ELVO Administration and Installation Guide Version 3.8

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ELVO Administration and Installation Guide v.3.8
January 2018

MobiKEY
Securing Enterprise Mobility

Audience and Purpose

This guide contains the hardware and software installation and configuration procedures required to deploy the EnterpriseLIVE Virtualization Orchestrator (ELVO) into your network environment. It is intended for users who are familiar with VMware ESX Server, VMware Virtual Center Server, Citrix, Nutanix and/or VMware Horizon.

Document Organization

Portions of this document, for example the *Quick Start Guide: Creating, Configuring and Connecting to a Regular Pool*, have been written in chronological order. Therefore, it is important that the steps outlined in this document be followed in sequence to avoid any unnecessary deployment issues.

Notes

NOTE: A note indicates important information that will assist you with the deployment of your ELVO hardware and software.

Related Documents

This guide does not include installation procedures or configuration information for the following applications:

- VMware ESX Server®
- VMware Virtual Center Server
- VMware Horizon
- Citrix XenServer
- Nutanix

Visit www.vmware.com, www.citrix.com, and www.nutanix.com, to refer to each respective owner's manual for information on how to install and configure these appliances.

This guide is to be used in conjunction with the *EnterpriseLIVE Registration Guide*. The latter document outlines the steps required to set-up the .csv file that is used to create and/or associate MobiKEY users with their Host(s).

MobiKEY
Securing Enterprise Mobility

Why Virtualization?

Today's computer hardware was designed to run a single operating system and a single application, leaving most machines vastly underutilized. Virtualization lets you run multiple virtual machines on a single physical machine, with each virtual machine sharing the resources of that one physical machine across multiple environments.

VDI Benefits and Features

- Physical desktops consolidated into a centralized virtual infrastructure to carry out private clouds
- VDI introduces a revolutionary approach for clouds - it is a private cloud. Where many desktops exist, VDI allows for consolidating all existing hardware resources into one cloud
- There are two main types of clouds
- Physical pool – consolidate existing hardware resources into one cloud
- Regular (virtual) pool – use different hypervisor types
- Relies on mature hypervisor technology that runs in tens of thousands of customer environments
- VDI application software provides total cost of ownership savings by consolidating physical desktops into virtual desktops in a centralized data center, which results in:
    - A reduction in helpdesk support
    - Centralized management
    - Fits into any disaster recovery strategy
    - Provides an easy way to rollout extra "temporary" user seats
    - Increased access control to sensitive corporate information (no copy/paste/printing – optionally, or removable media) as the VDI pool is locked in a corporate data center
- Can be used as a strategy for digital rights management and business continuity
- Support for VMware ESX and VMWare Horizon.

VDI Overview

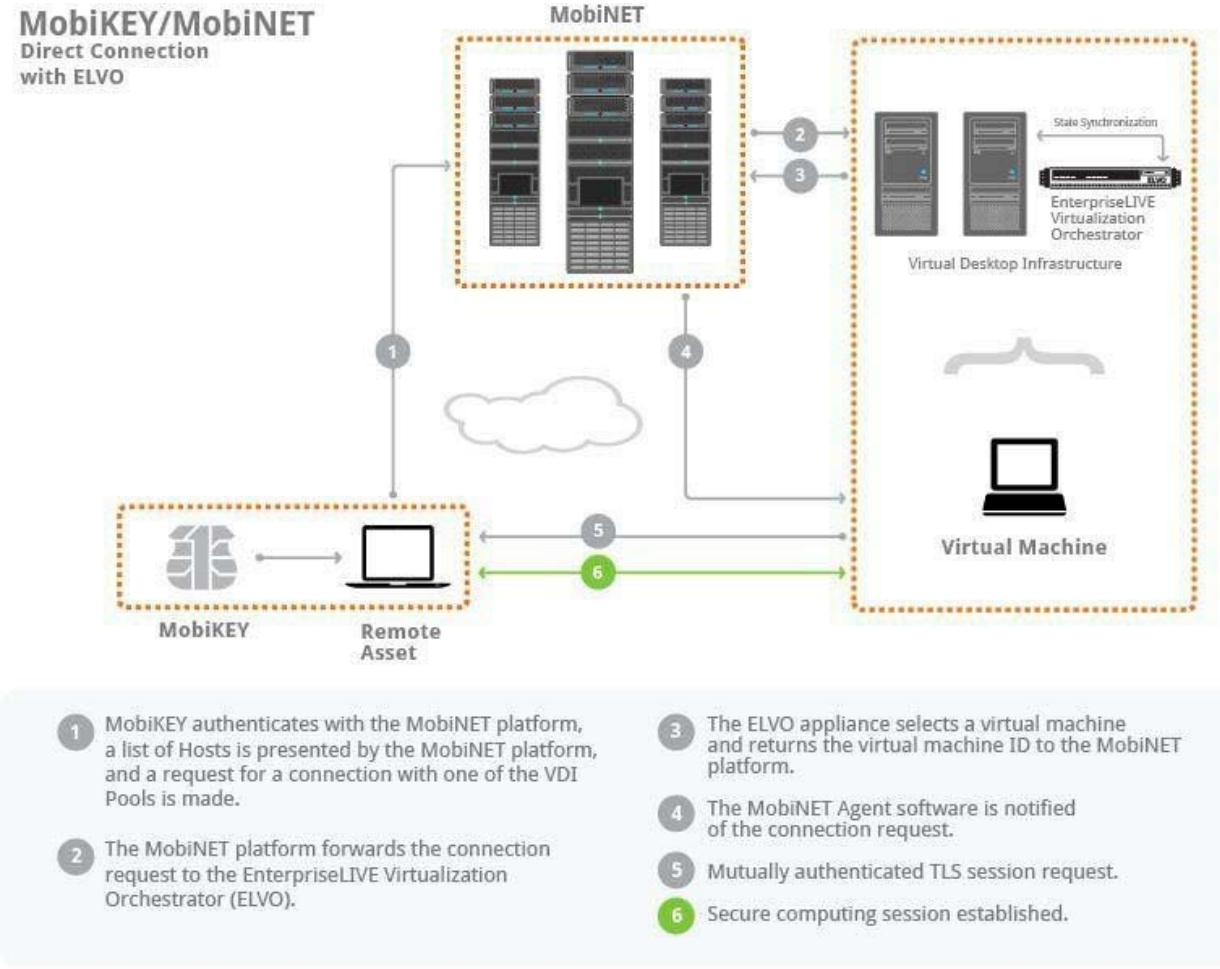
Route1's VDI solution extends the traditional MobiKEY application software functionality to allow MobiKEY users to leverage the same secure remote desktop experience while accessing virtual machines in place of a traditional physical desktop. VDI provides the ability for IT administrators to create resource pools, which enables the sharing of virtual machines and system resources between one or more groups of MobiKEY users.

When combined and deployed, these components provide a secure, centrally managed, end-to-end client virtualization solution, providing flexibility, ease of use and a reduced total cost of ownership.

The VDI solution does not require the IT administrator to open any inbound ports on the corporate firewall to allow the end-users to gain access to virtual pools and desktop Instances, neither when working inside the enterprise network environment nor remotely (outside of the enterprise environment).

The only network requirement is that the ELVO appliance be able to connect to the Route1 MobiNET platform infrastructure on port 443 using SSL/TLS.

VDI Workflow



End-User Authentication

In order to gain remote access to virtual desktop pools, MobiKEY users must first have their identity validated by the MobiNET platform. This process is initiated when a user inserts their MobiKEY into a USB port on a Remote Asset. Once the MobiKEY application software is running, the splash screen will appear and a login prompt will be presented for the user to enter their MobiNET password. Once the password is successfully validated by the smart card, the private key within the smart card unlocks and allows the use of the corresponding digital certificate that is inside of the smart card. This certificate is a digitally signed statement which contains a public key and the name of the corresponding user or device, as well as the identity of the signing authority. It is used by the MobiNET platform and other components of the solution to authenticate users and devices. NOTE: for security reasons, each user has a limited number of attempts to successfully enter their MobiNET password before the smart card is locked and rendered inoperative.

Virtual Desktop Pool Management

The Route1 VDI solution includes the MobiKEY application software, MobiNET Agent software, and the ELVO appliance.

Instance Security

Digital certificates play a significant role in network authentication and in helping to secure and authenticate hardware devices as well as user identities. Certificates are electronic credentials that bind the identity of the certificate owner or the device to a public and private pair of electronic keys used to encrypt and digitally sign information. Signed digital certificates help to assure that the keys actually belong to the specified application, device, organization, or person, and that they can be trusted.

For example, all Route1 MC2 and MC3 devices contain certificates which are used for identification and validation by the MobiNET platform. Based upon the X.509 standard, the device identifier and associated public key are bound together upon issuance of the device certificate by Route1's Certificate Authority, which operates as part of a comprehensive PKI arrangement.

VDI Components

Route1's VDI solution is comprised of the following components, which, when configured, enable the virtualization of desktop resources:

EnterpriseLIVE Virtualization Orchestrator (ELVO)

The Route1 ELVO appliance is responsible for managing virtual machine pools, as well as the allocation of available virtual machine resources for new session requests by MobiKEY users. The ELVO appliance interacts with a VMware ESX Server and Virtual Center in order to handle the creation and allocation of virtual machines on demand. It also interacts with a system called the Connection Arbitrator, which operates within the MobiNET platform environment. This unique and powerful appliance provides end-users with a familiar desktop experience, while enabling IT administrators to seamlessly integrate a unified secure desktop consolidation strategy within their corporate data centers and maximize the utilization of system resources. Desktop consolidation streamlines the management of enterprise desktops and optimizes resource utilization, thus significantly reducing the total cost of ownership.

VMware ESX server and Virtual Center

The VMware ESX Server and Virtual Center systems combine to host and manage the virtual desktops and application resources that end-users will connect to using their MobiKEY devices. Once installed and properly configured, the IT administrator will create a Virtual Machine (VM) template which will contain a Windows based operating system and the applications required by the users of a given resource pool. Each time a new virtual desktop session is initiated, the user will connect to a cloned version of this VM template. This template also contains the MobiNET Agent software that is already configured with the IP address of the corresponding ELVO appliance. The MobiNET Agent software contacts the ELVO appliance to retrieve pool configuration and credentials.

For additional information on VMware products, please contact your appropriate service provider.

Most virtual machine monitors in the market today rely on a built-in operating system to perform core virtualization tasks such as allocating hardware resources to the various virtual machines that run on top. This means that your virtual machines are only as reliable as the built-in operating system. VMware ESX is based on the VMware ESX architecture, which installs directly on the physical server and has no reliance on a general purpose operating system. VMware ESXi has an ultra thin design with no reliance on a general purpose operating system. This architecture avoids the requirements for security hardening, user access control, anti-virus tasks and patching associated with typical operating systems. Its ultra thin code base installs directly on the server hardware for ultimate reliability.

MobiKEY

The Route1 MobiKEY is a complete desktop, secure remote access technology that integrates multi-factor authentication and identity management in a mobile computing environment.

MobiKEY technology allows users to securely access data remotely without the need for expensive communications packages or cumbersome hardware. This patented technology is one of the most powerful and easy-to-use multi-factor authentication technologies available today.

MobiKEY technology is completely clientless and driverless, requiring no extra privileges on the Remote Asset where it is being used. Furthermore, the user leaves no trace or evidence of their computing session on the Remote Asset, while at the same time protecting the enterprise network from any viruses and malware.

The MobiKEY application software is powered by Route1's MobiNET platform and is a subscription-based service that enables users to access digital resources from anywhere at any time.. Remote users are able to securely access their files and digital resources located on multiple Host Assets from any Remote Asset with an Internet connection. The MobiKEY technology does not transfer any files outside of corporate firewalls, nor from the outside in, and does not store any data on the Remote Asset, leaving zero footprint of the session on the Remote Asset.

EnterpriseLIVE Virtualization Orchestrator (ELVO)

NOTE: Before you begin your installation of the Route1 MobiNET Agent software, ensure that you have read and understood the following requirements:

Network

Route1's MobiNET Agent software does not require the IT administrator to open any inbound ports on the corporate firewall in order to allow the corporate user base to gain access to virtual pools and desktop Instances, either when working inside the corporate network environment or remotely (outside the corporate environment).

Route1's ELVO appliance requires outgoing connections on port 443 to the MobiNET platform.
The Hypervisor, in your network environment, must be able to access and be accessible by the ELVO appliance.

The Route1 VDI solution administrator must be able to access the ELVO appliance.

MobiKEY
Securing Enterprise Mobility

Creating, Configuring, and Connecting to an ELVO Pool

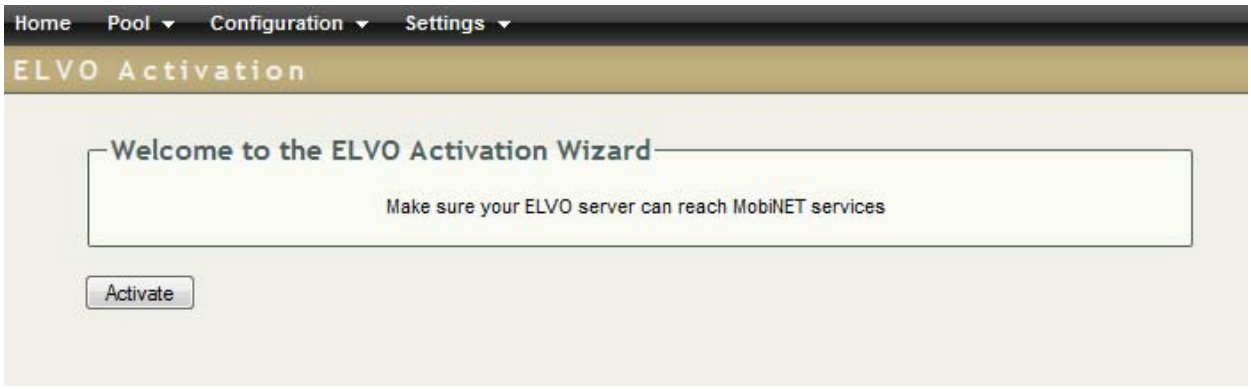
Virtual pool (Regular) - Using VMware vCenter

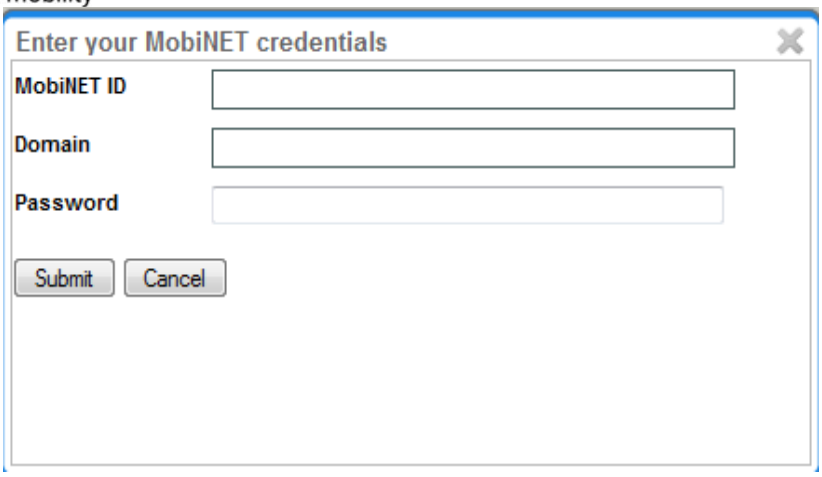
This section describes the steps that are necessary to create a new pool of virtual Instances.

Step 1 – Setting Up a Control Center

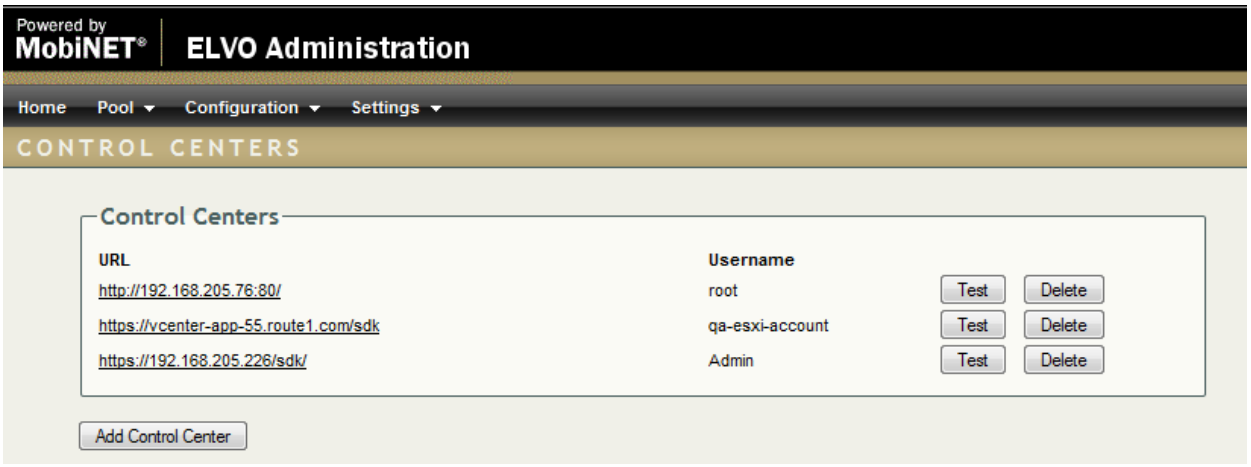
After the Control Center has been set up, the ELVO appliance must be configured so that it is able to communicate with the Control Center.
Ensure both of these servers are powered on and running while you perform the following operations.
Open a web browser and navigate to the ELVO Administration tool (ELVO-AT) which is running on the ELVO appliance.

Log in to the ELVO Administration tool using the credentials provided by Route1. You will be prompted to activate the ELVO the very first time you do this. You will need to enter the ER Admin credentials you use for EnterpriseLIVE Registration. If you do not know these credentials, please contact Route1 prior to proceeding.

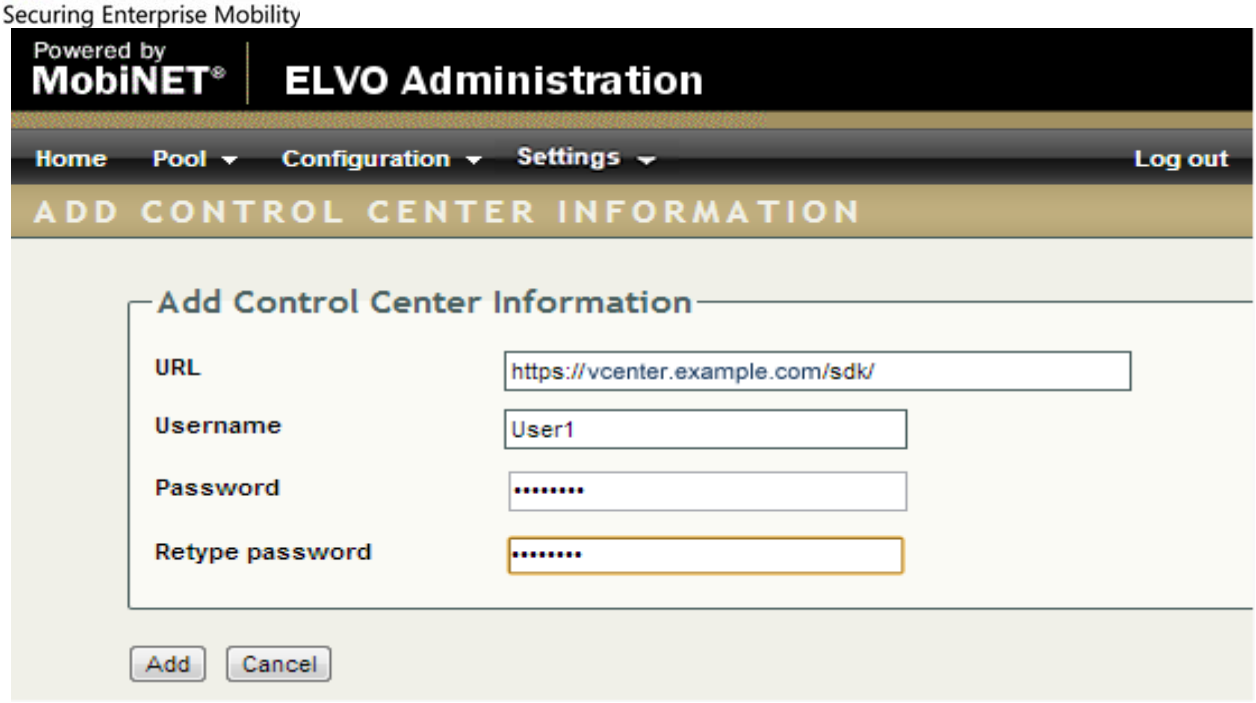




From the Configuration menu, select **"Control Center"**.



Click on the **"Add Control Center"** button. The following screen will appear:



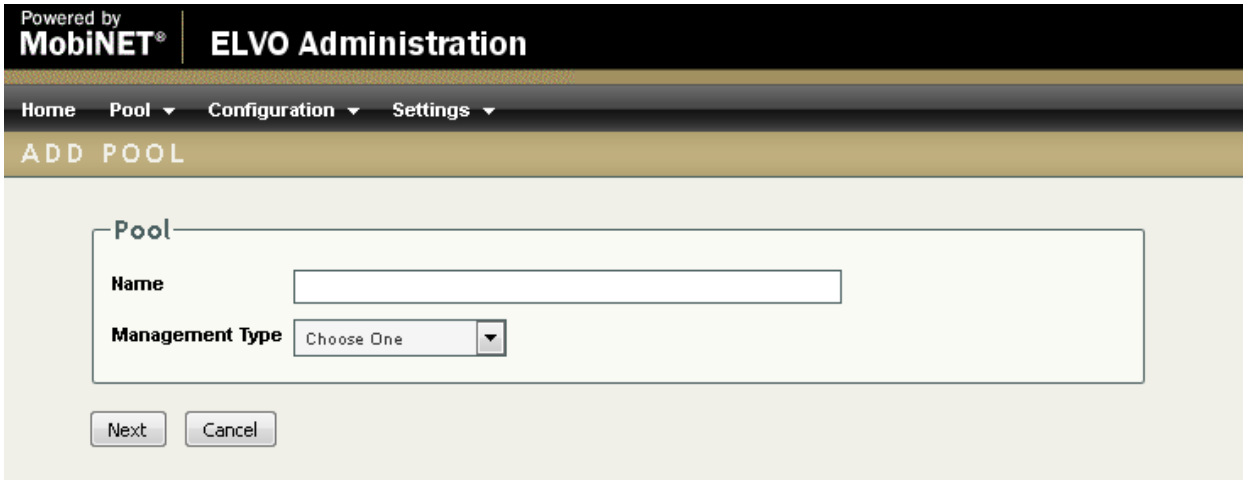
Enter the URL that the ELVO appliance will use to connect to vCenter, built from the vCenter address information. Since the ELVO will also require the proper credentials to connect to the vCenter, these credentials will need to be entered as well.

Once the **"Add"** button is clicked, the new Control Center is created and added to the list of Control Centers. At this point a **"Test"** button will be visible and it is recommended to use this function after adding or modifying a Control Center to verify the configuration.

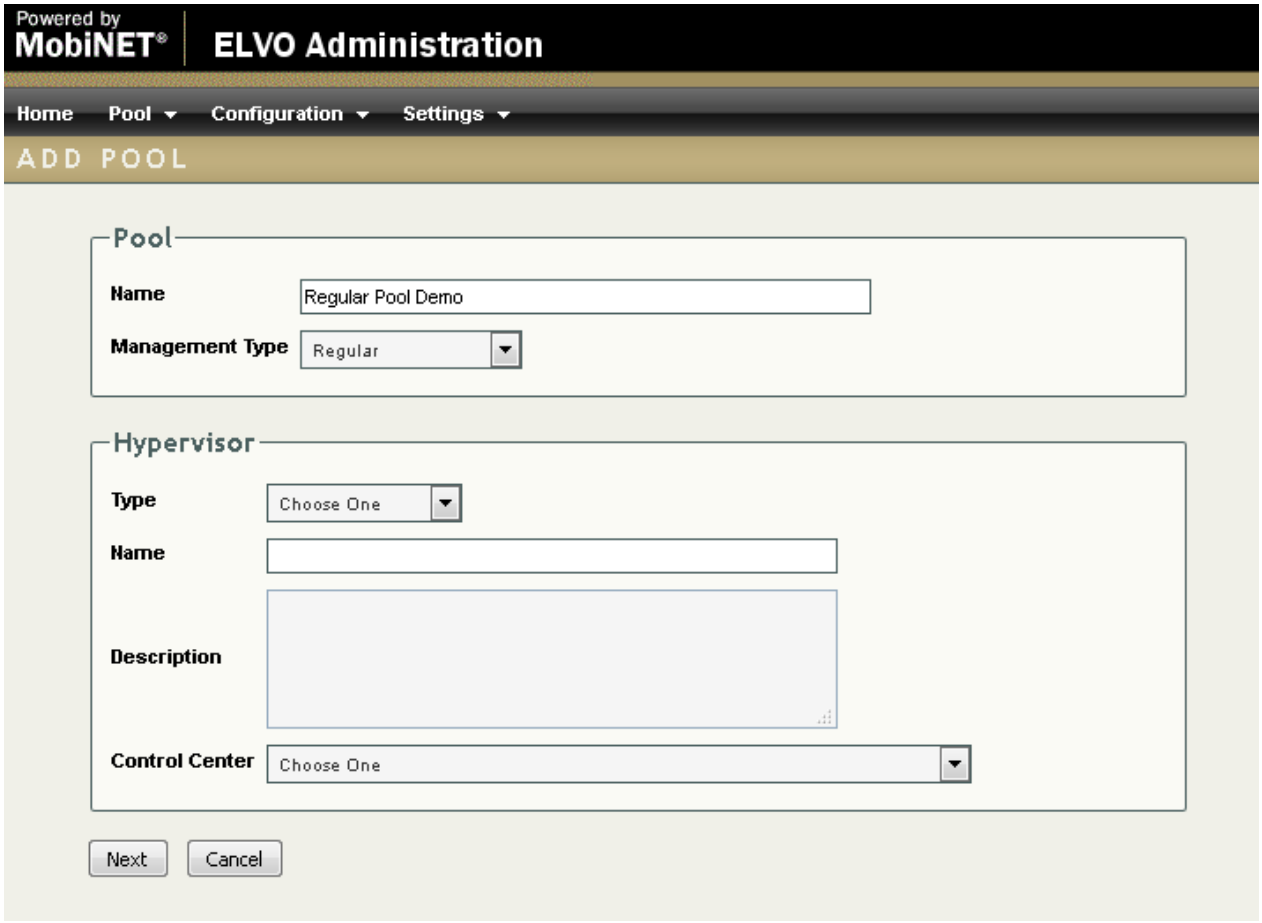
Step 2 – Creating a Pool

It is now time to create the Pool and retrieve the **Pool ID**.

You should still be logged into the ELVO Administration tool. From the Pool menu, select **"Add Pool"**. The following screen will appear:



Choose a Name for your new Pool. And Select "**Regular"** as the "**Management Type"**. More options will appear:



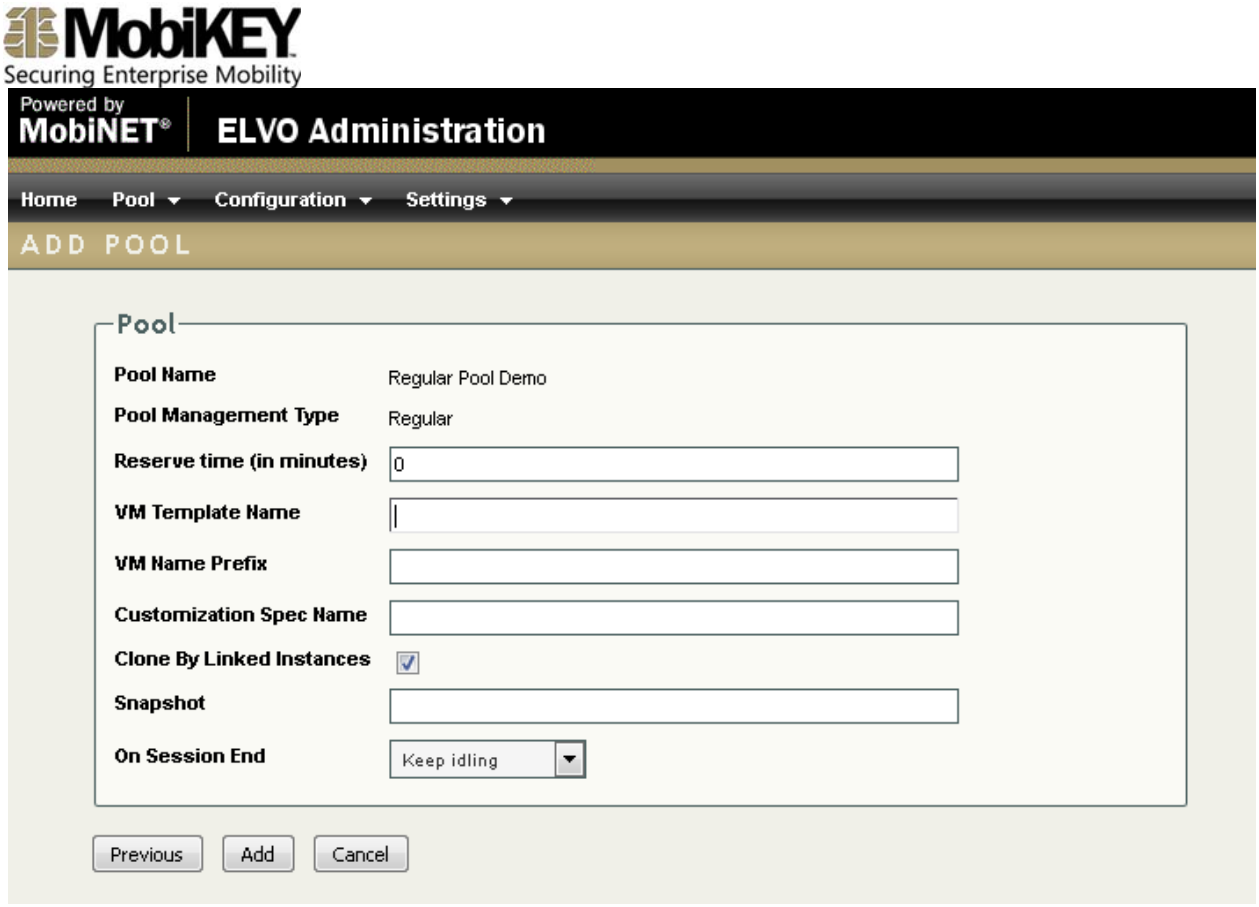
For the Hypervisor "**Type"** select "**VMware vSphere**." (for example, choose the desired type)

Provide a unique Name for the Hypervisor (this name can be freely selected – it does not need to match any existing values).

Also provide a Description for this Hypervisor. This text is arbitrary and is simply used to assist in recognizing the Hypervisor.

From the **"Control Center"** drop down list, select the URL that was configured in *Step 1*.

Click **"Next"**.



Now you can configure the Pool settings.

"Reserve time" - This will determine how long an instance in the pool remains available to the last person who connected, before becoming available for all other users to connect to. It is set in minutes. It will also determine the wait before any **"On Session End"** action is taken after the last disconnect.

"VM Template Name" – Name of the template to clone additional instances from. This name must match what is in vCenter.

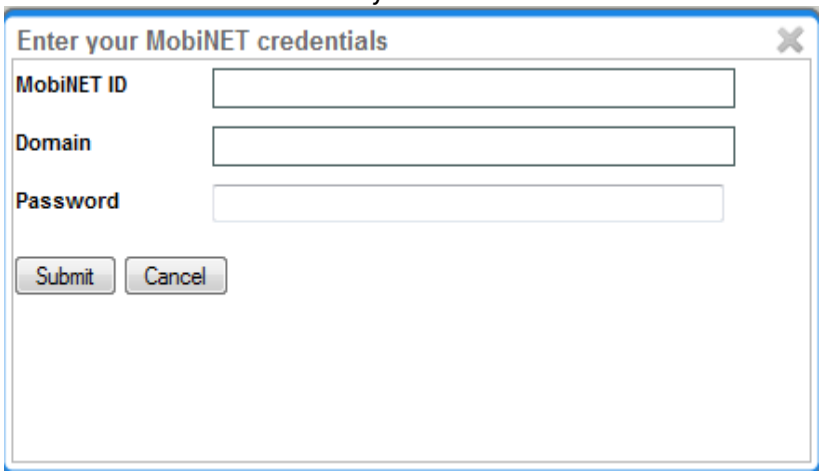
"VM Name Prefix" – Name of the instances that are clones of the template.

"Customization Spec Name" – Name of the Customization Specification file in vCenter.
"Clone By Linked Instances" – This is selected by default. Linked instances are based on the **"Snapshot"** of the template virtual machine. This Instance shares the virtual disks of its parent (template virtual machine) but basically runs off of a snapshot. This option enables clones to be spawned quickly. If this option is not checked the **"Snapshot"** field below will become greyed out as it is no longer needed. If this option is not selected, the cloned instances will be **"Full Clones"**. A full clone is an independent copy of a virtual machine that shares nothing with the parent. This will take more time to complete. Please refer to vCenter documentation for more details on the difference between Full and Linked clones.

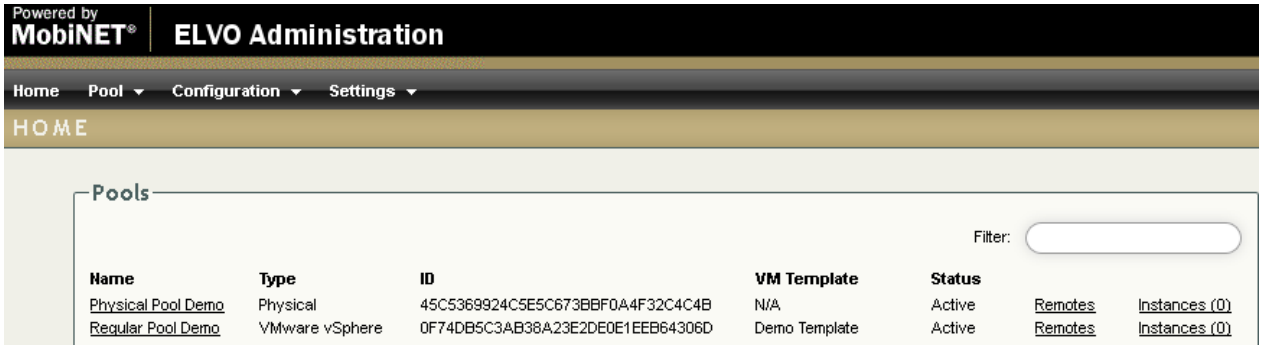
"Snapshot" – Name of the snapshot that was taken and to be used from the **"VM Template Name"**

"On Session End" – Keep Idling, Shutdown or Destroy are the options in the dropdown menu. And are actions that will be applied after a Data Session is completed, and the **"Reserve time"** has completed.

Click **"Add"**. And enter the ER Admin Credentials you used before to Activate the ELVO.



You will then be brought to the home page where you will see the Pools listed.



Step 3 – VM Template Setup

With the Pool now created, it is time to build a template virtual machine image that will be later cloned to create Pool Instances.
From vSphere, create a virtual machine. The name of the virtual machine must match the value used in the "**VM Template Name**".

Since a copy of the MobiNET Agent software will need to appear in each Pool Instance, it is necessary to install the MobiNET Agent software in the template virtual machine.

The MobiNET Agent installer may be distributed using various channels, but in all cases you will need to locate and run the installer executable `Setup.exe` or `MobiNETAgent.msi`.

Using MobiNETAgent.msi:

Run the following command, being sure to use the appropriate value for the ELVO address (in place of 192.0.2.1), and the **POOLID** value for the **Pool** that you just created.

```
msiexec /i MobiNETAgent.msi REBOOT=ReallySuppress /qn /L*vx
"%ALLUSERSPROFILE%\MobiNETAgentInstall.log"
```

CONFIGDIR=https://**192.0.2.1:443**/SessMngrSrv2/SessionManager
POOLID= **0F74DB5C3AB38A23E2DE0E1EEB64306D**

Using Setup.exe:

Run `Setup.exe` with the following arguments, being sure to use the appropriate value for the ELVO address (in place of 192.0.2.1), and the **POOLID** value for the Pool that you just created in *Step 2*.

```
Setup.exe
/V"CONFIGDIR=https://192.0.2.1:443/SessMngrSrv2/SessionManager
POOLID= 0F74DB5C3AB38A23E2DE0E1EEB64306D REBOOT=ReallySuppress"
```

Once the MobiNET Agent software install completes, shut down the VM, take a snapshot naming it using the **"Snapshot"** name you chose for your pool. Then convert it to a template in vSphere.

Step 4 – Creating ELVO Pool Instances

With a proper template in place, it is now possible to create Instances for this Pool. An Instance is a virtual machine to which a user can connect. In this example, the Instances will be Linked Instances.

From the Home page Pool list, click the **"Instances"** link (in the far right column) for your Pool.

On the Instances screen, click the **"Create Linked Instance"** button in the Actions section. This will add a new Instance to the Pool.

Once the new Instance is created, you must power it on by clicking the **"Power On"** button (in the right hand column). The process may take a few minutes before the Instance is available for use.

Note – if the **"Clone By Linked Instances"** option is not selected in the Pool settings. The option to create new instances in this section will be **"Create Full Instance"**. And will take place in that manner.

*There is also another option to have instances dynamically cloned automatically.
If you click on your Pool name it will take you to the Pools settings.

Pool

PoolName	[Regular Pool Demo
PoolManagement Type	Regular
Reserve time (in minutes)	0
VM Template Name	[Demo Template
VM Name Prefix	[Demo Clone
Customization Spec Name	[Demo Custom File
Clone By linked Instances	rl
Snapshot	[Demo Snapshot
Has Dynamic Growth	ICI
On Session End	Keep idling

Hypervisor

UUID	FE4DBD432255447480359E38706A85BD
Type	VMware vSphere
Name	[Demo
Description	Demo
ControlCenter	https:/lvcenter.example.com/sdl<i - user1

Add VMware View PowerShell Connection

Configuration

[Edit Instance Configuration

Actions

[Suspend | Delete | Renew Certificate

Save [Cancel | Remotes | Instances

You will now see a **"Has Dynamic Growth"** option available. If you check this box more options will appear:

NOTE: Idle is defined as the VM is immediately connectable (registered, powered on and not in session).

Minimum Idle Limit – Minimum number of VMs this pool should keep as idle. When the number of idle VMs goes below this limit, then the Dynamic Pool will see if there is any VM that can be turned on or create new ones

Maximum Idle Limit - Maximum number of VMs this pool should keep as idle. When the number of idle VMs goes above this limit, then the Dynamic Pool will start reducing it based on the Shrink Action selected (below)

Growth Rate – Value by which the Pool will grow while trying to satisfy the Minimum Idle Limit

Minimum Limit – Minimum number of idle VMs at start up

Maximum Limit – Maximum total number of VMs whether idle, powered off or in the process of registering

Shrink Action – Options used when reducing the pool size to Maximum Idle Limit:

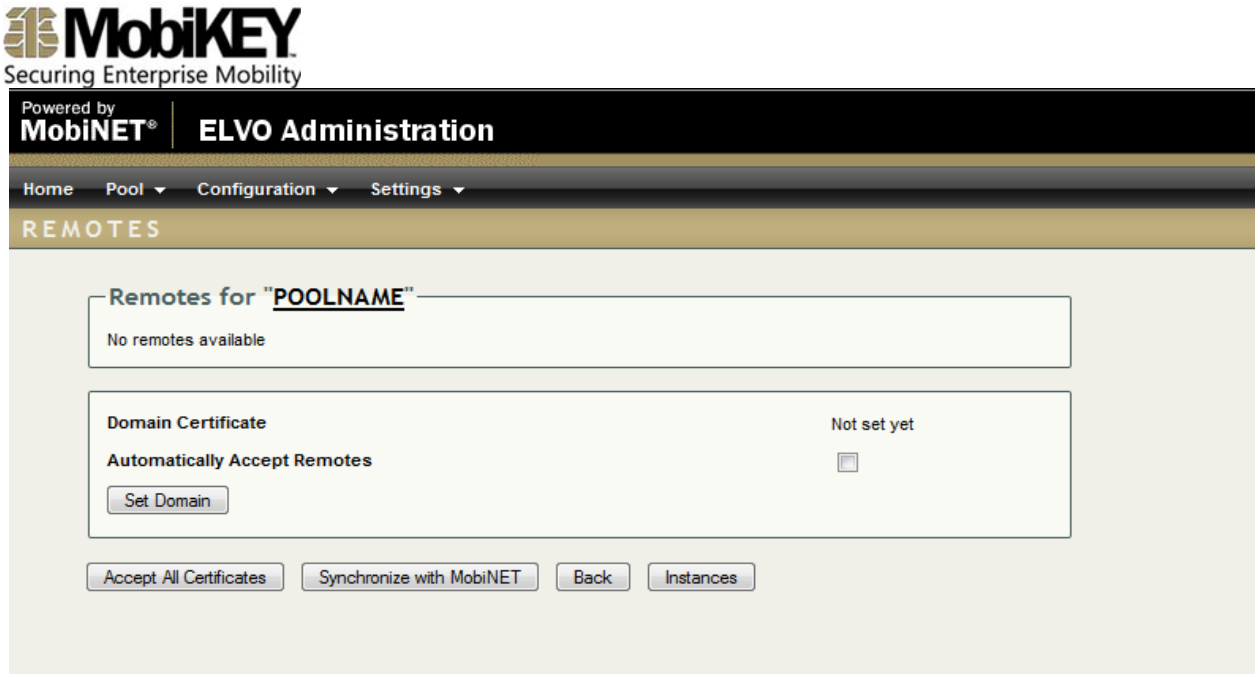
- Shut down Guest
- Destroy idle VMs

Step 5 – Pairing MobiKEY Users to the Pool

MobiKEY users can now be paired with this Pool. Please refer to the *EnterpriseLIVE Registration Guide* for the steps required to create a valid .csv file that is used to associate MobiKEY users (also known as 'Remotes') with a Host.

After completing the EnterpriseLIVE Registration process, all pairings to a Pool must be authorized using the ELVO-AT.

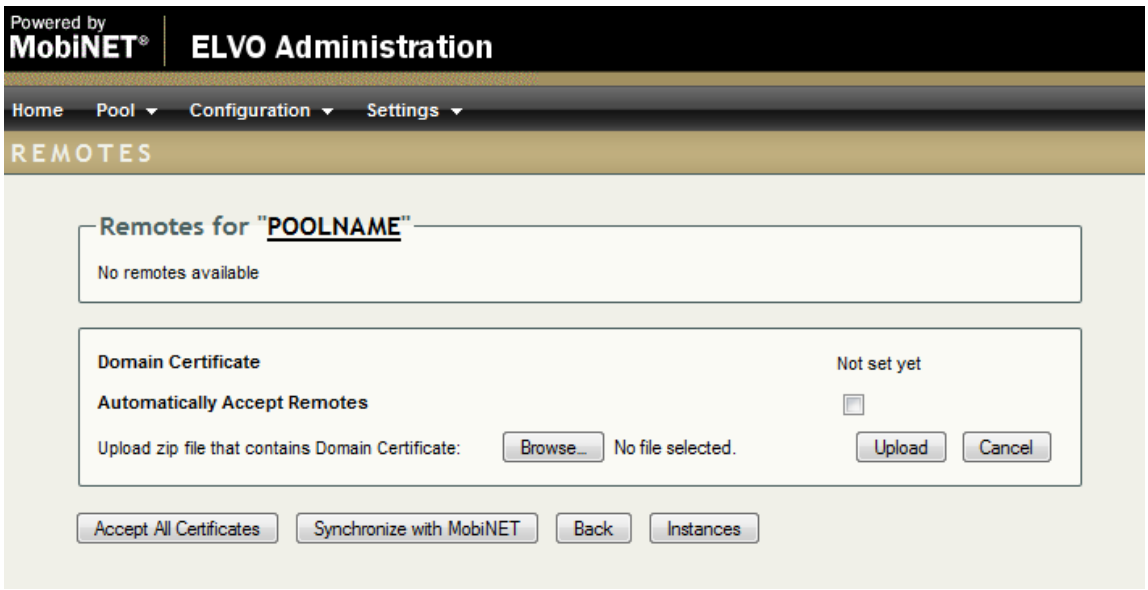
Return to the ELVO-AT and from the Pools menu, click the **"Remotes"** link (in the second column from the right) for your Pool. The following screen will appear:



Click the **"Accept All Certificates"** button. When prompted, enter the ER Admin credentials that were provided to you by Route1.

After the certificates have been accepted, the Remotes page for this Pool will show the **Remote ID** and **Username** for all of the Remotes associated with this Pool.

Alternatively, you may set the Pool to **"Automatically Accept Remotes"**. This will pair every Remote without the need to manually accept them each time you upload a .csv using EnterpriseLIVE Registration. For this approach, you will need to generate and save the domain certificates during the EnterpriseLIVE Registration process. Once the domain certificates are generated, return to the ELVO-AT Remotes page and click on **"Set Domain"**. This will allow you to browse to the location of your saved domain certificates and upload the zip file. You will receive a confirmation message once completed. Proceed to check the box **"Automatically Accept Remotes"** to complete the process. Final confirmation will be received stating **"Automatic Acceptance of Remotes"** is enabled for pool **"POOLNAME"**.



Step 6 – Registering MobiKEY Users to a Device

The Pool is now ready to accept connections from MobiKEY users. However, the MobiKEY users themselves still need to register their devices.

MobiKEY Classic 2 (MC2) / MobiKEY Classic 3 (MC3) users:

Distribute to each MobiKEY user the unique License Key that was generated for them through EnterpriseLIVE Registration in *Step 5*. NOTE: the License Keys generated are user specific.

Have the MobiKEY users run the MobiKEY application software and complete the registration wizard. During this process, they will be prompted for their unique License Key.

MobiKEY Fusion users:

Have the MobiKEY users run the MobiKEY application software and complete the registration wizard. They will not require the License Key.

Once the registration process is complete, the MobiKEY users will see a list of Hosts with which they have been paired. This list will include the Pool name for the Pool created in *Step 1*.

The MobiKEY user may now connect to this Pool.

Should additional pairings be required in the future for this Pool, repeat *Steps 5* through *6*.

Physical pool - Creating an ELVO Physical Pool

The following example values will be used in some of the procedure below:

IP address of the ELVO appliance:	192.0.2.1
Pool name:	POOLNAME
Reserve time (in minutes):	2

Step 1 – Creating a Pool

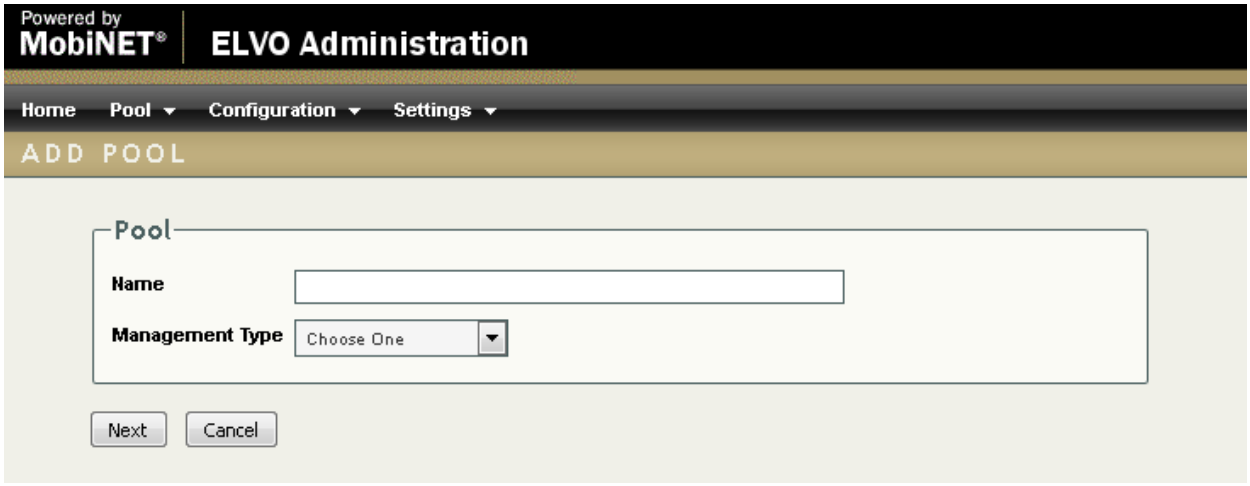
NOTE: If using a **Physical pool**, there is no need to create a Control Center.

Open a web browser and navigate to the ELVO Administration tool which is running on the ELVO appliance. Based on the sample IP address of the ELVO (listed above), the URL would be:

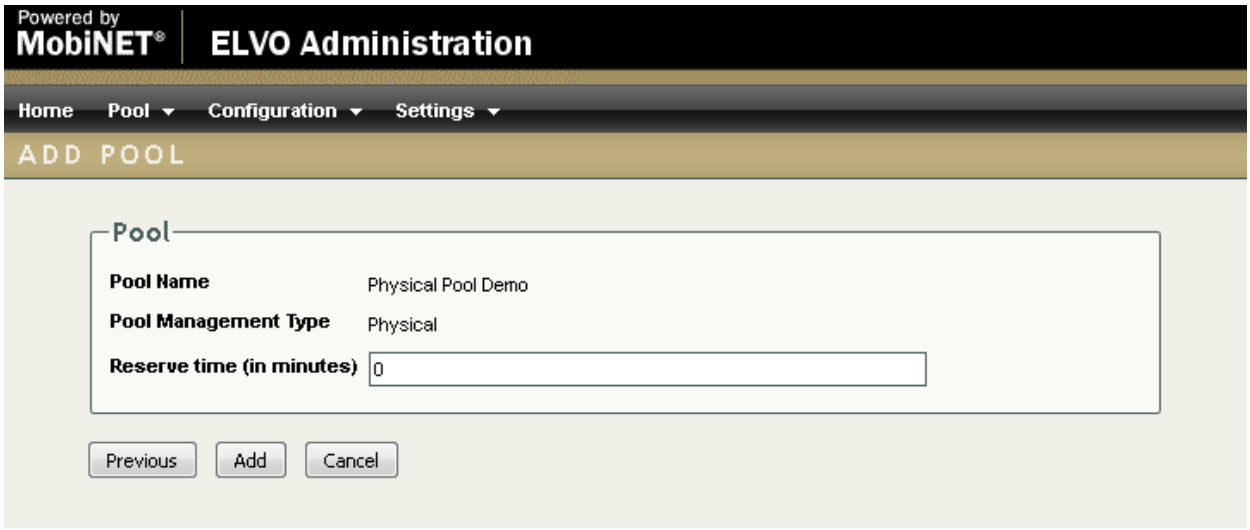
`https://192.0.2.1/elap`

Log in to the ELVO-AT using the credentials provided by Route1. It is now time to create the Pool and retrieve the Pool ID.

From the Pool menu, select **"Add Pool"**. The following screen will appear:

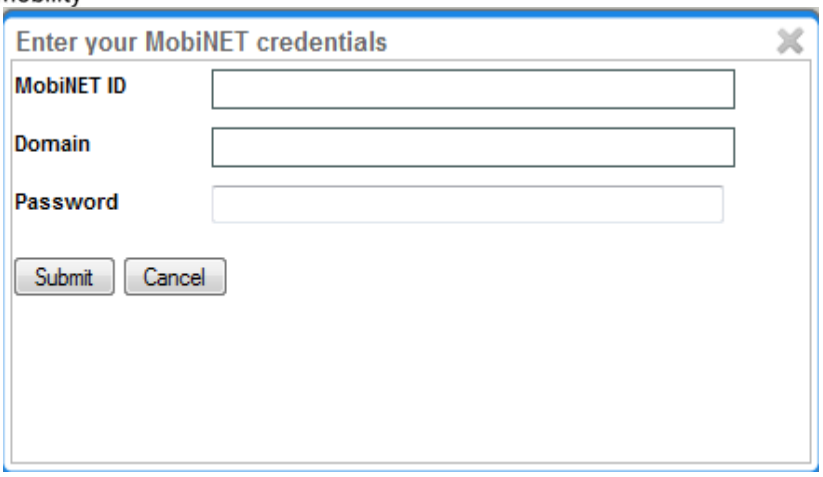


Choose a **"Name"** for your new Pool. And Select **"Physical"** as the **"Management Type**". Click **"Next"**.



Here you can review the **Pool Name** and select the **"Reserve time"**. The **"Reserve time"** will determine how long an instance in the pool remains available to the last person who connected, before becoming available for all other users to connect to. It is set in minutes. Click **"Add"** to proceed or **"Previous"** to change the **"Pool Management Type"** or **Pool Name**.

Enter the Credentials provided by Route1.



Step 2 – Setup of Physical Instances

With the Pool now created, it is time to add Physical Instances to the Pool.

Since a copy of the MobiNET Agent software will need to appear in each Pool Instance, it is necessary to install the MobiNET Agent software in every Physical Instance that will be part of the pool.

The MobiNET Agent installer may be distributed using various channels, but in all cases you will need to locate and run the installer executable `Setup.exe` or `MobiNET Agent.msi`

Using MobiNETAgent.msi:

Run the following command, being sure to use the appropriate value for the ELVO address (in place of 192.0.2.1), and the POOLID value for the Pool that you just created in *Step 1*.

```
msiexec /i MobiNETAgent.msi REBOOT=ReallySuppress /qn /L*vx
"%ALLUSERSPROFILE%\MobiNETAgentInstall.log"
CONFIGDIR=https://192.0.2.1:443/SessMngrSrv2/SessionManager
POOLID=26F28BE463EE82DBAFA759333CFA0F6C
```

Using Setup.exe:

Run `Setup.exe` with the following arguments, being sure to use the appropriate value for the ELVO address (in place of 192.0.2.1), and the POOLID value for the Pool that you just created in *Step 1*.

```
Setup.exe
/V"CONFIGDIR=https://192.0.2.1:443/SessMngrSrv2/SessionManager
POOLID=26F28BE463EE82DBAFA759333CFA0F6C REBOOT=ReallySuppress"
```

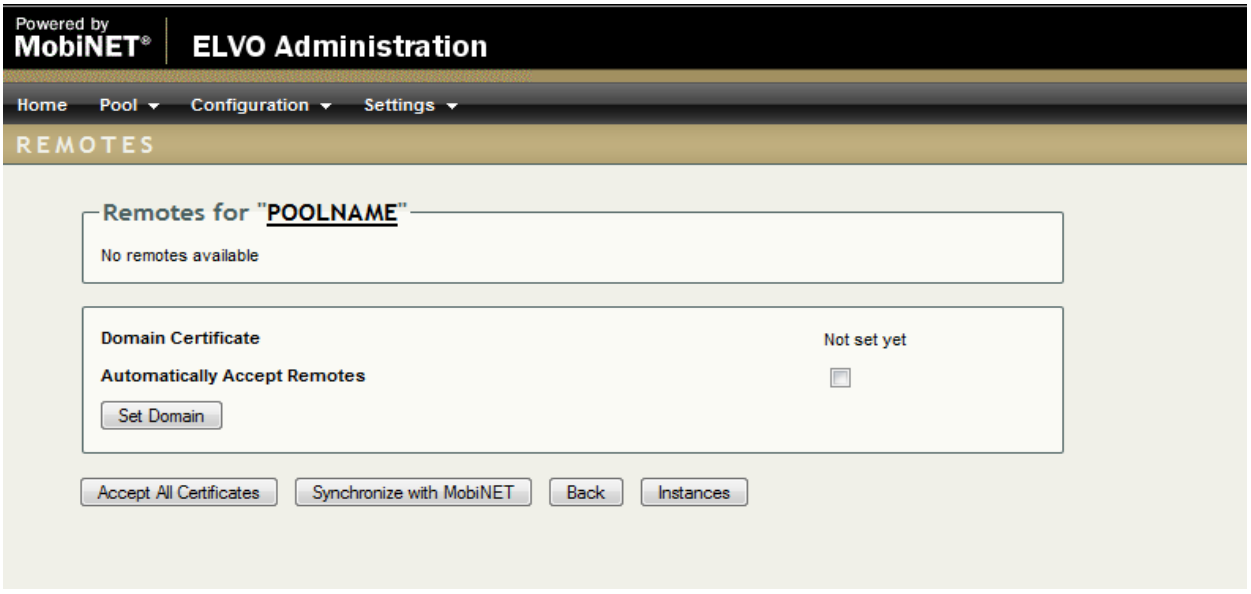
Once the MobiNET Agent software install completes the Physical Instance must be restarted.

Step 3 – Pairing MobiKEY Users to the Pool

MobiKEY users can now be paired with this Pool. Please refer to the *EnterpriseLIVE Registration Guide* for the steps required to create a valid .csv file that is used to associate MobiKEY users (also known as 'Remotes') with a Host. This process will also create a series of License Keys that will be required in *Step 4*.

After completing the EnterpriseLIVE Registration process, all pairings to a Pool must be authorized using the ELVO-AT.

From the Pools menu, click the **"Remotes"** link (in the second column from the right) for your Pool. The following screen will appear:



Click the **"Accept All Certificates"** button. When prompted, enter the ER Admin credentials that were provided to you by Route1 (the same credentials that were used when uploading the .csv file).

After the certificates have been accepted, the Remotes page for this Pool will show the Remote ID and Username for all of the Remotes that are associated with this Pool.

Alternatively, you may set the Pool to Automatically Accept the Remotes. This will pair every Remote without the need to manually accept them each time you upload a .csv using EnterpriseLIVE Registration. For this approach, you will need to generate and save the domain certificates during the EnterpriseLIVE Registration process. Once the domain certificates are generated, return to the ELVO-AT Remotes page and click on **"Set Domain"**. This will allow you to browse to the location of your saved domain certificates and upload the zip file. You will receive a confirmation message once completed. Proceed to check the box **"Automatically Accept Remotes"** to complete the process. Final confirmation will be received stating **"Automatic Acceptance of Remotes"** is enabled for pool **"POOLNAME"**.

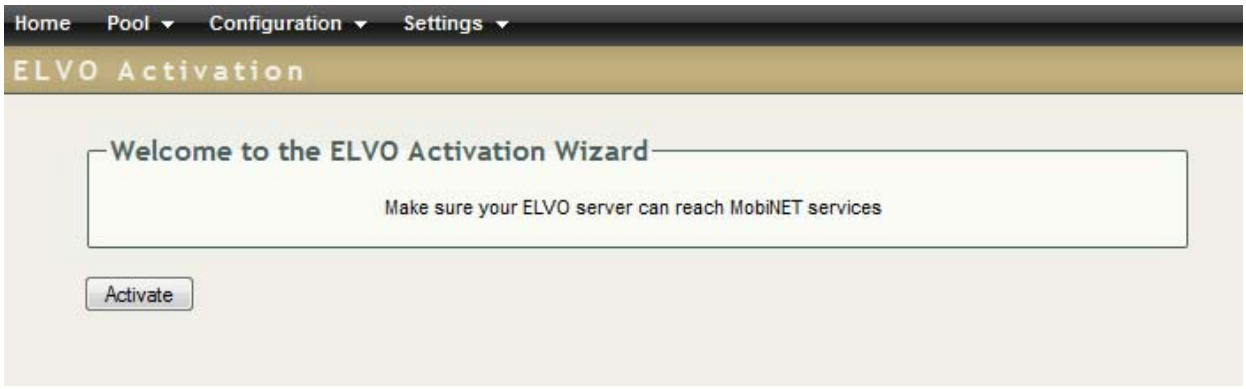
Externally Managed Pool

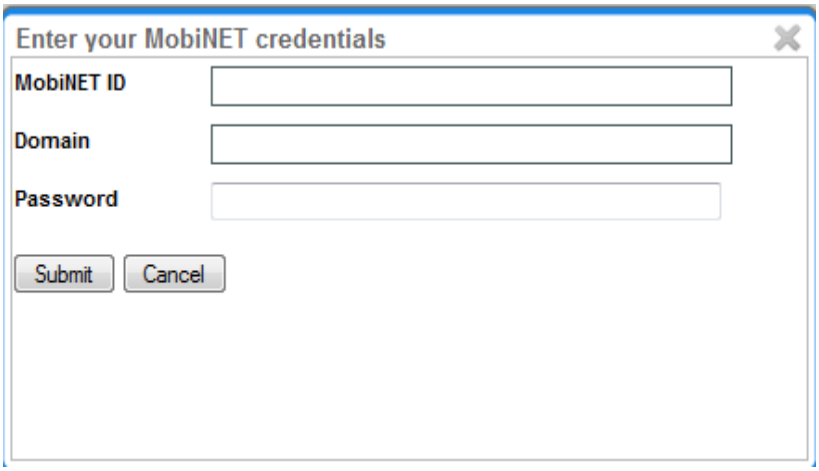
Externally managed pools are designed to allow the administration to take place entirely using the desired supported Hypervisor. Rather than through ELAP itself. Step 4 below goes into additional details for VMWare Horizon (VMWare View) specifically.

Step 1 – Setting Up a Control Center

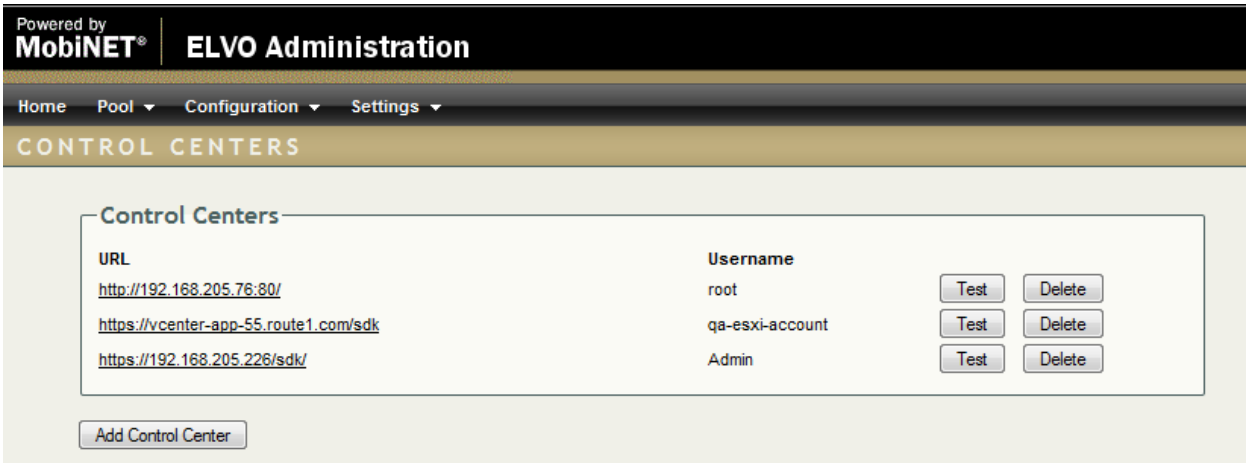
After the Control Center has been set up, the ELVO appliance must be configured so that it is able to communicate with the Control Center.
Ensure both of these servers are powered on and running while you perform the following operations. Open a web browser and navigate to the ELVO Administration tool (ELVO-AT) which is running on the ELVO appliance.

Log in to the ELVO Administration tool using the credentials provided by Route1. You will be prompted to activate the ELVO the very first time you do this. You will need to enter the ER Admin credentials you use for EnterpriseLIVE Registration. If you do not know these credentials, please contact Route1 prior to proceeding.

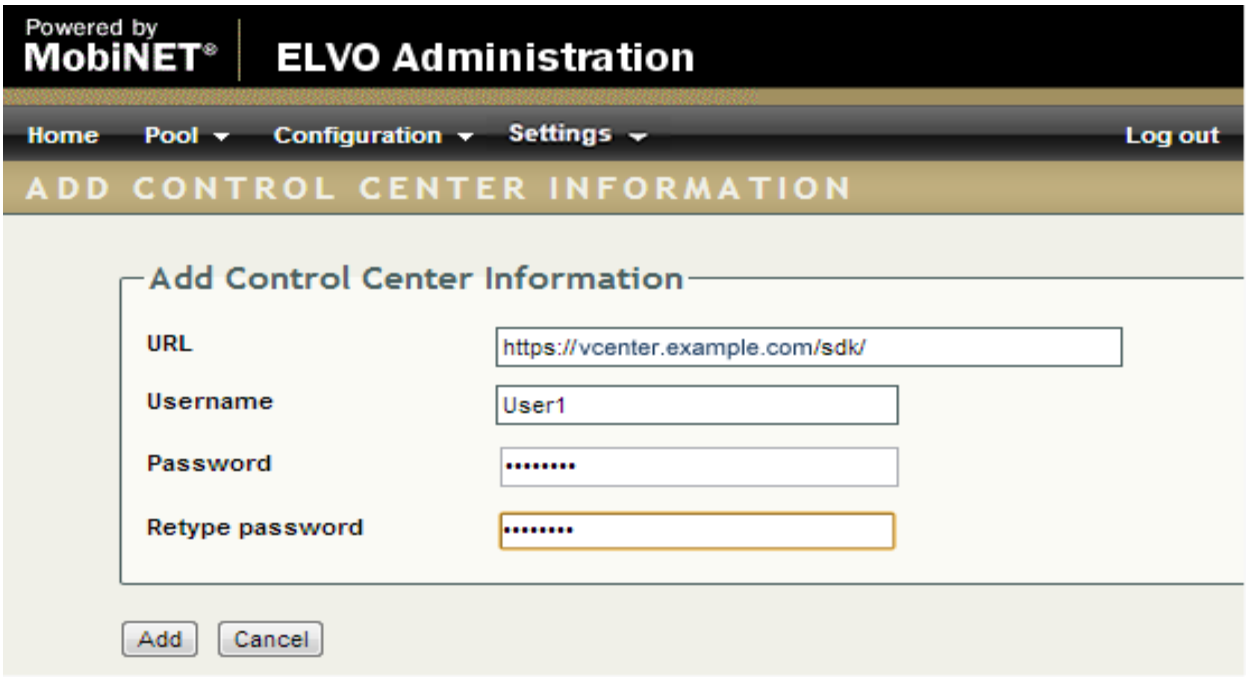




From the Configuration menu, select **"Control Center"**.



Click on the **"Add Control Center"** button. The following screen will appear:



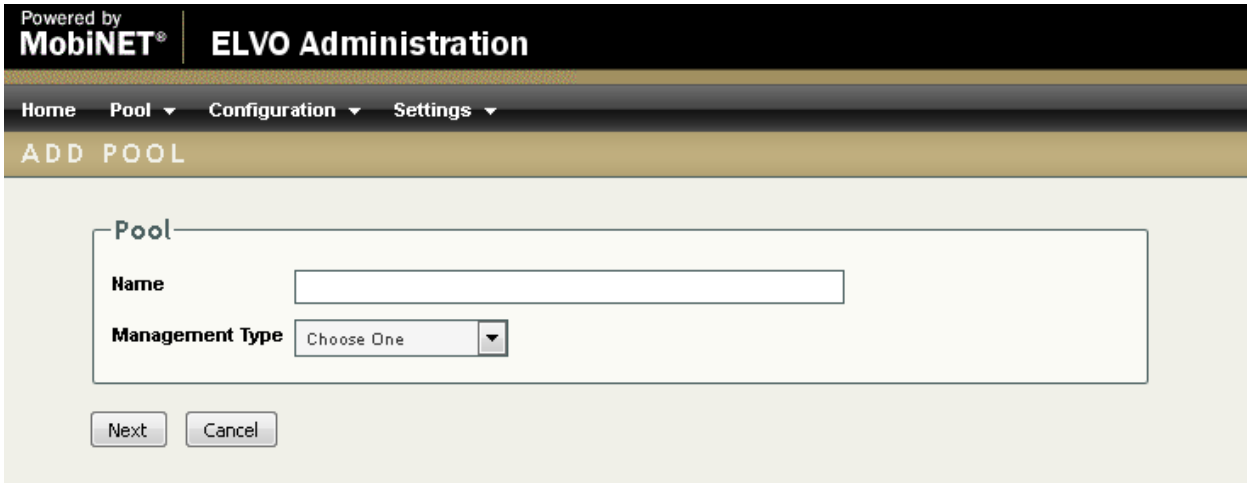
Enter the URL that the ELVO appliance will use to connect to vCenter, built from the vCenter address information. Since the ELVO will also require the proper credentials to connect to the vCenter, these credentials will need to be entered as well.

Once the **"Add"** button is clicked, the new Control Center is created and added to the list of Control Centers. At this point a **"Test"** button will be visible and it is recommended to use this function after adding or modifying a Control Center to verify the configuration.

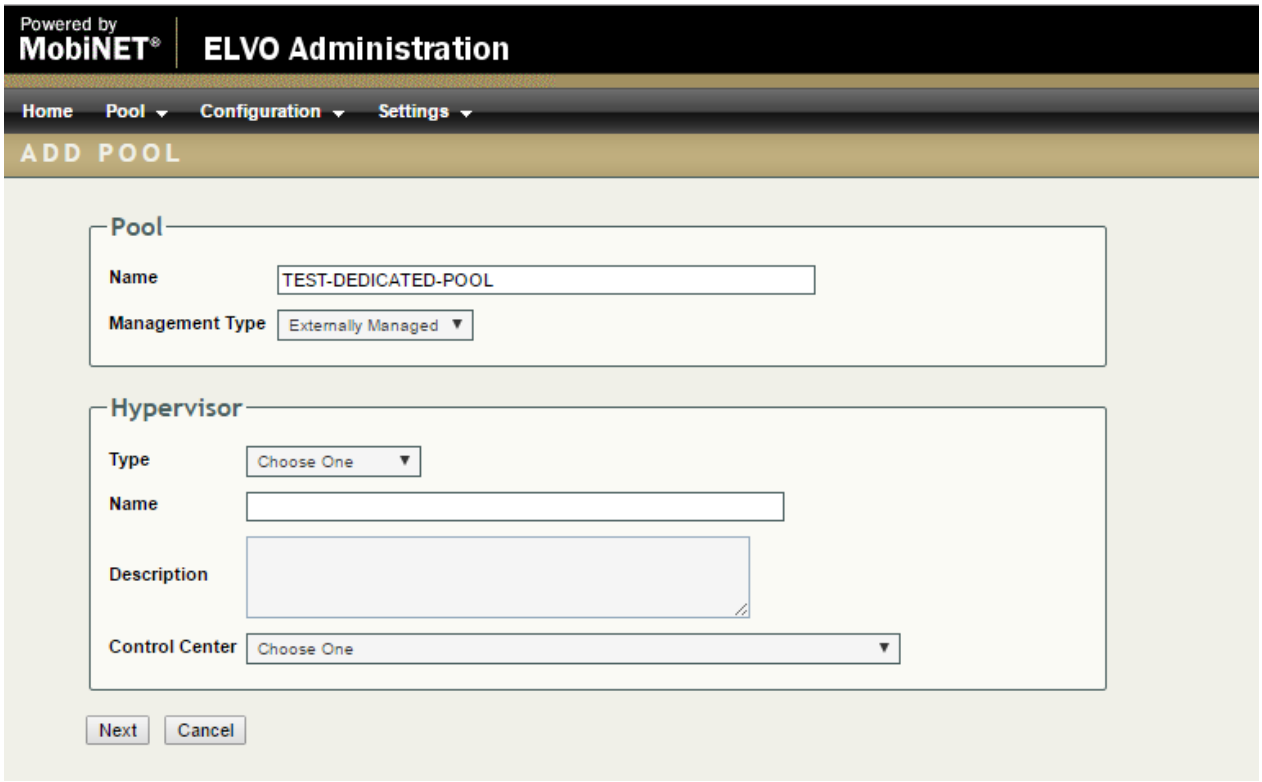
Step 2 – Creating a Pool

It is now time to create the Pool and retrieve the **Pool ID**.

You should still be logged into the ELVO Administration tool. From the Pool menu, select **"Add Pool"**. The following screen will appear:



Choose a **"Name"** for your new Pool. And Select **"Externally Managed"** as the **"Management Type"**. More options will appear:



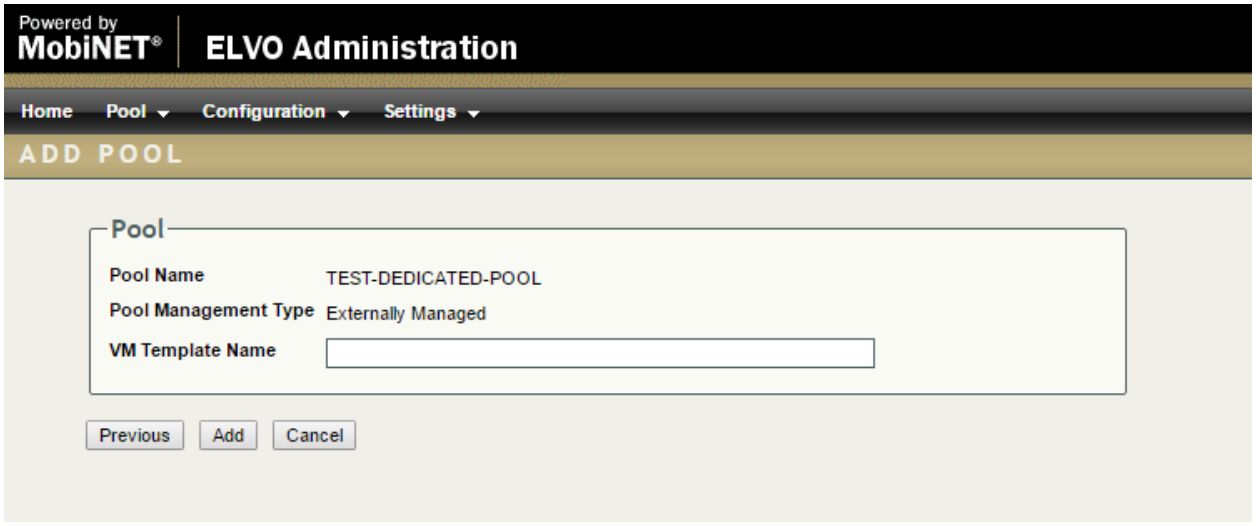
For the Hypervisor **"Type"** select **"VMware vSphere"**.

Provide a unique **"Name"** for the Hypervisor (this name can be freely selected – it does not need to match any existing values).

Also provide a **" Description"** for this Hypervisor. This text is arbitrary and is simply used to assist in recognizing the Hypervisor.

From the **"Control Center"** drop down list, select the URL that was configured in *Step 1*.

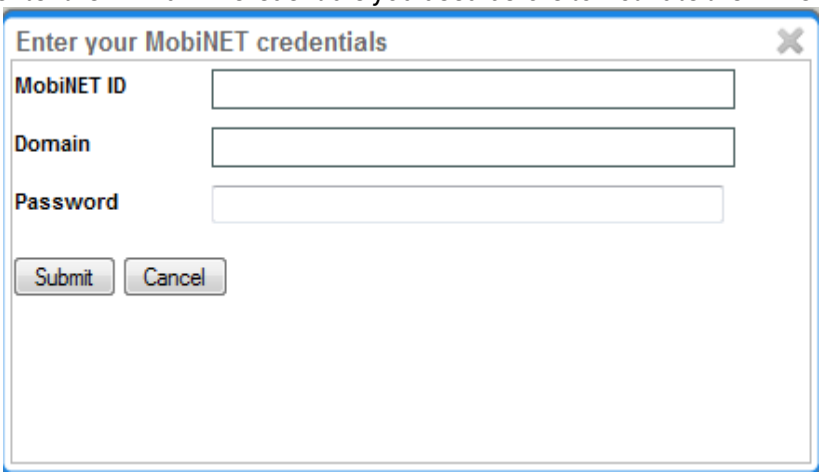
Click **"Next"**.



Now you can configure the Pool settings:

VM Template Name – Name of the template to clone additional instances from. This name must match what is in VMware Horizon.

Click **"Add"**. And enter the ER Admin Credentials you used before to Activate the ELVO.



Step 3 – VM Template Setup

With the Pool now created, it is time to build a template virtual machine image that will be later cloned to create Pool Instances.

From vSphere, create a virtual machine. The name of the virtual machine must match the value used in the **"VM Template Name"** field in *Step 2*.

Since a copy of the MobiNET Agent software will need to appear in each Pool Instance, it is necessary to install the MobiNET Agent software in the template virtual machine.

The MobiNET Agent installer may be distributed using various channels, but in all cases you will need to locate and run the installer executable `Setup.exe` or `MobiNETAgent.msi`.

Using MobiNETAgent.msi:

Run the following command, being sure to use the appropriate value for the ELVO address (in place of 192.0.2.1), and the **POOLID** value for the **Pool** that you just created in *Step 2*.

```
msiexec /i MobiNETAgent.msi REBOOT=ReallySuppress /qn
/L*vx
"%ALLUSERSPROFILE%\MobiNETAgentInstall.lo
g"


CONFIGDIR=https://192.0.2.1:443/SessMngrSrv2/SessionManag
er
POOLID=26F28BE463EE82DBAFA759333CFA0F
6C
```

Using Setup.exe:

Run `Setup.exe` with the following arguments, being sure to use the appropriate value for the ELVO address (in place of 192.0.2.1), and the **POOLID** value for the Pool that you just created in *Step 2*.

```
Setup.e
xe
/V"CONFIGDIR=https://192.0.2.1:443/SessMngrSrv2/SessionManag
er
POOLID=26F28BE463EE82DBAFA759333CFA0F6C
REBOOT=ReallySuppress"
```

Once the MobiNET Agent software install completes, shut down the VM, take a snapshot naming it specifically for your pool.

Using VMware Horizon

Step 4 – Configuring VM View Server

The externally managed pools can be setup so the ELVO will communicate with VMware Horizon and allow management of the ELVO Pools through the VMware Horizon administration web portal. There are two different types of externally managed pools that are available through this method, Floating and Dedicated pools. This section describes the steps that are necessary to create a new externally managed pool of virtual Instances.

"Add VMware View PowerShell Connection" - checkbox needs to be checked

A new section called VM View Server will appear, fill in the following fields with the required information below.

URL - should be filled in with the URL of the VMware Horizon server URL.

Port - this is the port the ELVO will be contacting the VMware Horizon server through.

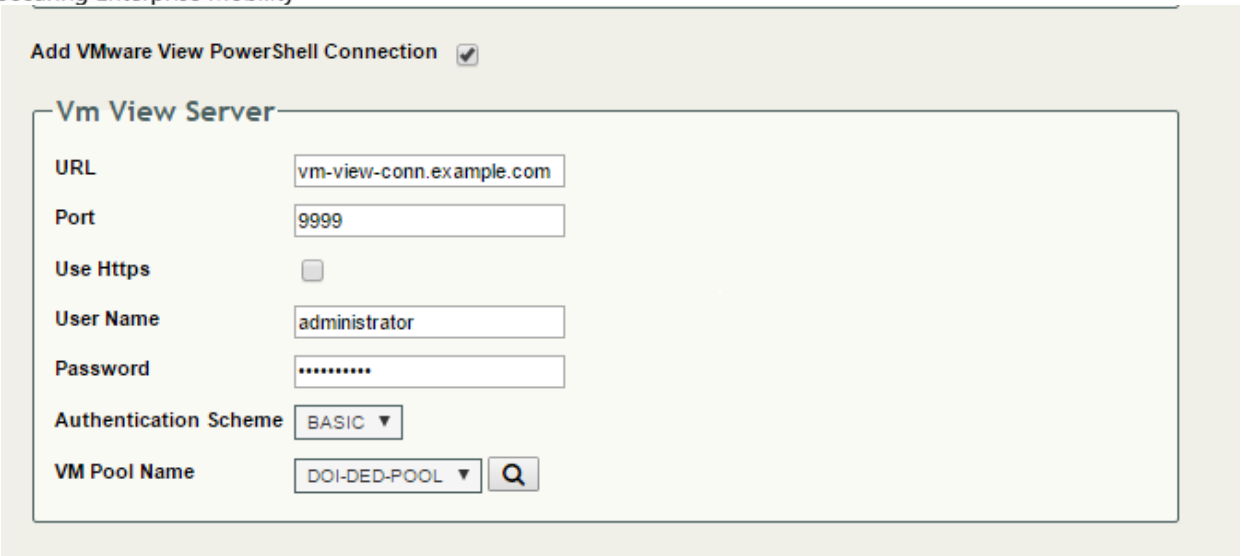
Https - check this box off if you are using an https URL.

User Name - this is the username of a user with admin access to VMware Horizon server.

Password - enter the password to the user you are trying to connect to VMware Horizon with.

Authentication Scheme - leave as the default setting unless it is otherwise required.

VM Pool Name - the magnifying glass will query VMware Horizon and come back with a dropdown list of all available Pool Names. This step is run after VMware Horizon pool is setup completely.


Add VMware View PowerShell Connection
Vm View Server
URL
vm-view-conn.example.com
Port
9999
Use Https
User Name
administrator
Password
Authentication Scheme
BASIC
VM Pool Name
DOI-DED-POOL

Step 5 – Dedicated Pool Setup

The Dedicated Pool can be created through VMware Horizon Administration web portal and the pool can be linked to the ELVO externally managed pool that was created previously. Consulting the VMware Horizon setup guide you can customize the settings required for the dedicated pool being created. A key feature of Dedicated Pools is the ability to assign a MobiNET User to a specific instance and each time that user tries to do a data session they will only be able to access that specific instance.

Step 6 – Floating Pool Setup

The Floating Pool can be created through VMware Horizon Administration web portal and the pool can be linked to the ELVO externally managed pool that was created previously. Consulting the VMware Horizon setup guide you can customize the settings required for the Floating Pool being created. The Floating Pool allows users to connect to the first available instance in a round-robin format. If the same MobiNET User does a data session again they will be given the next available instance. This allows for a more dynamic amount of instances to be in the pool as no single MobiNET User will be assigned to an instance.

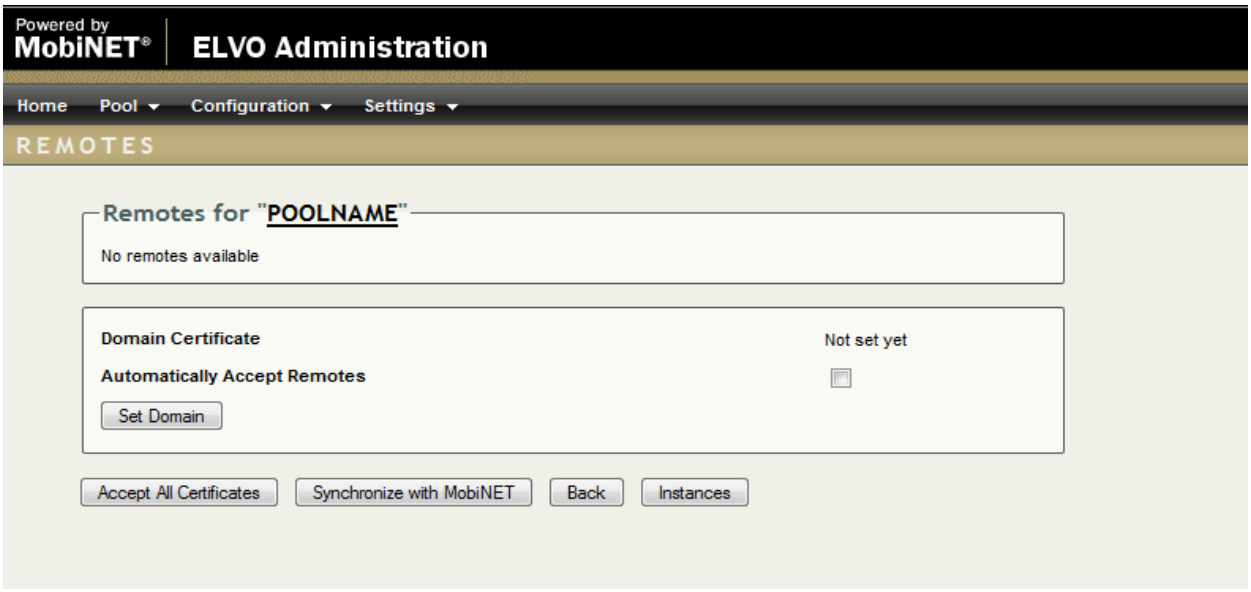
Step 7 – Associating the Template and Pairing MobiKEY Users to the Pool

Go to the Edit Pool page by clicking on the externally managed pool that was previously created. In the **VM View Server** section the "**VM Pool Name"** can be searched for by clicking on the magnifying glass. Once the search is complete select the VM pool you created in VMware View and click **"Save"**

MobiKEY users can now be paired with this Pool. Please refer to the EnterpriseLIVE Registration Guide for the steps required to create a valid .csv file that is used to associate MobiKEY users (also known as 'Remotes') with a Host.

After completing the EnterpriseLIVE Registration process, all pairings to a Pool must be authorized using the ELVO-AT.

Return to the ELVO-AT and from the Pools menu, click the **"Remotes"** link (in the second column from the right) for your Pool. The following screen will appear:

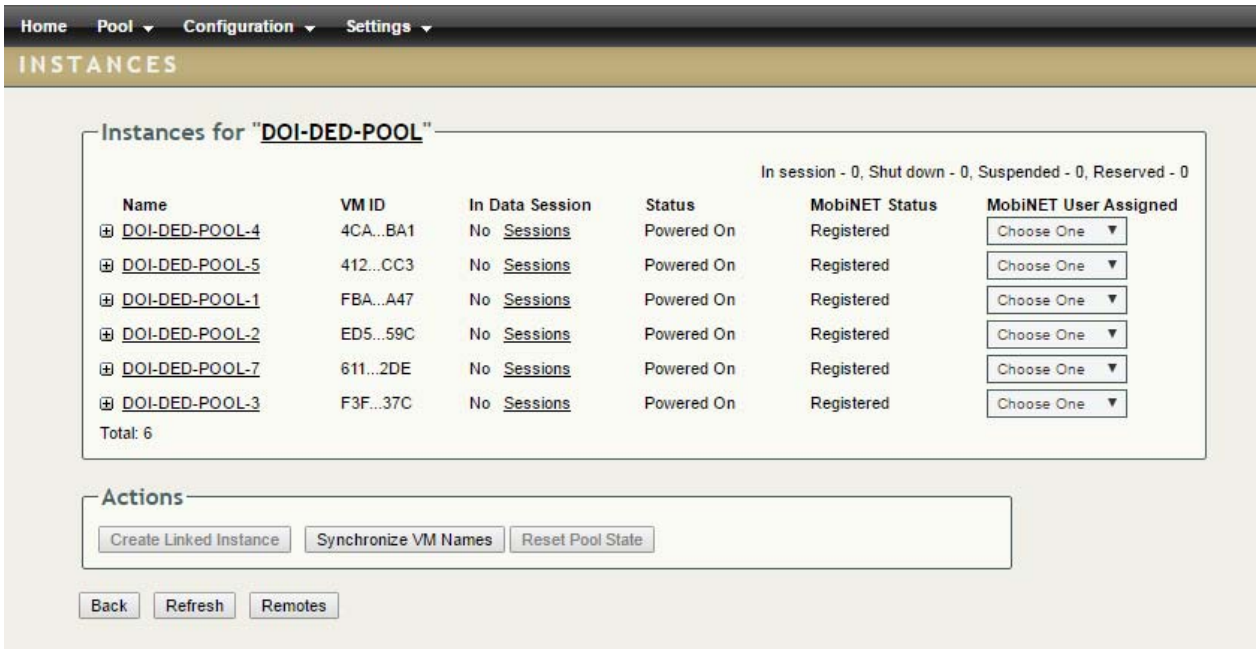


Click the **"Accept All Certificates"** button. When prompted, enter the ER Admin credentials that were provided to you by Route1 (the same credentials that were used when uploading the .csv file).

After the certificates have been accepted, the Remotes page for this Pool will show the **Remote ID** and **Username** for all of the Remotes that were associated with this Pool.

Alternatively, you may set the Pool to **"Automatically Accept Remotes"**. This will pair every Remote without the need to manually accept them each time you upload a .csv using EnterpriseLIVE Registration. For this approach, you will need to generate and save the domain certificates during the EnterpriseLIVE Registration process. Once the domain certificates are generated, return to the ELVO-AT Remotes page and click on **"Set Domain"**. This will allow you to browse to the location of your saved domain certificates and upload the zip file. You will receive a confirmation message once completed. Proceed to check the box **"Automatically Accept Remotes"** to complete the process. Final confirmation will be received stating **"Automatic Acceptance of Remotes"** is enabled for pool **"POOLNAME"**.

From the Pools list, click the **"Instances"** link (in the far right column) for your Pool. From here you can assign MobiNET Users to individual instances for Dedicated Pools. An assigned user will only be able to connect to the instance they are assigned to. Click on the **"MobiNET User Assigned"** dropdown menu to select a MobiNET User you wish to be able to connect to that instance.



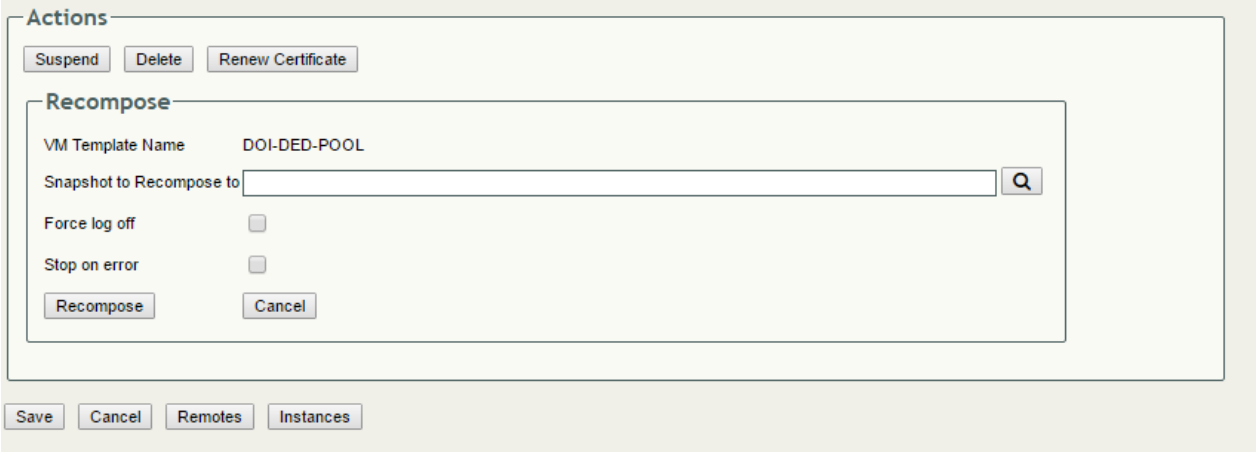
Step 8 – Recompose

The Recompose feature allows for you to update the Template VM and push that update onto all instances within the Pool.

In the **"Edit Pool"** details page in the Actions window there is the **"Recompose"** feature. If a change to the template vm for the pool has been made and the template is powered off. If you select the **"Recompose"** option, click the **"Magnifying Glass"** for the **"Snapshot to Recompose to"** field, once it is done searching VMware Horizon server a dropdown menu will appear with all snapshot options associated with that vm template. Select the snapshot you wish to update the other instances in the pool to and select if you want to **"Force log off"** or **"Stop on error"**. Once you run the recompose feature you can monitor it on VMware Horizon administration web portal.

Force log off – any users logged into a data session will be forcibly logged out of the data session so the recompose feature can run on that instance.

Stop on error - if the recompose feature comes across an error while updating the instances the process will terminate so further errors don't occur.



Settings and Configurations

Pool Settings

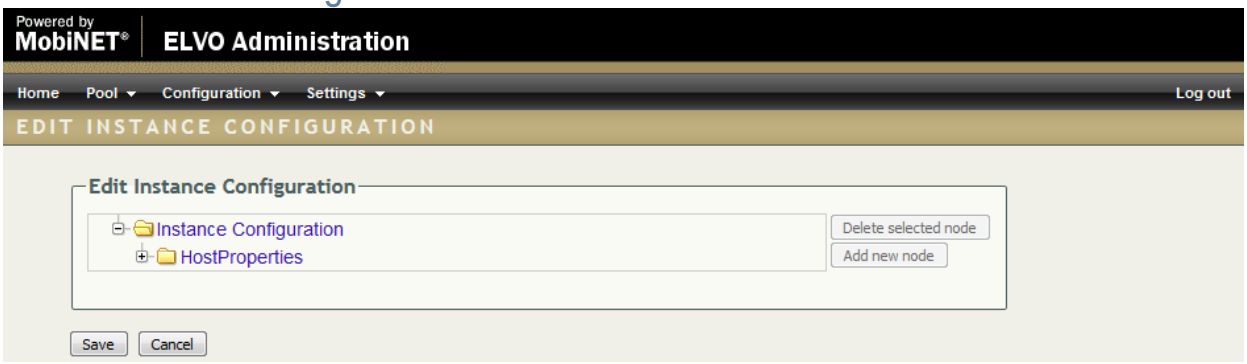
Edit Instance Configuration – the user is able to create new nodes, delete selected nodes and make changes on certain nodes within the Instance Configuration, if permitted

Suspend/Resume – suspends/activates the services for the selected Pool
Delete – deletes the selected Pool
Renew Certificate – Renews the Pool certificate. Please contact Route1 for your ticket number

Save – saves any changes made to the Pool information

Cancel – cancels all changes made and returns to the Home page
Remotes – directs the user to the list of Remotes for the current Pool
Instances – directs the user to the list of Instances for the current Pool

Edit Instance Configuration

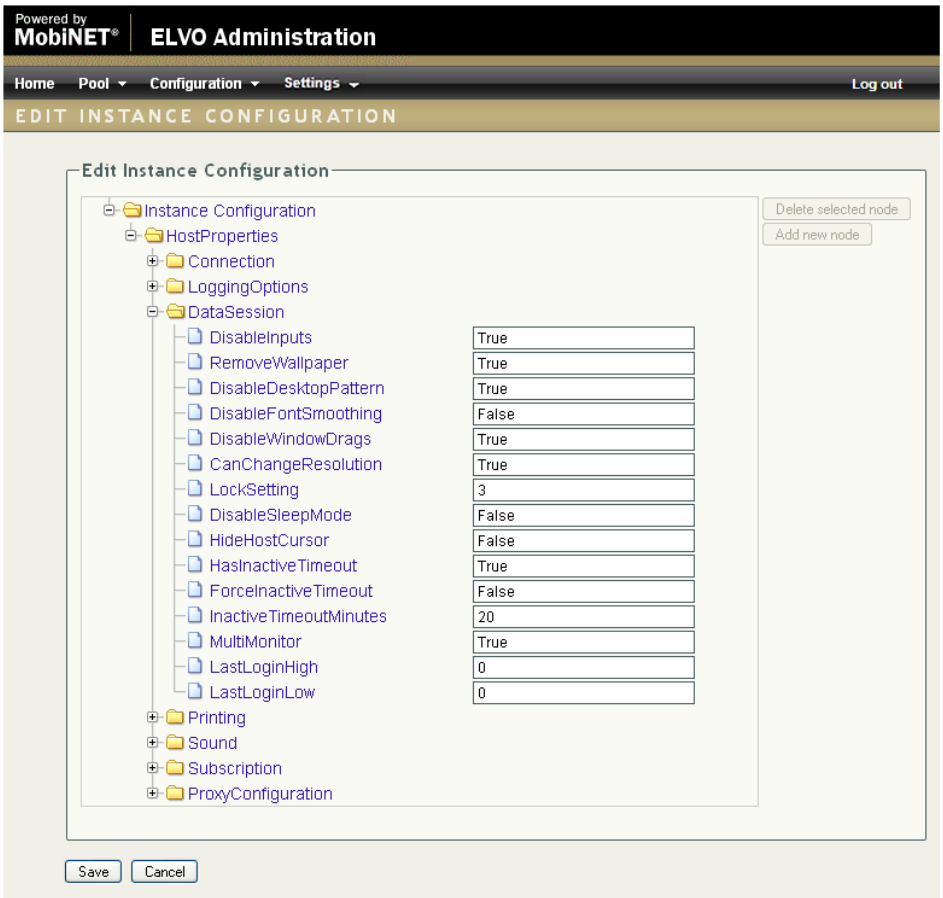


Delete selected node – deletes the selected node from the Instance Configuration
Add new node – adds a new node to the current configuration under the selected root

Save – saves any changes made to the Instance Configuration
Cancel – returns the user back to the list of Pools.

The **HostProperties** node contains a number of sub-nodes each of which contain configuration values.

The **DataSession** subfolder:

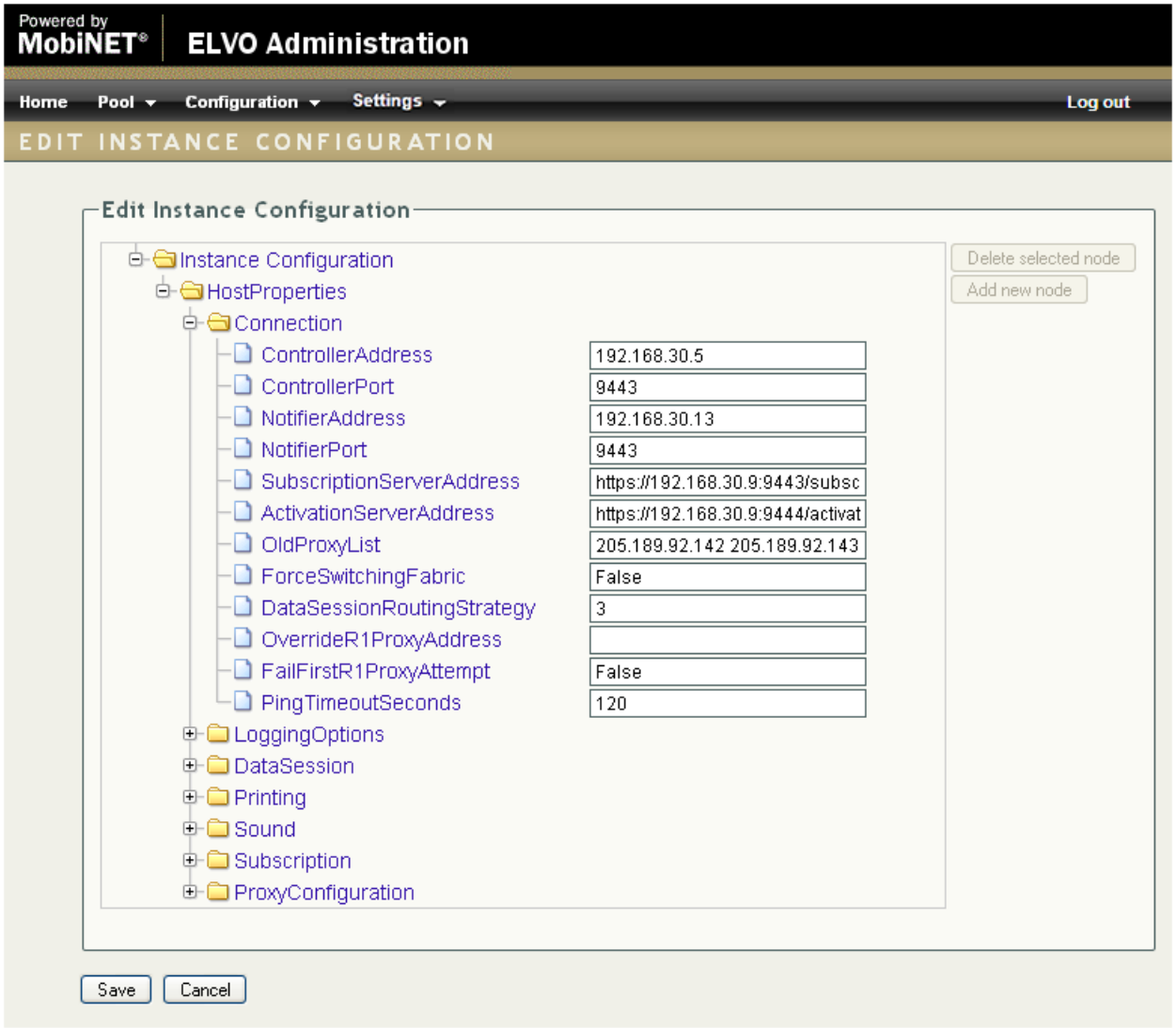


DisableInputs – disables the local monitor, mouse, keyboard and speakers (attached to your physical
Host) during a MobiKEY session
LockSetting – a numerical value indicating the action to be taken by the Host Instance when a data session ends:

0 = Maintain Host state (take no action)
1 = Lock the Host such that a Windows login will be required to unlock the account
3 = Force a log off of the current Windows user (unsaved data will be lost)

HasInactiveTimeout – setting this Boolean value to 'True' will instruct the Host Instance to exit the MobiKEY session after a period of inactivity indicated by *InactiveTimeoutMinutes*
InactiveTimeoutMinutes – the number of minutes after which an inactive data session will automatically be terminated by the Host Instance

The **Connection** subfolder:



DataSessionRoutingStrategy – a numerical value indicating the network connection routing between the Host Instance and Remote Asset connecting to that Instance:

0 = Always attempt a direct connection
1 = Automatic – allow MobiNET to determine the optimal connection
2 = Always use the MobiNET Switching Array
3 = Always use the MobiNET Switching Array in encapsulated mode

Configuring Instances

From the **"HOME"** screen, you can manage Instances that are currently associated with a Pool or create new Instances for a Pool by clicking the **"Instances"** link for the appropriate Pool record. Once the link is clicked, the following screen appears:

*Some of these options will be slightly different and available depending on the type of pool you have created. In the screenshot above a **"Regular"** Pool was used that has the **"Dynamic Growth"** option enabled.

Power On/Off – instance Status changes to Powered On/Off accordingly

Create Full Instance – creates an independent but identical copy of the template virtual

machine specified when creating the selected Pool. The ongoing operation of a Full Instance is entirely separate from its parent (template virtual machine). In Dynamic Pools, this feature will not be selectable

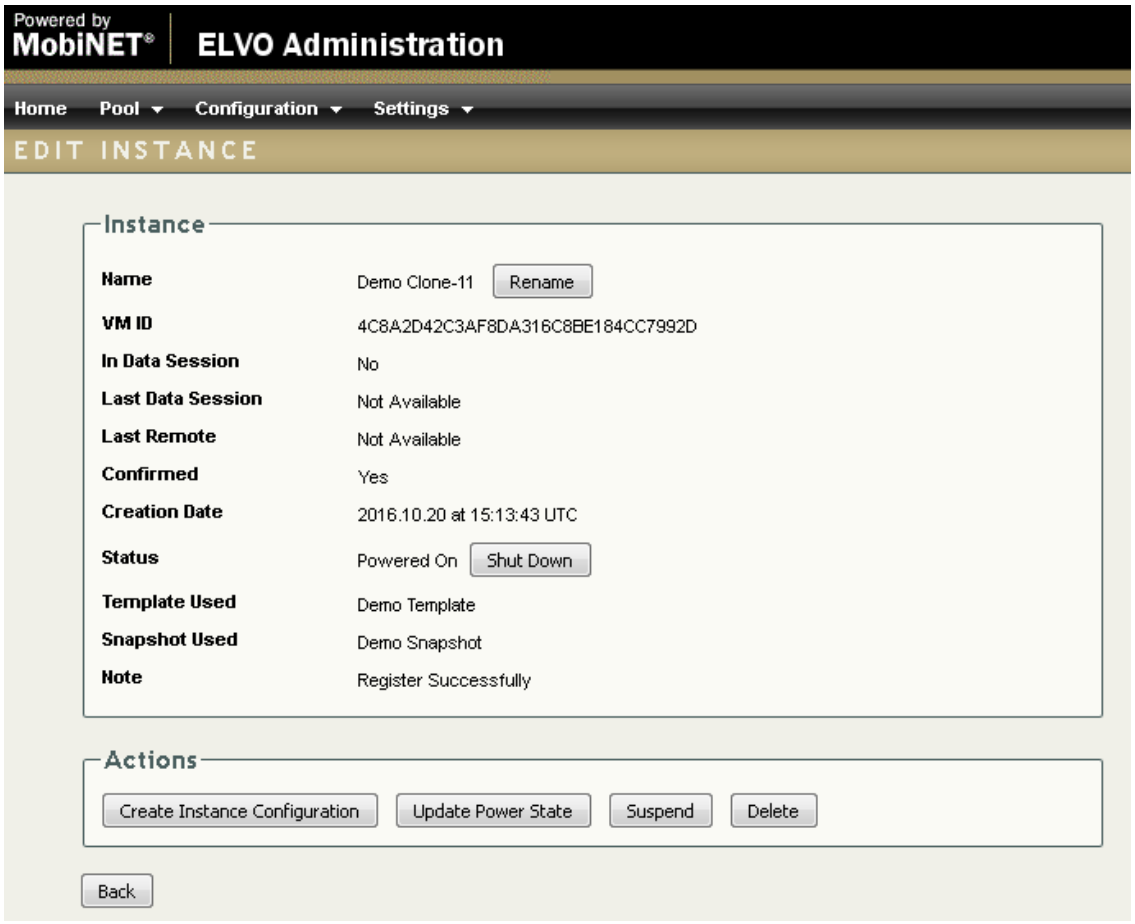
Create Linked Instance – creates a new Instance based on the snapshot of the template virtual machine. This Instance shares the virtual disks of its parent (template virtual machine) but basically runs off of a snapshot. It is important to specify the snapshot name under Pool information to be able to create a Linked Instance. In Dynamic Pools, this feature will not be selectable

When either a Full or Linked Instance is being created, the VM Name appears with the status 'Pending Cloning'. Once created, the VM gets an ID and its status changes to 'Powered Off'. NOTE: If the Instance failed to clone, it will have a 'Pending Cloning' status, and an explanation of the problem will appear in the 'Note' field, which becomes visible once the Instance record is expanded when the user clicks the **'+'** button next to the Instance Name (an expanded record is shown below). The **"Delete"** button enables the user to remove Instances which are no longer needed from the list

Synchronize VM Names – VM names are synchronized with the Hypervisor

Reset Pool State – this button can be used to clean up and remove any instances that failed to clone properly. If the **"Snapshot Name"** was incorrect for example, the instances would fail to be created
Back – returns the user back to the list of Pools
Refresh – the Instances page is reloaded reflecting information changes
Remotes – directs the user to the list of Remotes for the current Pool

You may edit an Instance by clicking on the **Instance Name** in the first column. The following screen will appear:



Rename – allows this Instance to be renamed

Power On/Off – Instance Status changes to Powered On/Off accordingly

Edit Instance Configuration – navigates to the Edit Instance Configuration screen for this Instance

Update Power State – synchronize the power state with the hypervisor

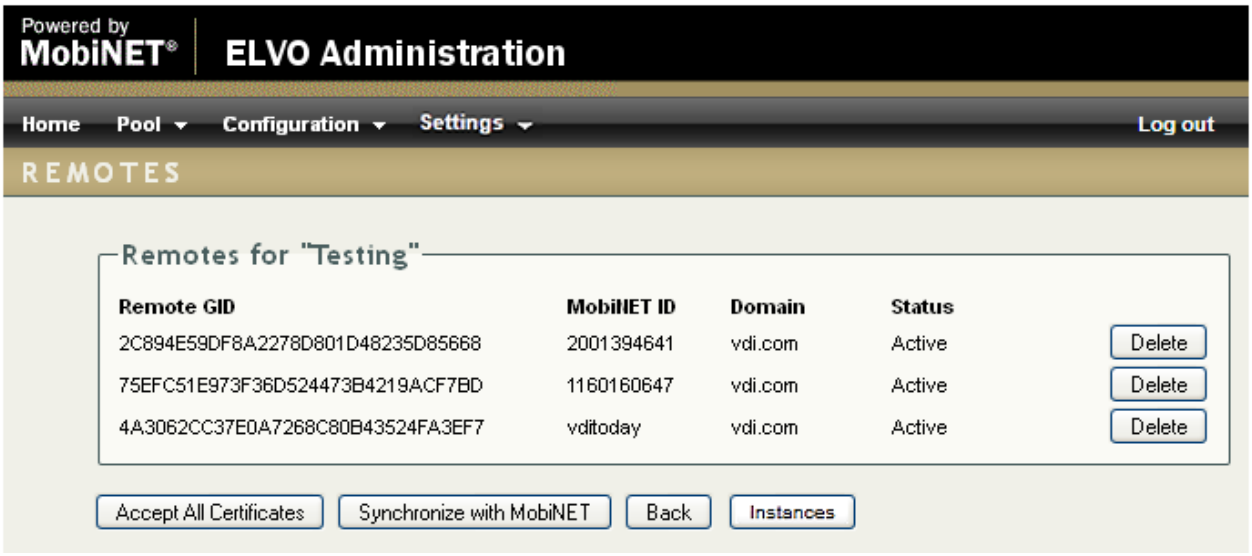
Suspend – suspends this Instance

Delete – deletes this Instance from the selected Pool and the VMware ESX Server

Back – returns the user back to the list of Instances

Configuring Remotes

From the **"Home"** screen, select the Pool in which you want to manage users (Remotes) that are currently associated with it or activate new ones. Once the **"Remotes"** link is clicked, the following screen appears:



Delete – deletes the association of the selected Remote from this Pool. If a Remote is deleted by mistake, you will need to associate the user to this Pool again, see the *EnterpriseLIVE Registration Guide*. NOTE: The same MobiNET ID can be used when restoring the association

Accept All Certificates – accepts certificates for any new Remotes in a 'pending' state and adds these Remotes to the list of Remotes associated to this Pool, displaying their GID and other relevant information (this assumes that new users have been associated to the currently selected Pool, please refer to the *EnterpriseLIVE Registration Guide* for instructions on how to create new associations). If there are no pending Remotes, a message 'No certificates were accepted' is returned

Synchronize with MobiNET – synchronizes information on Remotes currently associated to this Pool with the MobiNET database, and displays a message of successful synchronization upon completion

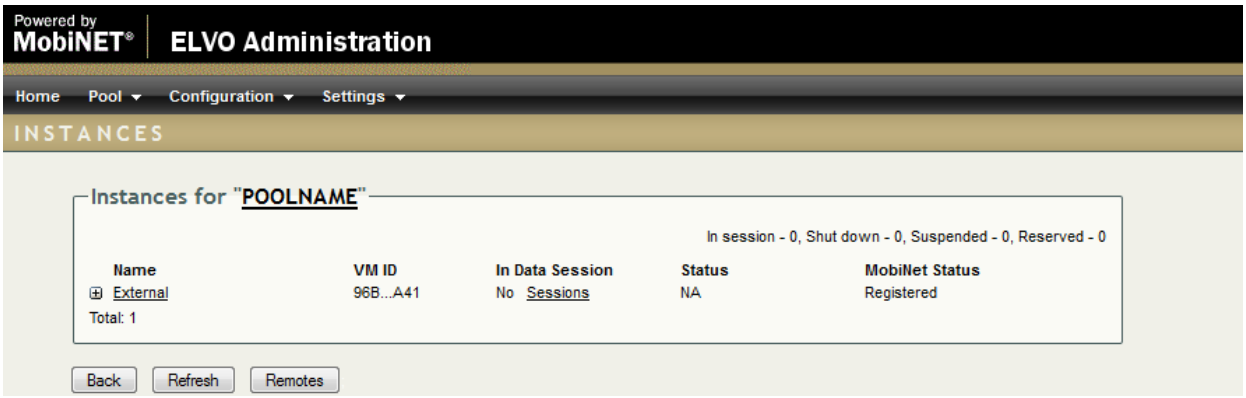
Back – returns the user back to the list of Pools

Instances – directs the user to the list of Instances for the current Pool

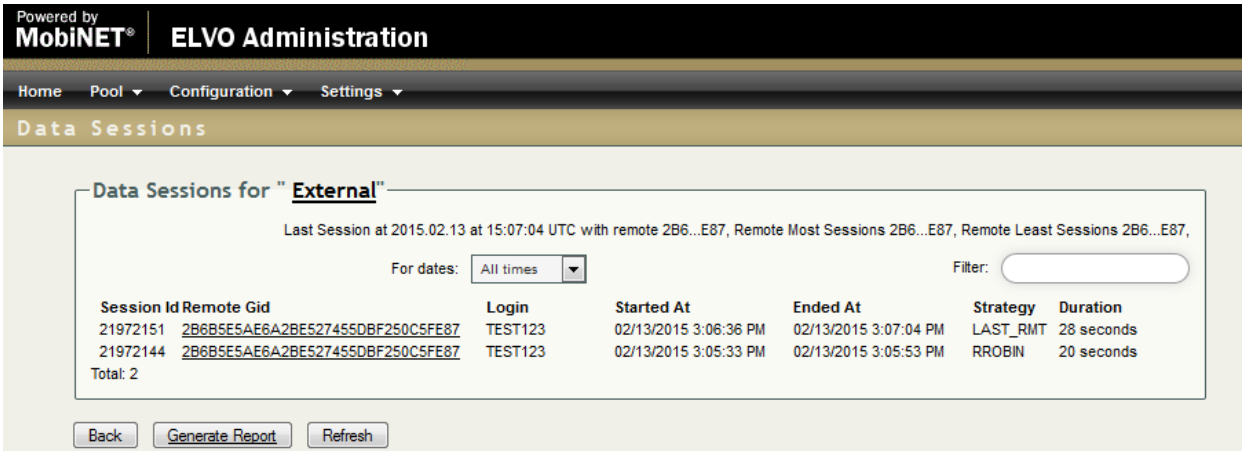
ELVO Management Tools

Reporting and Session History

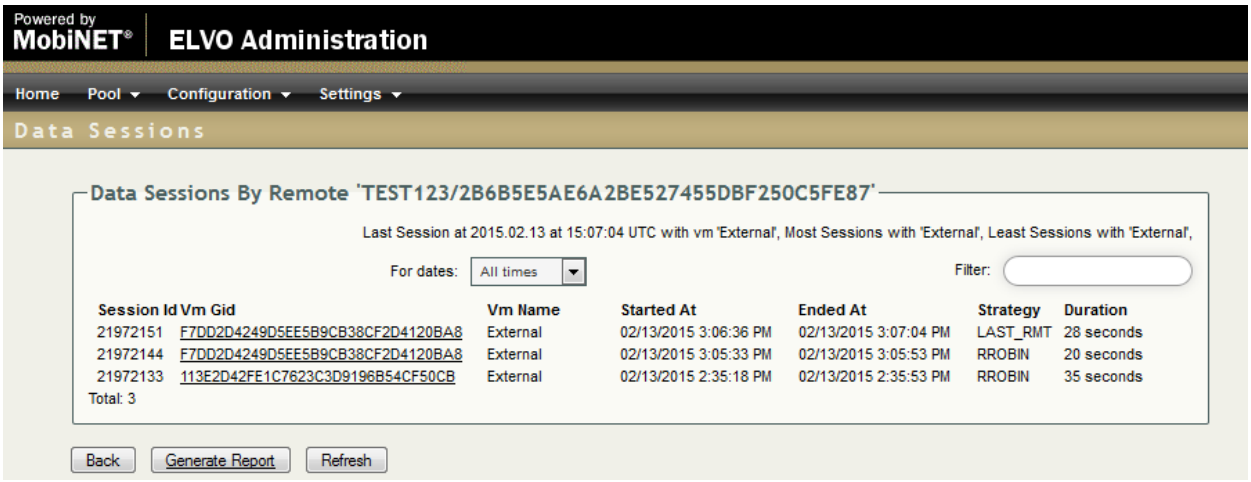
In the Instance section you will have the ability to view and run reports on the session history for each Instance and Remote connection.



Click on **"Sessions"** of an Instance to display the current history, which can be configured to display for different periods of time from the drop down menu. Additionally, you may click on the **"Reports"** button to generate a connection Report for the selected Instance.

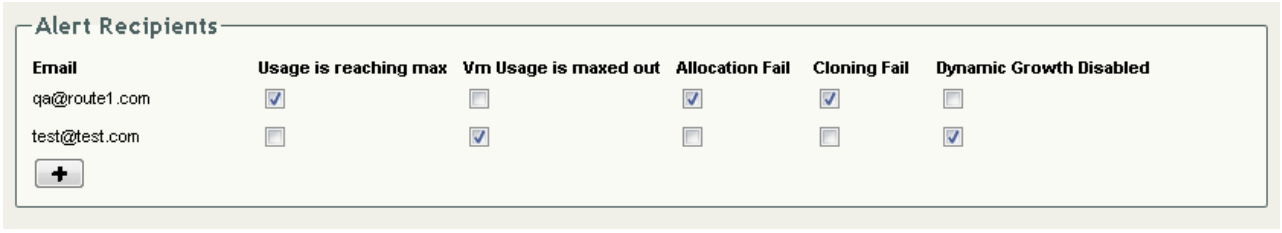


Click on the **Remote GID** to show all the Instances this particular Remote has connected to. You may toggle the time period to be displayed from the drop down menu and run a report.



Email Notification Settings

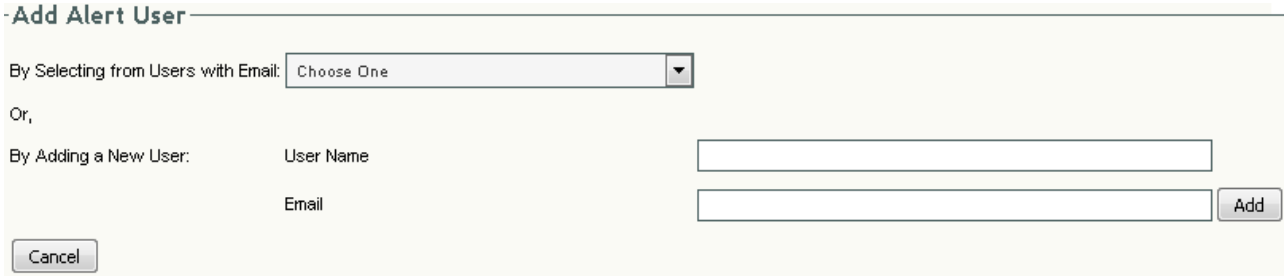
In the **"Configuration"** menu item **"Email Notification"** you will be able to add email addresses to receive alerts from the ELVO, choose what those alerts are, and who is to receive them.



Usage is reaching max – a pool has one instance left from the maximum not in use
Vm Usage is maxed out – all instances in a pool are in use and no more instances can be cloned because of the **maximum** limit set for the pool
Allocation Fail – an instance cannot be assigned to a user to connect to

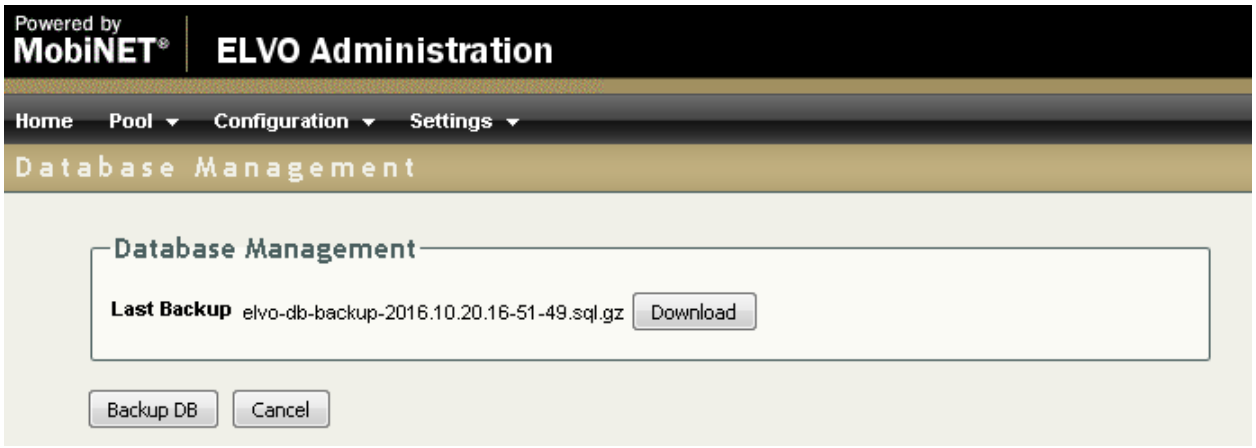
Cloning Fail – an instance fails to clone successfully
Dynamic Growth Disabled – dynamic growth option is disabled for a pool, this will happen automatically after three failed attempts to clone an instance as a failsafe to prevent further attempts from failing

Clicking the **"+"** sign will open additional options to select a user or add a new one to receive alerts.



Database Management

In the **"Configuration"** menu item **"Database Management"** you will be able to backup the EVLO database and save it locally.



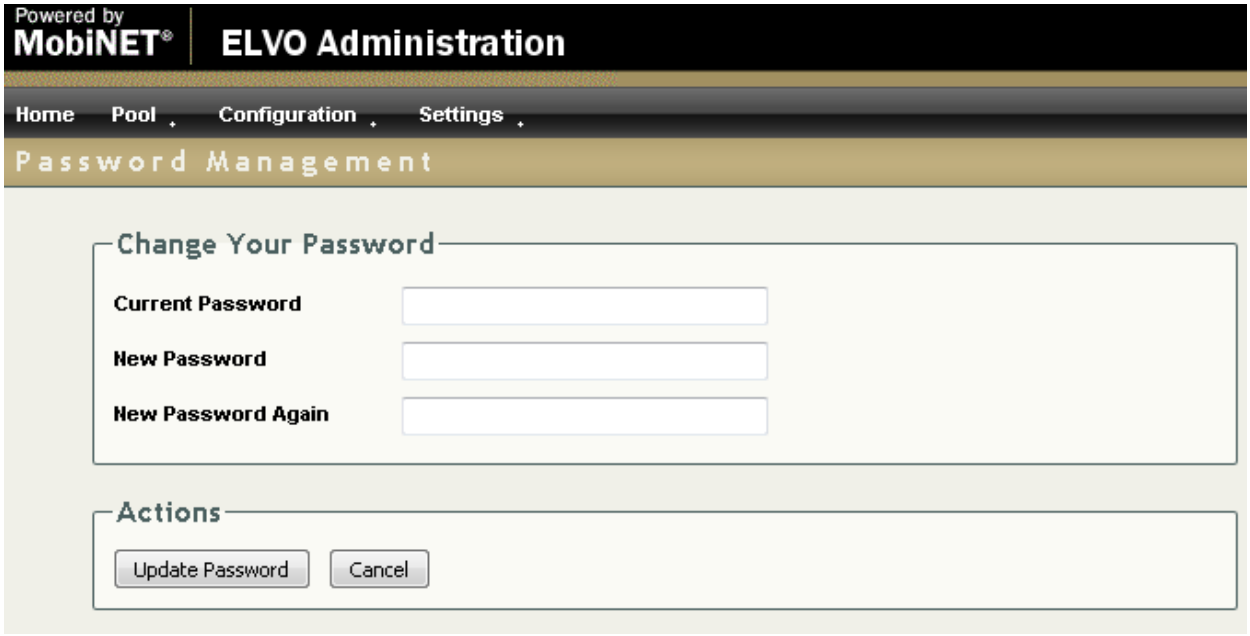
Backup DB – takes and saves a backup of the ELVO database and displays the file which includes the date at which the last backup was taken

Download – downloads the backup file so it can be saved and stored

Cancel – returns to the **Home** page

Password Management Settings

In **"Settings"** under **"Change Password"** you can change the sysadmin log in password.



Update Password – once the current password and new password have been entered (twice for the new password) the password will be updated

Cancel – returns to the **Home** page

Glossary of Terms

A

Active Directory: the database that holds information about component locations, users, groups, passwords, and security information.

Administrator: the individual or individuals responsible for the maintenance of and software that comprises a computer network. This normally includes the deployment, configuration, maintenance and monitoring of active network equipment.

Authentication: the act of establishing or confirming something (or someone) as authentic. This might involve confirming the identity of a person, the origins of an artifact, or assuring that a computer program is a trusted one.

B

Business Continuity: an activity performed by an organization to ensure that critical business functions will be available to customers, suppliers, regulators, and other entities that must have access to those functions.

C

Comma separated values (CSV) file: used for the digital storage of data structured in a table of lists form, where each associated item (member) in a group is in association with others also separated by the commas of its set. Each line in the CSV file corresponds to a row in the table. Within a line, fields are separated by commas, each field belonging to one table column. CSV files are often used for moving tabular data between two different computer programs, for example between a database program and a spreadsheet program.

Configuration: an arrangement of functional units according to their nature, number, and chief characteristics. Often, configuration pertains to the choice of hardware, software, firmware, and documentation. The configuration affects system function and performance.

D

Deployment: The assembly or transformation from a packaged form to an operational working state;
moving a product from a temporary or development state to a permanent or desired state.

E

ELVO Administration Tool (ELVO-AT): a VDI administration tool that allows administrators to register new Pools with the EnterpriseLIVE Virtualization Orchestrator (ELVO), pair MobiKEY users to Pools, and change the default settings of the MobiNET Agent software that resides in each of the Pools.

EnterpriseLIVE Registration (ER): a tool that allows IT administrators to enroll MobiKEY users in bulk and pair the MobiKEY users to any number of Host Assets. CAC and PIV user associations are device agnostic and are associated with the existing certificates on the smart card while ER generates unique License Keys for MobiKEY Classic 3 (MC3) and MobiKEY mobile application users. The user simply needs to enter that License Key or insert their smart card to finalize their registration.

EnterpriseLIVE Virtualization Orchestrator (ELVO): an enterprise class VDI session management server that enables IT departments to seamlessly integrate a unified secure desktop consolidation strategy within their corporate datacenters.

H

Hardware: the physical artefacts of a technology. It may also mean the physical components of a computer system, in the form of computer hardware.

Host Asset: "Host Asset" or "Host" shall mean the Asset that has the MobiNET Agent software

installed on it. The Host may be a single host computer system, a series of host computer systems, a virtual computer or machine, a network, a server based system or any other host system on which the MobiNET Agent software is running.

Hypervisor: a program that allows multiple operating systems to share a single hardware host. Each operating system appears to have the host's processor, memory, and other resources all to itself. However, the hypervisor is actually controlling the host processor and resources by allocating what is needed to each operating system in turn and making sure that the Remote Asset operating systems (called virtual machines) cannot disrupt each other.

M

MobiKEY Application Software: A subscription-based service that enables users to access digital resources from anywhere at any time.

MobiKEY Device: MobiKEY technology's patented enabling device. Built on portable USB or smart card hardware for multi-factor authentication.

MobiNET: Route1's universal identity management system and service delivery platform.

MobiNET Agent Software: Software deployed on the device being accessed (the "Host Asset" or "Host") when users are remote.

MobiNET ID: The unique ID that has been created for the associated user.

N

Network topology: is the study of the arrangement or mapping of the elements (links, nodes, etc.) of a network, especially the physical (real) and logical (virtual) interconnections between nodes.

O

Operating system (Abbr. OS or O/S): an interface between hardware and user; it is responsible for the management and coordination of activities and the sharing of the resources of the computer.

P

Password: a secret word or string of characters that is used for authentication, to prove identity or gain access to a resource (example: an access code is a type of password). The password should be kept secret from those not allowed access.

Ports: applications running on TCP/IP open connections to other computers using something called ports. Ports allow multiple applications to reside on a single computer - all talking TCP/IP.

R

Remote Asset: shall mean the internet-enabled asset that is accessing a Host using the MobiKEY technology.

Routing: the act of moving information across a network, from a source to a destination.

S

Session: a semi-permanent interactive information interchange, also known as a dialogue, a conversation or a meeting, between two or more communicating devices, or between a computer and user.

Software: a collection of computer programs, procedures and documentation that perform some tasks on a computer system.

Secure Sockets Layer (SSL): cryptographic protocols for internet secure communications

V

VDI (Virtual Desktop Infrastructure): an overall desktop virtualization network topology solution.

Virtualization: a technique used to implement an environment that provides a complete simulation of the underlying hardware. The result is a system in which all software capable of execution on the raw hardware can be run in the virtual machine.

Virtual Machines: a software implementation of a machine (computer) that executes programs like a physical machine.

W

Windows: a series of software operating systems and graphical user interfaces produced by Microsoft®.