresh to refresh the status, if necessary.



4.1.5 Adding a VSM4 / VSM5

The process to add a VSM4 or VSM5 to SDP2 to the **`domain.vop`** master configuration is quick and straightforward.

In the *VSM Discovery* section, supply the IP Address and select *Discover*



The information from the VSM will be gathered from the asset and automatically populated in the ***VSM Information*** section of the dialog.

4.1.6 Adding a VSM6 / VLE

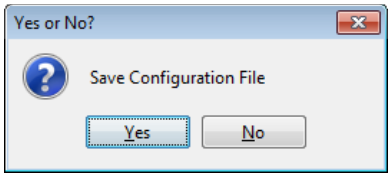
The process to add a VSM6 or VLE to the SDP2 configuration requires manual configuration steps to be performed on the VSM6 and/or VLE appliance by certified Oracle personnel. Please contact Oracle StorageTek tape support for assistance.

4.1.7 Saving the SDP2 Configuration

When all the changes to the configuration are complete, the master configuration should be saved and a client configuration should be created.

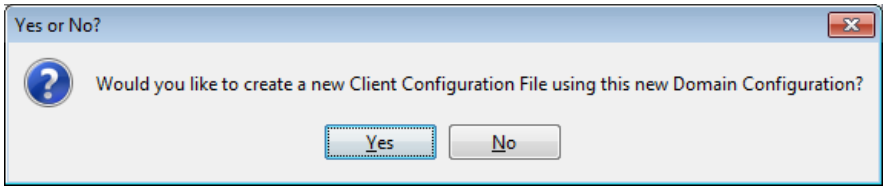
Save the domain.vop

The **`domain.vop`** file can be saved by either selecting **File -> Save** or by attempting to close the configuration screen. Implementing either method will prompt the user to ***Save Configuration File***. Selecting ***Yes*** will back up the current **`domain.vop`** file and overwrite it with the appropriate changes.

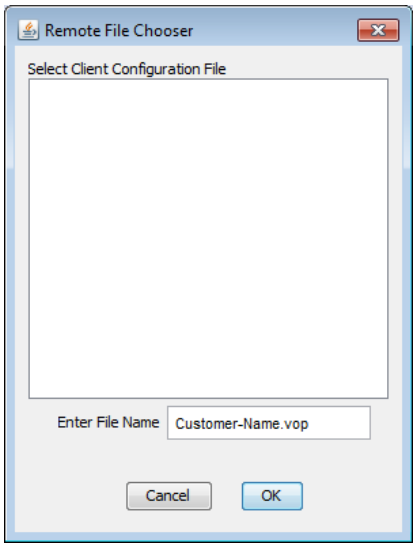


After saving the domain.vop configuration file, the system will prompt to create a new configuration file.

Select *Yes* to create a client configuration file



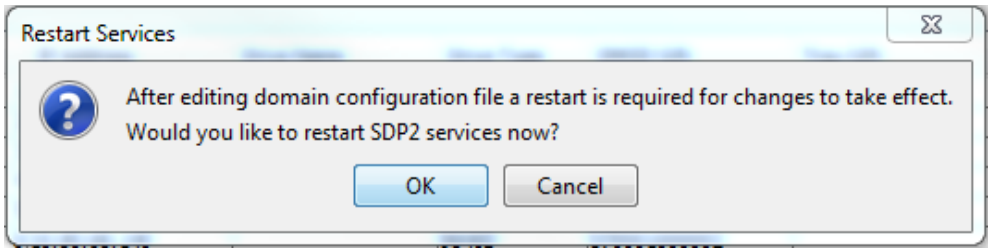
Name the client configuration file and select *OK*



4.1.8 Restart the SDP2 server services

The domain configuration is resident in memory for the SDP2 application for more efficient processing. The SDP2 server services must be restarted to activate any changes.

The GUI application will prompt to restart the services. Select ***OK***.



After the services are restarted, the configuration should open automatically.

4.2 ASR Configuration

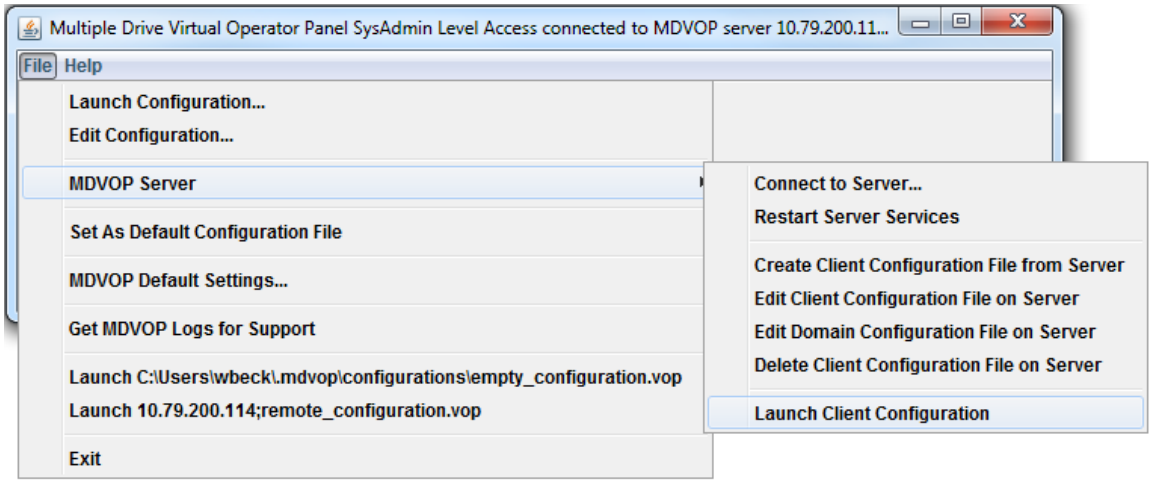
After the master and client configurations have been successfully created, they can then be used to configure the assets for ASR.

4.2.1 Launch Client Configuration

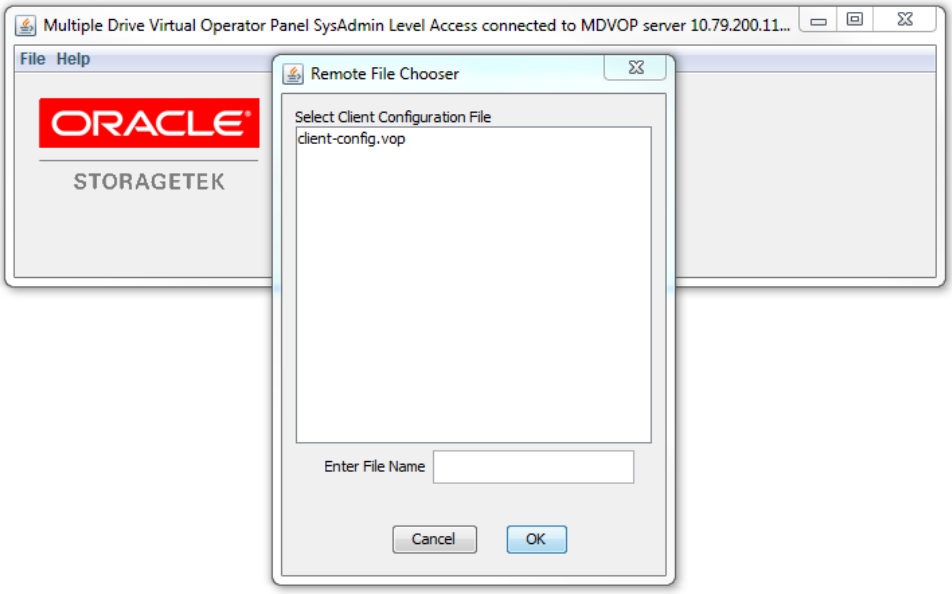
Select *File –> MDVOP Server –> Connect to Server*

Provide the IP Address of the SDP2 Server.

Select *File –> MDVOP Server –> Launch Client Configuration*

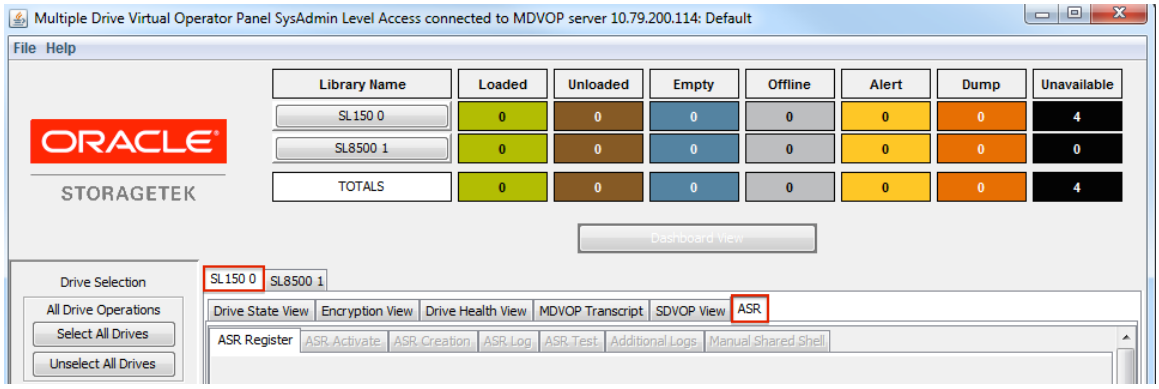


Select the appropriate Client Configuration file and click *OK*



Once selected, the MDVOP client application will communicate with the SDP2 server and load the chosen configuration file. The home screen that is displayed will be the virtual representation of the first top-level device configured in the configuration file.

Each top-level device that is present in the client configuration file will have its own tab. To enable Automatic Service Requests (ASR) for the SDP2 server, select one of the top level devices and navigate to the ASR tab.



The ASR tab is where all ASR functionality is stored for each top-level product. It allows for:

- Registration of the SDP2 server
- Activation of each monitored device
- Creation of manual Service Requests

- Additional Logs to be attached to existing open Service Requests
- Initiation of Shared Shell sessions to the SDP2 server

4.2.2 SDP2 Server Registration

To properly be able to create Service Requests automatically, the SDP2 server must be registered with the Oracle ASR backend and associated with an appropriate My Oracle Support (MOS) account and Customer Support Identifier (CSI). This can be accomplished on the ***ASR Register*** tab.

Note: All other ASR tabs are not activated until the server is registered

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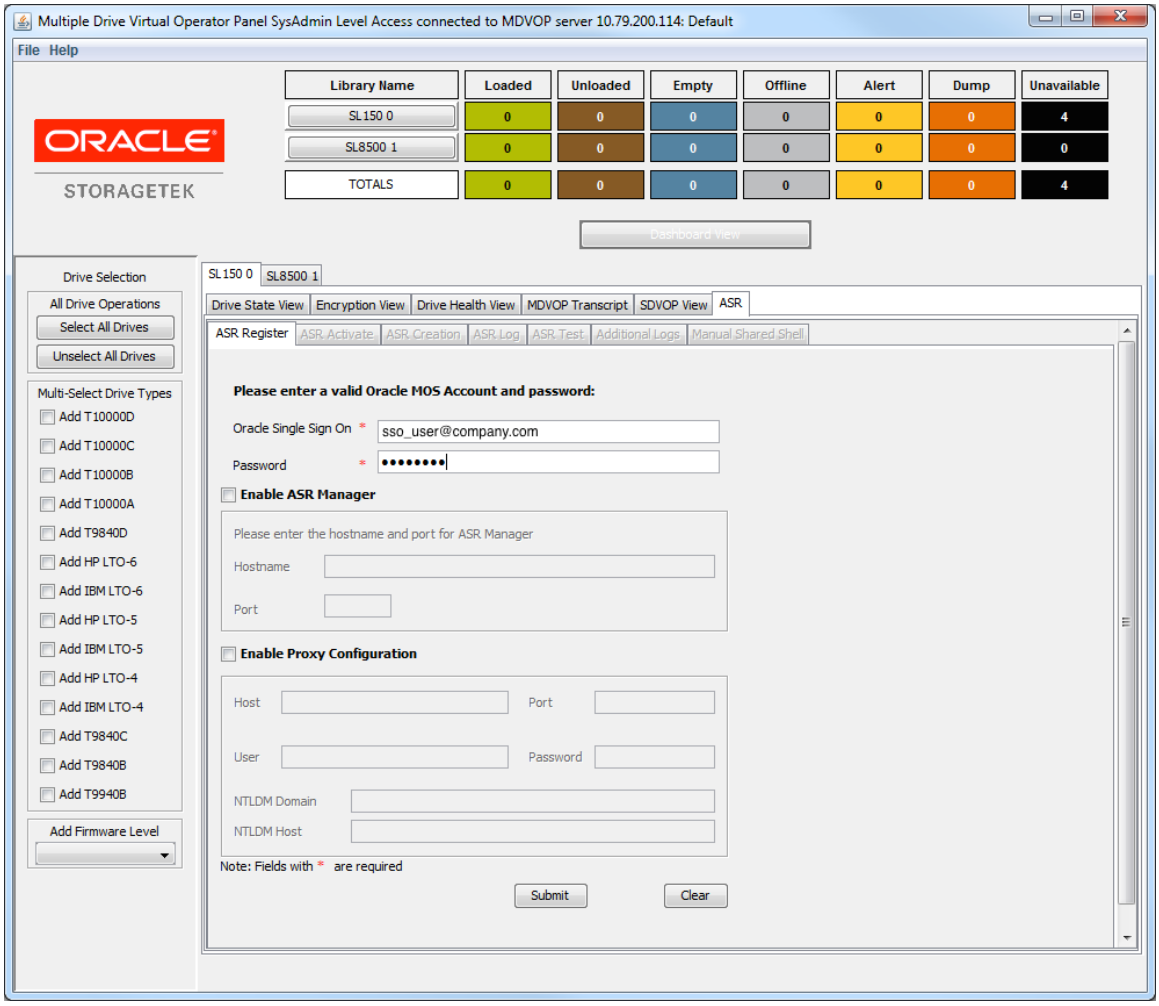
Provide the Oracle Single Sign On credentials and select *Submit*



The SDP2 server will communicate to the Oracle URL https://transport.oracle.com/V1/ using the secure HTTPS communication on port 443.

- Enable ASR Manager – This option was designed to allow for SDP2 to send its communication to an already existing ASR Manager server onsite which would proxy that information back to Oracle. This option should be used only when absolutely necessary, as the native configuration is always preferred.

- Enable Proxy Configuration – If the SDP2 server must use a proxy to access the Internet, the proxy details can be configured in the GUI.

Note: The GUI proxy configuration has been found to not work for all configurations. Please refer to the appendix section A3 for more information on how to manually configure the proxy if necessary.

Once the SDP2 server is able to successfully communicate with the Oracle ASR backend, and the SSO credentials are validated, the SDP2 server is registered.

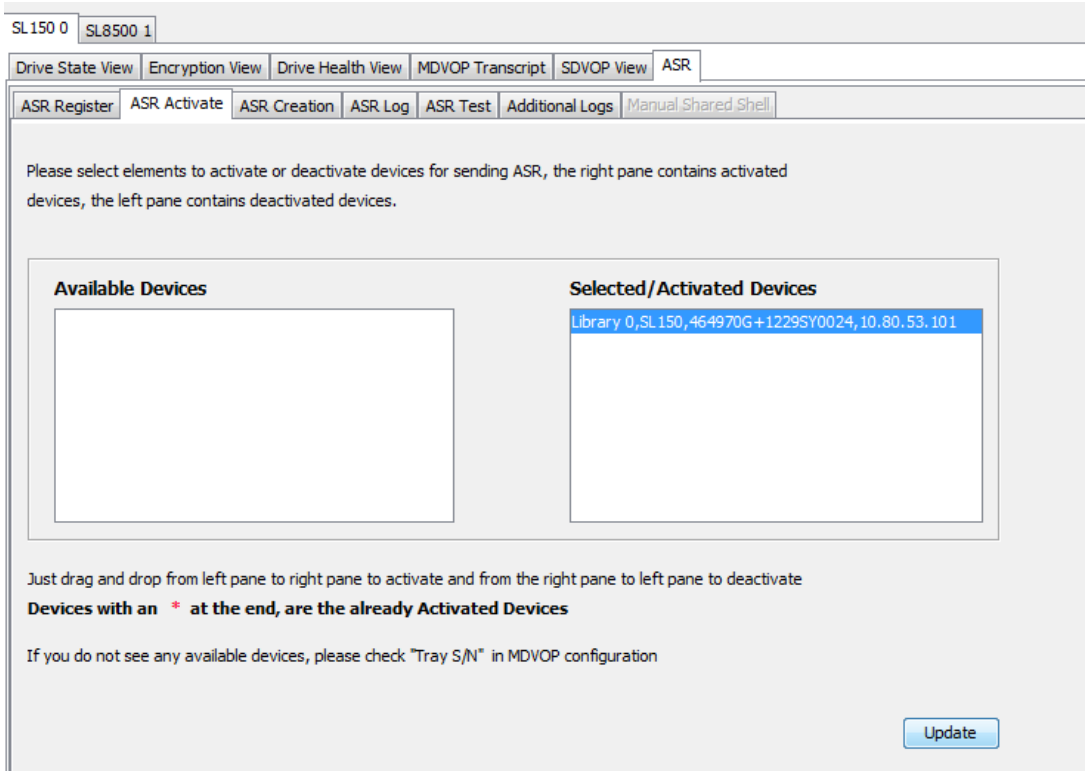
4.2.3 Asset Activation

After the server has been properly registered, the other ASR tabs become active in the VOP GUI.

Each device that is to be monitored by SDP2 will need to be activated for ASR with Oracle. Asset activation is a two-step process:

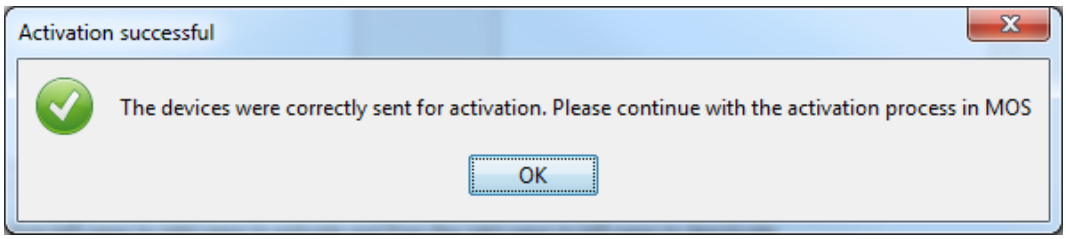
- Sending the activation request to Oracle using the VOP GUI
- Approving the ASR activation for each asset in My Oracle Support (MOS)

Select The ASR Activation Tab

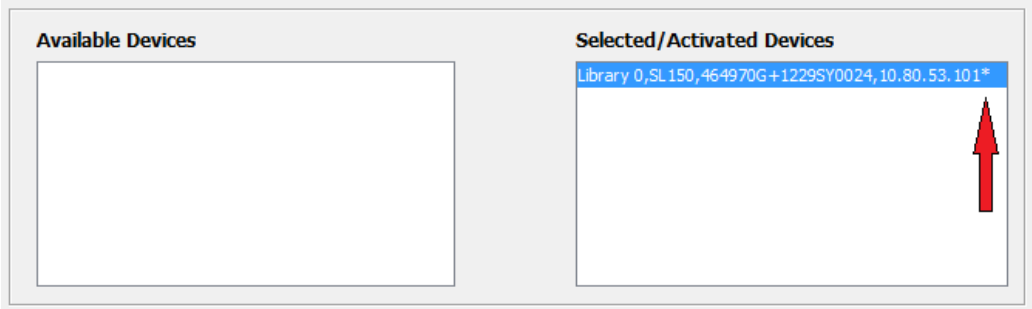


Select the device that is to be activated and click *Update*

- The devices may need to be moved from the left to right hand side.
- Only tape drives with properly enumerated drive tray serial numbers will show as *Available Devices*. These tray serial numbers must have been added properly during configuration. See section 4.1.2 for more detail on this step.



Once the activation was correctly sent to Oracle, the activated devices will be denoted by an astrix (*) on the *ASR Activation* tab in the VOP GUI.



After receiving the activation request, assets with valid Oracle support entitlement will be placed into a *Activation Pending* status and an email will be sent to the appropriate MOS customer contacts, corresponding to the customer support identifier (CSI) configuration.

no.reply@oracle.com December 23, 2015 1:43 PM
Oracle ASR: Action Required - Activation is Pending Hide Details
1

Oracle Auto Service Request (ASR) activation for the following asset(s) is Pending.

Hostname: not_applicable
Serial#: 516000101244

To complete the activation process please login to My Oracle Support. (Use the menus - Systems... Assets).

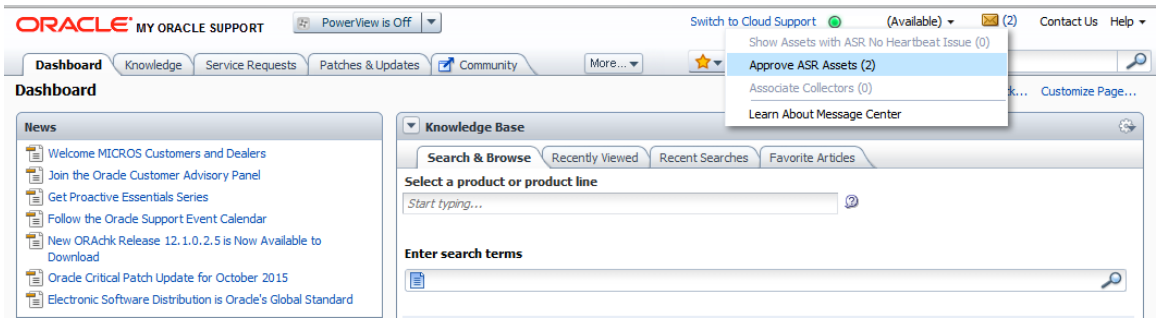
For detailed instructions, please refer to:
How To Manage and Approve Pending ASR Assets In My Oracle Support (Doc ID)1329200.1

Assets with a Pending status require approval in My Oracle Support. Note, to approve an ASR Pending activation, your My Oracle Support account must have the administrator privilege for the Support Identifier associated with the asset.

The Oracle Auto Service Request documentation can be accessed on http://oracle.com/asr.
Please use My Oracle Support https://support.oracle.com for assistance.

Translations: Chinese 简体中文 Japanese 日本語 Korean 한국어 English source

Approve the ASR Activation in My Oracle Support (MOS)



Select the appropriate Asset and choose *Approve*

Once the asset(s) have been approved for ASR in MOS, they are able to properly create Service Requests automatically upon device alerts.

For more detailed information refer to **How To Manage and Approve Pending ASR Assets In My Oracle Support** - (Doc ID 1329200.1)

5

Additional Features

5.1 Remote Requests

As stated in section 1.1.6 of this document, the connection between the SDP2 server and the Oracle backend infrastructure is out-bound only. However, if enabled by the customer, the ability for Oracle support personnel to request specific, predefined tasks of the server exists.

These features are completely configurable and can be enabled and disabled individually.

5.1.1 Additional asset log collection

Device support bundles used to troubleshoot issues are gathered automatically and attached to the automated service request at the time of creation. If additional sets of logs are required at a later time, SDP2 allows for a qualified Oracle support engineer to request the logs. This action is extremely helpful in shortening the time to problem resolution by the Oracle support staff. This feature is *enabled* by default.

5.1.2 SDP2 Server log bundles

Just as with the asset support bundles, log bundles can be remotely requested from the SDP2 server itself. This allows for remote problem resolution of the ASR processes in the SDP2 installation. This feature is *enabled* by default.

Note: The SDP2 logs collected are only the SDP2 application logs.

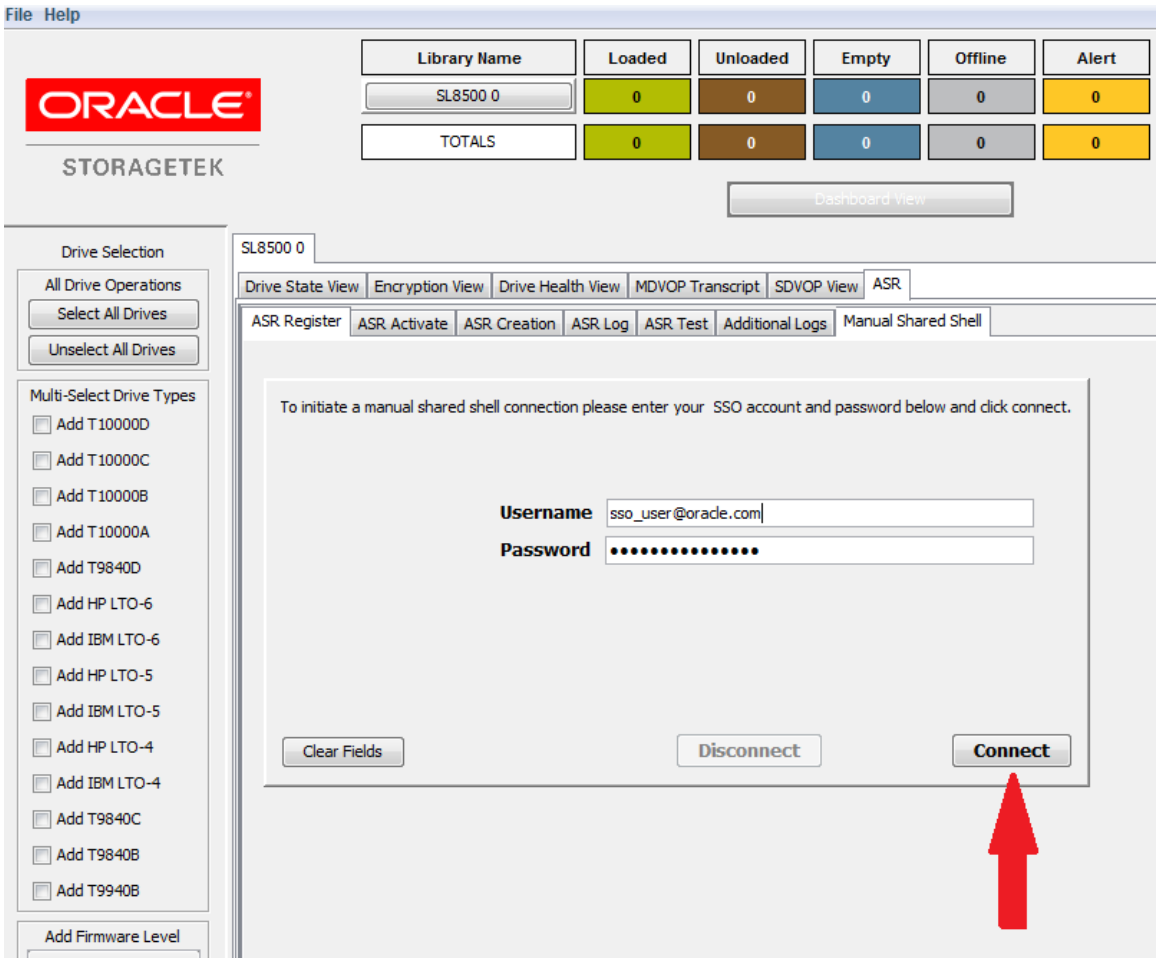
5.1.3 Oracle Shared Shell access

Starting with version 2.3.1, SDP2 has the ability to create a remote console session to the SDP2 server itself for remote troubleshooting by qualified Oracle Personnel. These sessions can be initiated in two ways.

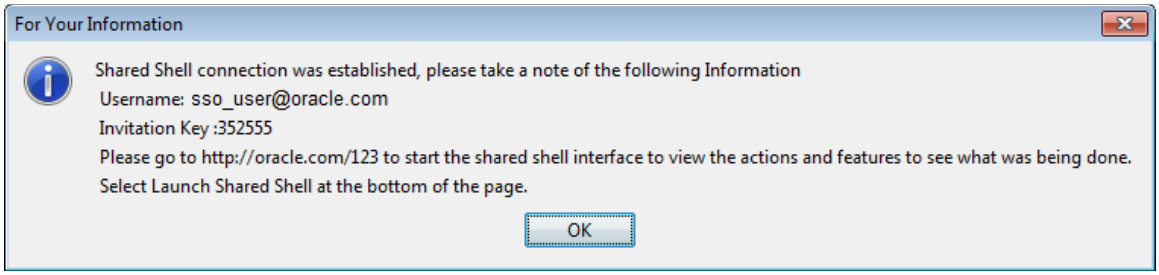
- Manually by an onsite person utilizing the VOP GUI
- Remotely by an Oracle support Expert (if enabled)

Manual Shared Shell using VOP

Once enabled, the Oracle Shared Shell session can be manually initiated using the Virtual Op Panel (VOP) client GUI, on the ASR tab.



Provide a set of valid Oracle Single Sign on (SSO) credentials and click ***Connect***.

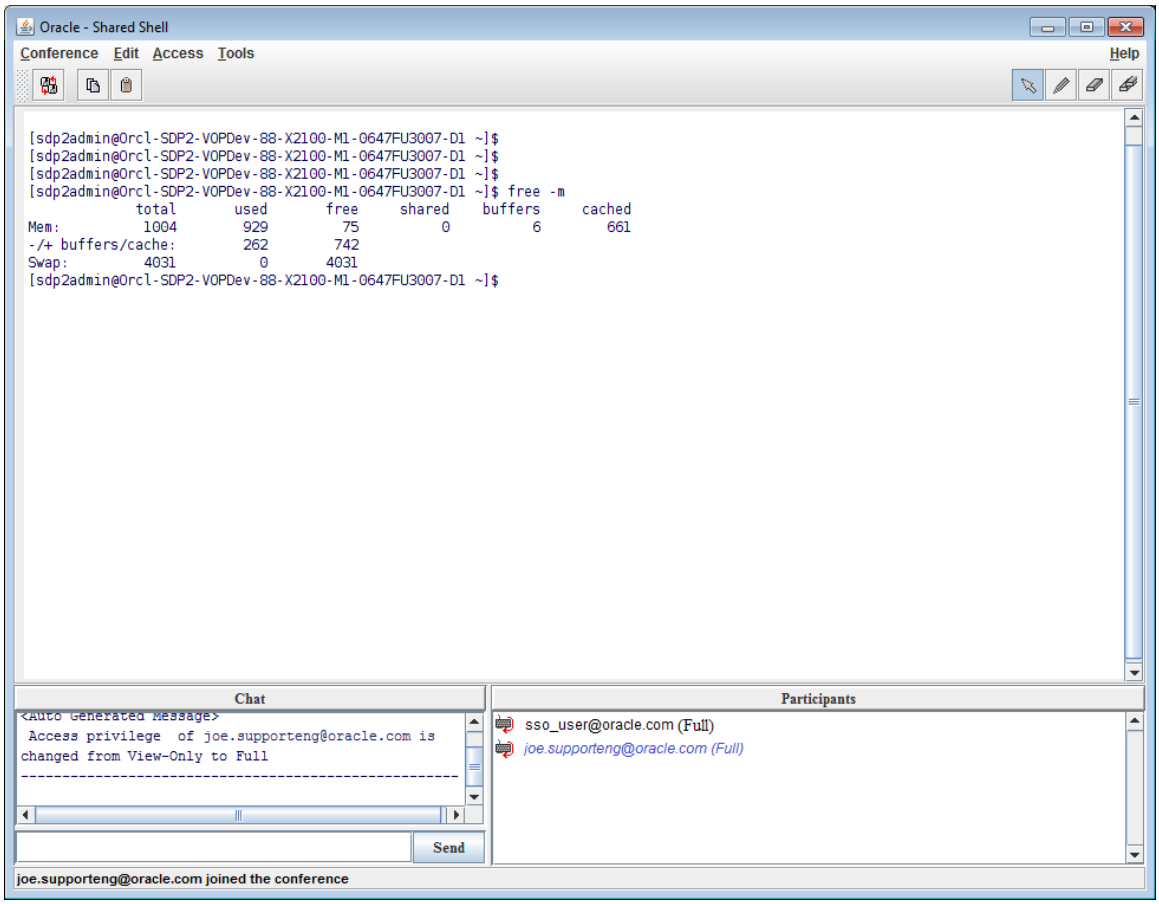


Once the session has been initiated, join the session by launching the shared shell client found on http://sharedshell.oracle.com using the appropriate invitation key.

Remotely Initiated Shared Shell

If enabled by the customer, a qualified Oracle support expert can initiate an Oracle Shared Shell session remotely to the SDP2 server. This is accomplished by creating an encrypted one-use token on the Oracle Shared Shell server that is then placed in a remote request message for the specific SDP2 server. The SDP2 server uses that unique token to create the session. The SDP2 server then encrypts the invitation key and passes it back to Oracle where only the support expert that sent the remote request can retrieve it.

Since the session created is tied specifically to the requesting user's SSO account, only they will have full permissions after logging in using the Shared Shell client. Any other person logging into the session will be given read only access, and cannot be granted full access in the client. This feature is *disabled* by default.



5.1.4 Remote Request Configuration

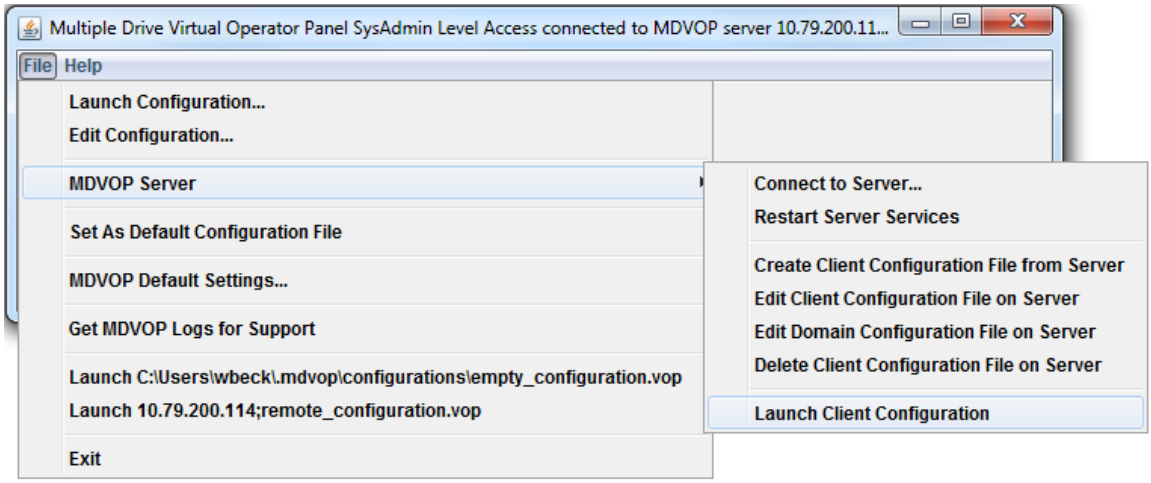
As previously stated, remote requests can be configured on an individual level in the Virtual Op Panel GUI.

Launch the Client configuration

Select *File –> MDVOP Server –> Connect to Server*

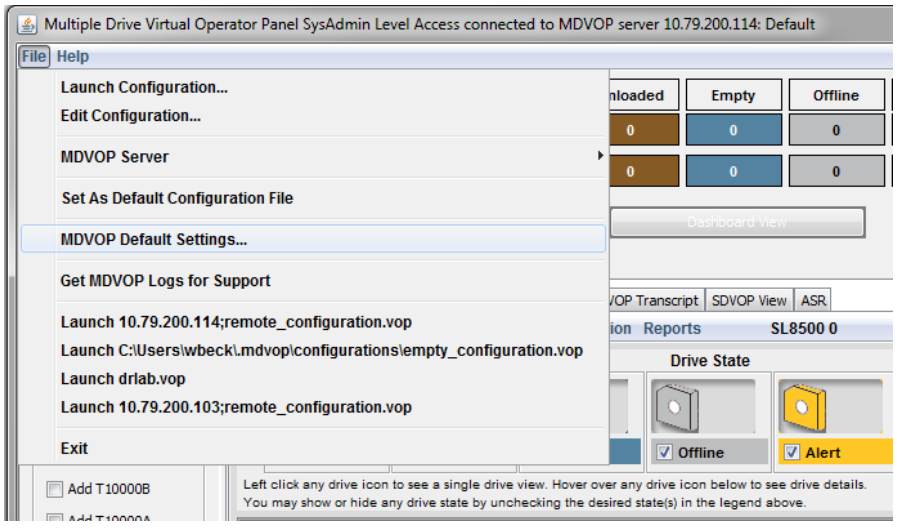
Provide the IP Address of the SDP2 Server.

Select *File –> MDVOP Server –> Launch Client Configuration*

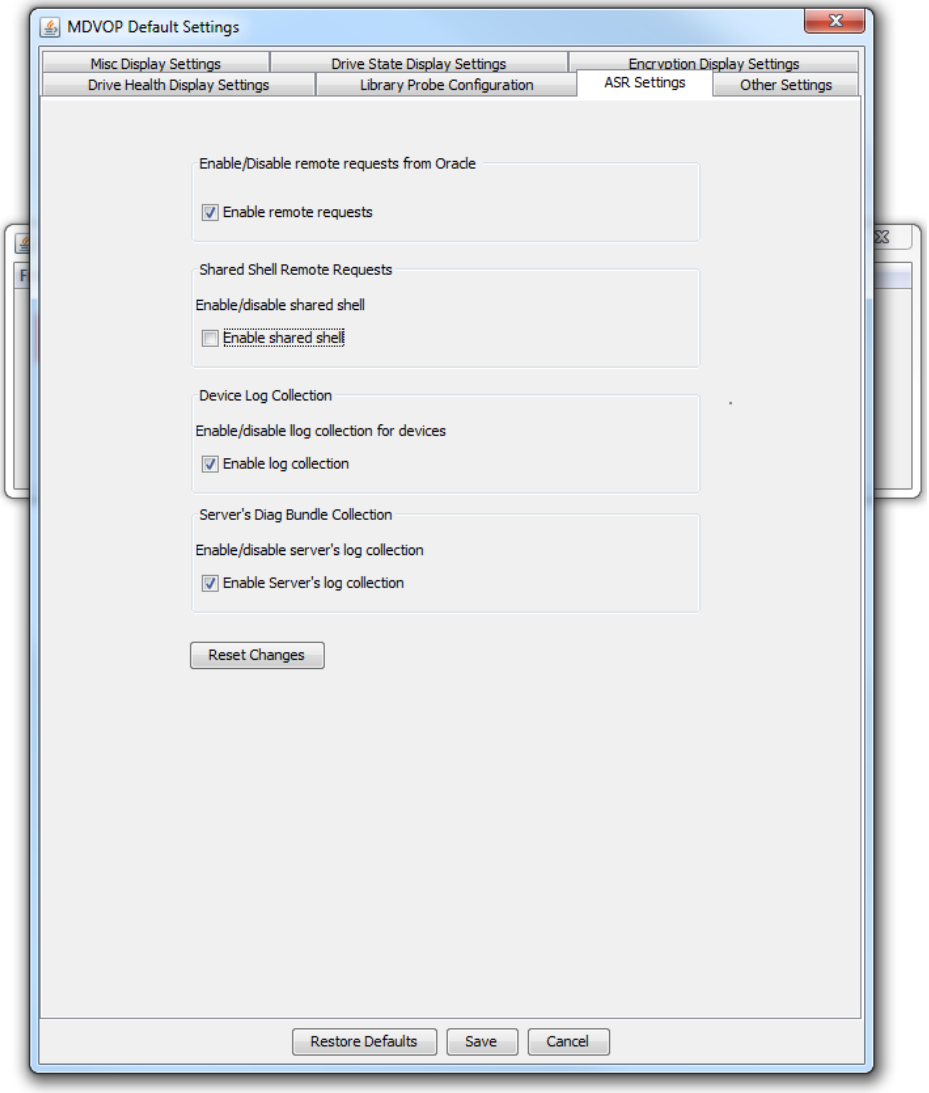


Select the appropriate Client Configuration file and click *OK*

Once the client configuration is properly loaded, the default settings for the server can be loaded and changed, if desired.



The remote requests can be enabled and disabled on the ASR Settings tab of the MDVOP Default Settings dialog box. It contains four options.



- Enable remote requests – Enables/disables ALL remote requests from Oracle. If unchecked, all other options are unchecked automatically.

- Shared Shell Remote Requests – Enables/disables the SDP2 server's ability to manually or remotely initiate a shared shell session.

- Device Log Collection – Enable/disables the ability for Oracle support personnel to request additional device support bundles from assets.

- Server's Diag Bundle Collection - Enable/disables the ability for Oracle support personnel to request SDP2 application logs from the SDP2 server.

Selecting ***Save*** will automatically send an updated heartbeat message from the SDP2 server to the Oracle backend changing the appropriate parameters immediately. Once disabled, Oracle personnel are not even given the option to attempt the remote request.

A

Appendix

A.1 Server CLI command reference

mdvop_server

The mdvop_server command is the master command for the sdp2admin user. It allows for administering the SDP2 services and in 2.3.1, manually sending heartbeats to the Oracle ASR backend.

```
[sdp2admin@hostname ~]$ mdvop_server
Usage: mdvop_server {start|stop|restart|reload|status|sharedshell}
```

- start, stop, restart/reload – Change the status of the SDP2 services.

```
[sdp2admin@hostname ~]$ mdvop_server restart
Stopping FtpService:                                       [  OK  ]
Stopping SnmpService:                                      [  OK  ]
Stopping ASPService:                                       [  OK  ]
Stopping BeanService:                                      [  OK  ]
Stopping MDVOPServer:                                      [  OK  ]
Stopping RmiRegistry:                                      [  OK  ]
Starting RmiRegistry:                          [OK]
Starting MDVOPServer:                          [OK]
Starting BeanService:                          [OK]
Starting ASPService:                           [OK]
Starting SnmpService:                          [OK]
Starting FtpService:                           [OK]
```

- status – Check the current status of the SDP2 services.

```
[sdp2admin@hostname ~]$ mdvop_server status
RmiRegistry (pid  6003) is running...
MDVOPServer (pid  8310) is running...
BeanService (pid  9924) is running...
ASPService (pid  10976) is running...
SnmpService (pid  11898) is running...
FtpService (pid  12563) is running...
```

- sharedshell [start|stop|status] – Manually manage the on-demand shared shell service. *(seldomly used)*

- heartbeat – Manually send a heartbeat message to the Oracle ASR backend.

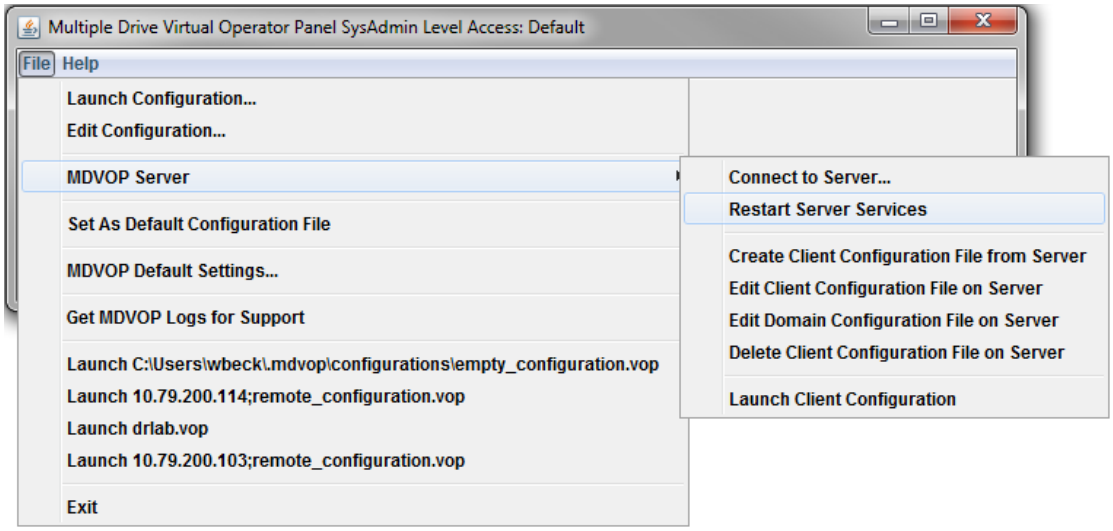
```
[sdp2admin@hostname ~]$ mdvop_server heartbeat
Sending HeartBeat
Successfully sent message to DTS. Id = 1224755
HeartBeat Sent
```

A.2 Additional VOP SDP2 features

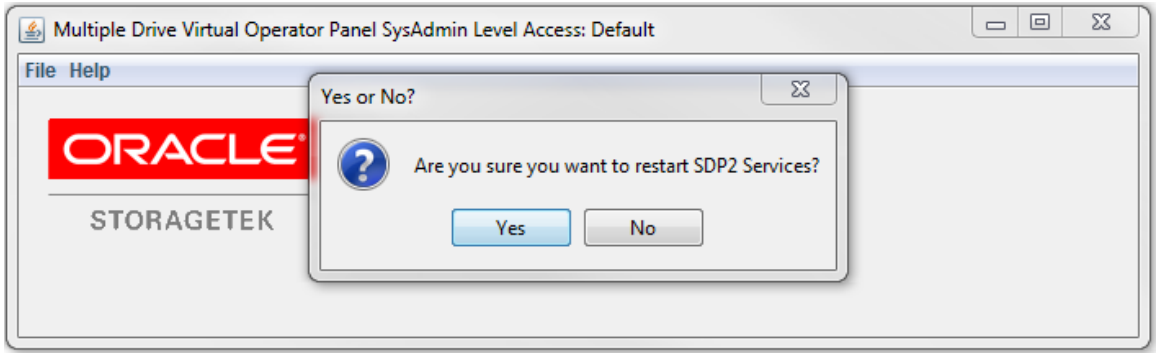
Restarting SDP2 server services

In addition to using the mdvop_server CLI command, the SDP2 services can be restarted using the Virtual Op Panel (VOP) GUI.

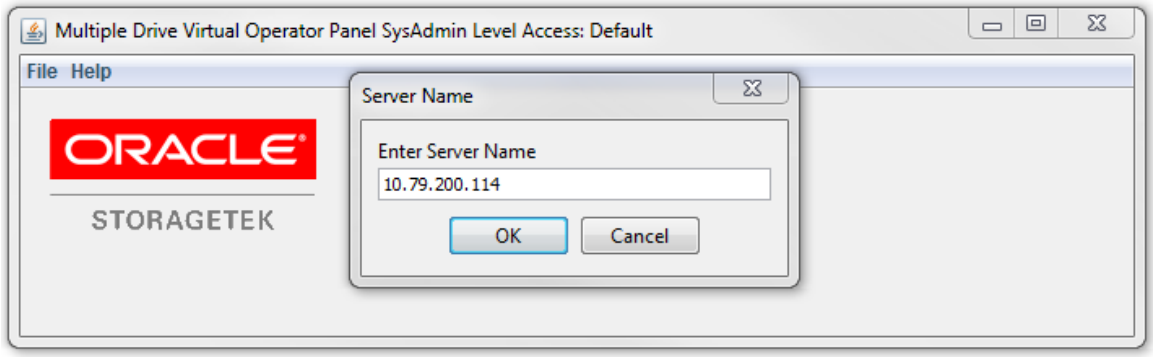
Select *File –> MDVOP Server –> Restart Server Services*

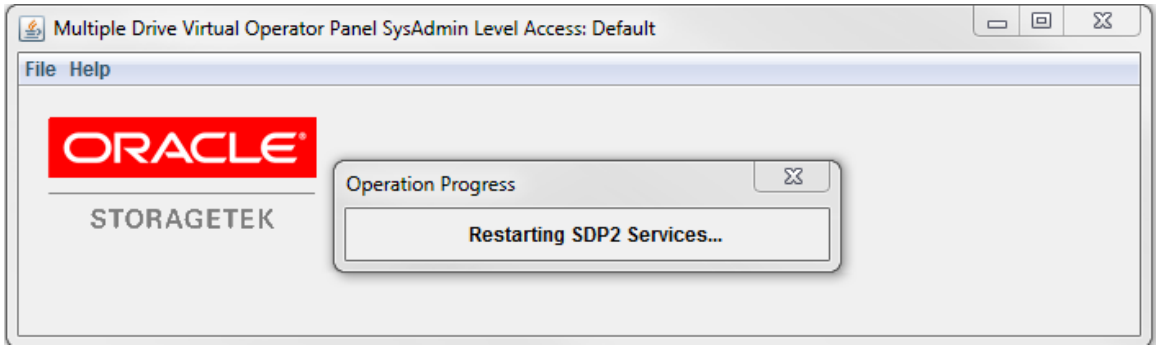


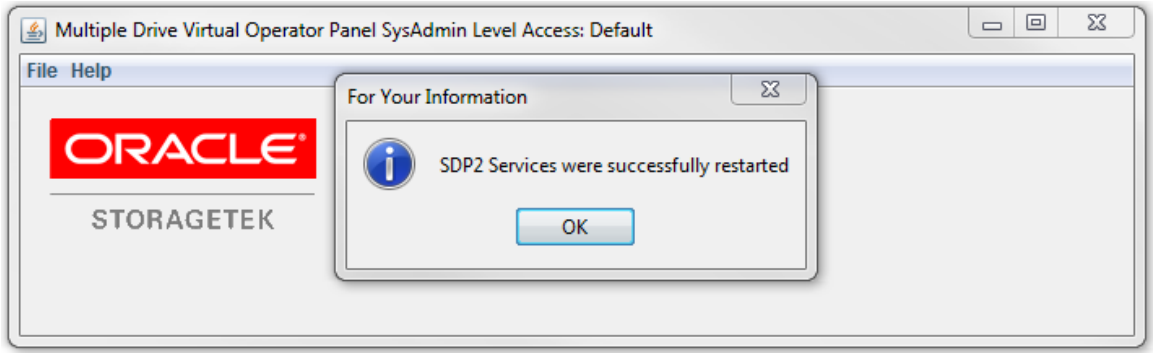
Select *Yes* to restart the SDP2 services



Provide the IP Address of the SDP2 and select *OK*







A.3 Manual network proxy configuration

As stated in section 4.2.2, the network proxy information can be manually configured on the server by editing the `/opt/Oracle/MdvopServer/serverMDVOP.cfg` configuration file.

The file must contain any of the pertinent information for both HTTP and HTTPS communication.

- -Dhttp.proxyHost=host.name

- -Dhttp.proxyPort=1111
- -Dhttp.proxyUser=proxyUser *(if needed)*
- -Dhttp.proxyPassword=proxyPassword *(if needed)*
- -Dhttp.proxyNTLMDomain=domain *(if needed)*
- -Dhttp.proxyNTLMHost=host *(if needed)*
- -Dhttps.proxyHost=host.name
- -Dhttps.proxyPort=1111
- -Dhttps.proxyUser=proxyUser *(if needed)*
- -Dhttps.proxyPassword=proxyPassword *(if needed)*
- -Dhttps.proxyNTLMDomain=domain *(if needed)*
- -Dhttps.proxyNTLMHost=host *(if needed)*

This information must be placed into the file at separate three locations

- OPTIONS_ASP (needed for normal ASR communication)
- OPTIONS_SHAREDSHELL (needed only for shared shell)
- OPTIONS_REGISTERER (needed only for the CLI communication commands – manual heartbeat, etc.)

Unconfigured `/opt/Oracle/MdvopServer/serverMDVOP.cfg` example:

```
OPTIONS_ASP="-classpath ${START_LIB}:${START_LIB_SHAREDSHELL} -
Djava.rmi.server.codebase=file:/${START_LIB}:${START_LIB_SHAREDSHELL}
${ASP_POLICYCURRENT} start"
…
OPTIONS_SHAREDSHELL="-classpath ${START_LIB_SHAREDSHELL} -
Djava.rmi.server.codebase=file:/${START_LIB_SHAREDSHELL} -
Djava.util.logging.config.file=lib/logging.properties
${SHAREDSHELL_SERVICE_POLICYCURRENT}"
…
OPTIONS_REGISTERER="-classpath ${START_LIB_REGISTERER} -
Djava.util.logging.config.file=lib/logging.properties ${ASP_POLICYCURRENT}"
```

Configured `/opt/Oracle/MdvopServer/serverMDVOP.cfg` example:

```
OPTIONS_ASP="-Dhttp.proxyHost=proxy.company.com -Dhttp.proxyPort=80  -
Dhttps.proxyHost=proxy.company.com -Dhttps.proxyPort=80 -classpath
${START_LIB}:${START_LIB_SHAREDSHELL} -
Djava.rmi.server.codebase=file:/${START_LIB}:${START_LIB_SHAREDSHELL}
${ASP_POLICYCURRENT} start"

OPTIONS_SHAREDSHELL="-Dhttp.proxyHost=proxy.company.com-Dhttp.proxyPort=80  -
Dhttps.proxyHost=proxy.company.com -Dhttps.proxyPort=80 -classpath
```

```
${START_LIB_SHAREDSHELL} -
Djava.rmi.server.codebase=file:/${START_LIB_SHAREDSHELL} -
Djava.util.logging.config.file=lib/logging.properties
${SHAREDSHELL_SERVICE_POLICYCURRENT}"

OPTIONS_REGISTERER="-Dhttp.proxyHost=proxy.company.com -Dhttp.proxyPort=80  -
Dhttps.proxyHost=proxy.company.com -Dhttps.proxyPort=80 -classpath
${START_LIB_REGISTERER} -Djava.util.logging.config.file=lib/logging.properties
${ASP_POLICYCURRENT}""-classpath ${START_LIB}:${START_LIB_SHAREDSHELL} -
Djava.rmi.server.codebase=file:/${START_LIB}:${START_LIB_SHAREDSHELL}
${ASP_POLICYCURRENT} start"
```

A.4 RPM Upgrade

The install.sh script packaged with the SDP MdvopServer RPM can be used to efficiently upgrade previous releases of SDP2. Please see the following example output of the script for more detail.

```
[root@sdp2server tmp]# ./install.sh upgrade

--------------------------------------------------------------------------------
                              SDP2 2.3.2-1 installation
--------------------------------------------------------------------------------

Please provide the full path to the directory that contains the SDP2 2.3.2-1 RPM file :
sdp2/
Correct size MdvopServer-2.3.2-1.i686.rpm found in the /var/tmp/sdp2 directory.
Continuing.

Creating /home/sdp2admin//upgrade/2.3.2-1-2016-09-14_19.10.10 directory.

============================ Saving System Parameters ==============================

Saving system parameters.

Checking for configured network proxy information

This system was found to have network proxy information configured... Continuing.

Archiving current /opt/Oracle/MdvopServer/bin/serverMDVOP.cfg file ...


============================== Stopping SDP2 ====================================


stop the MDVOP services.

Stopping ASRRelayService:                                  [  OK  ]
Stopping FtpService:                                       [  OK  ]
Stopping SnmpService:                                      [  OK  ]
Stopping ASPService:                                       [  OK  ]
Stopping BeanService:                                      [  OK  ]
Stopping MDVOPServer:                                      [  OK  ]
Stopping RmiRegistry:                                      [  OK  ]

Ensuring all SDP2 processes are all stopped.
Verified SDP2 processes were properly stopped.

============================ Checking the Database ==============================

Single Mysqld process found: 2528
Validating mysql files.
MysqldResource.pid file configuration verified
```

```
============================== Uninstall Preparation ==============================

Preparing system for Application removal
Removing the current transcripts...

Deleting contents of /home/sdp2admin/.mdvop/transcripts directory.
The contents of /home/sdp2admin/.mdvop/transcripts have been successfully removed.
Removing any temp files in /home/sdp2admin/.mdvop/LOGS

Deleting contents of /home/sdp2admin/.mdvop/LOGS directory.
Removing subdirectories...
The contents of /home/sdp2admin/.mdvop/LOGS have been successfully removed.
Temporarily relocating the history files...
History files successfully relocated.
The /home/sdp2admin/.mdvop directory is an appropriate size for archiving.

================== Uninstalling SDP2 MDVOPServer RPM ============================

preun 2.3.1
Removing........
       +User:sdp2admin Mdvop Server Settings were archived in
/home/sdp2admin/201609141910-SDP2-Archive.tar.gz
       -User:sdp2admin was not removed from the System
postun 2.3.1
Removed Package, Cleaning up........
FINISHED

SDP2 MdvopServer RPM succesfully uninstalled.

============================== Replacing History logs  ============================

History files successfully restored.

================== Installing SDP2 MDVOPServer RPM ==============================

Installing SDP2 MdvopServer RPM
pre 2.3.2
Installing........
       -Checking for Dependencies and creating a list that is needed. Please Wait....
       -(sdp2admin) exists!, No changes to Users Account
       -INFO, Updating Password To be more Secure
Working.....
post 2.3.2
Post Script Running..........
       -(sdp2admin) exists!, No changes to Users Account
       -INFO, Updating Password To be more Secure
       +Installing a local copy of Java into /opt/Oracle/MdvopServer/jre-7u80-linux-i586!
       -WARNING, not successful with JVM Installation! Compressed file located in
/opt/Oracle/MdvopServer/install
       +Modify sdp2admin Bash Profile, Please check SDP2_JAVA_HOME Environment to be set
correctly!
       +Runnning MDVOP (SDP2) Server Setup
       +Creating sdp2admin cron entry!
       -User:sdp2admin Previous FTP/9xxx Server settings detected. No changes will be
made!
       -User:sdp2admin Previous FTP/Mainframe Server settings detected. No changes will
be made!
       +Attempting to run Administration Activities for Mdvop Server for first time with
(root) privileges!
       +Configured System for use with Mdvop Server with java preference (standalone)
       +Enabling the default Firewall Configuration
(/opt/Oracle/MdvopServer/profiles/sdp2/networking/sdp2-default.fw)
       +Enabling ip4 Firewall for runlevels 2,3,4,5
       +Attempting to setup Mdvop Server for first time with (sdp2admin) privileges!
       +Configuring system wide init scripts! Selected runlevel will be (3,5)
       -Configuring logrotate for Mdvop Server Application Logs!
       +Checking network hosts file for IP configuration needed for RMI services
       +Attempting to Check Database Configuration with (sdp2admin) privileges!
Finished with Package Installation
posttran 2.3.2

################################################################################
BASIC SETUP AND RUNNING:
Please Verify and Configure the Mdvop Server (SDP2) Basic Settings
Login in as (sdp2admin) or <su - sdp2admin> as root
```

```
1. <cd /opt/Oracle/MdvopServer> alternatively use <cd SDP2_HOME> and then <ls>
2. Verify permissions are sdp2admin:sdp2admin on folders
3. If a local java was installed this is the top level directory.  Look for a Java
   Folder (i.e. jre1.7.0.80)
4. <cd bin> and do < ls>
5. Verify pre installation has been completed. If the file (jreConfig) is present
   than a suitable Java has been found.
   a) If file (jreConfig) file is not present, than do a manual configuration
     i. Issue the command <./Server.sh config>
     ii. If Successful then the file will exist otherwise you can manual configure.
         See Documentation for examples and topics
       1) Alternatively you can run <./detectJava.sh> and review its output to
          determine if a JVM was found
6. Verify there is a directory (bin/setup) via <ls /setup>.
    a. If change (changeSnmpPort) exists then the firewall was modified
    b. If change (secureJava) exists then the SE Linux has been told that we are
       using a local copy of Java.
7. As an Administrator verify that /etc/hosts file contains the server ip address
   and correct DNS name.
8. Start the Mdvop Server <./Server.sh start>. After Services are started verify
   with <./Server.sh status>

#########################################################################
FAQ:
 - You can run the Server from anywhere with the following command <mdvop_server start>.
   Please do not run as root!
 - General logs of the Process are kept under /opt/Oracle/MdvopServer/logs
 - If you get a general message of port in use, please verify that there are not other
   rmi process currently running
 - Local Server Documents are located in /opt/Oracle/MdvopServer/docs for further
reference
 - Java Search Order is as follows
     a) If ths install process was able to detect the correct machine architecture (i686)
        than a JRE was installed
        under the top level directory as described above
     b) If you are running under a x64 architecture the JRE was not installed and the
        installation most likely used
        the native (OS) version if it was able to detect it.
     c) If the installer was not able to detect (a or b) then a correct version of Java
will
        have to be installed manually.
        Once a a Java has been installed then point the
(/opt/Oracle/MdvopServer/bin/jreConfig)
        file to the parent directory
        of the JVM.
          Example:
           <which java> yields (/usr/bin/java)
           </usr/bin/java -version> yields (java version 1.7.0_80)
           <echo /usr > /opt/Oracle/MdvopServer/bin/jreConfig> Note: Use double quotes
with echo!
           Verify with -> <cat /opt/Oracle/MdvopServer/bin/jreConfig> yields (/usr)

#########################################################################
FINISHED


============================  Restore System Parameters  ==========================

Checking for the source serverMDVOP.cfg file in the /home/sdp2admin//upgrade/2.3.2-1-
2016-09-14_19.10.10 directory...

Source serverMDVOP.cfg file found... Validating it contains proxy information...

The File does contain proxy information. Continuing...

Backing up original /opt/Oracle/MdvopServer/bin/serverMDVOP.cfg file ...

Extracting proxy information from source file...

Restoring extracted proxy information to /opt/Oracle/MdvopServer/bin/serverMDVOP.cfg
Proxy information detected for OPTIONS_ASP
Proxy information detected for OPTIONS_REGISTERER
Proxy information detected for OPTIONS_SHAREDSHELL

Restoring Java configuration.
```

```
/opt/Oracle/MdvopServer/bin/jreConfig Contents:
/opt/Oracle/MdvopServer/jre1.7.0_80

Restoring system parameters.
total_devices set to 33
total_libraries set to 18
base_save_time_T10000 set to 42
base_save_time_9xxx set to 14

Configuration restored.

========================  Checking the VSM4/5/SVA Config  ========================

Validating SDP2 configuration for VSM4/5/SVA
VSM4/5/SVA found... Checking for proper configuration.
vsm1:
  vsm1 domain configuration is incorrect.  When upgrade is complete,
  please reprobe the VSM using the Edit Domain portion of the VOP GUI
  VSM Type: VSM4
  Serial Number: 504000004005
vsm2:
vsm2.vsmType = VSM
vsm2 domain configuration correct.

start the MDVOP services.

Starting RmiRegistry:                          [OK]
Starting MDVOPServer:                          [OK]
Starting BeanService:                          [OK]
Starting ASPService:                           [OK]
Starting SnmpService:                          [OK]
Starting FtpService:                           [OK]
Starting ASRRelayService:                      [OK]

================================  Upgrade Complete  ================================
```