ITAS 267
Project 1

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Objective

This document will cover completion of ITAS 267 Project 1. This project includes setting up 2 VMware Replication Appliances. It also includes creating an infrastructure of 2 ESXi instances, 2 vCenter instances, as well as creating a domain with 2 domain controllers, and a failover cluster file server cluster.

Demonstration Video

Here is the link to the demonstration video, showcasing the entire setup.

Setting up The Infrastructure

This section documents the networking setup and machines required to complete all requirements. Below is the network diagram outlining the setup. I will give more details as we go farther in depth to my setup.

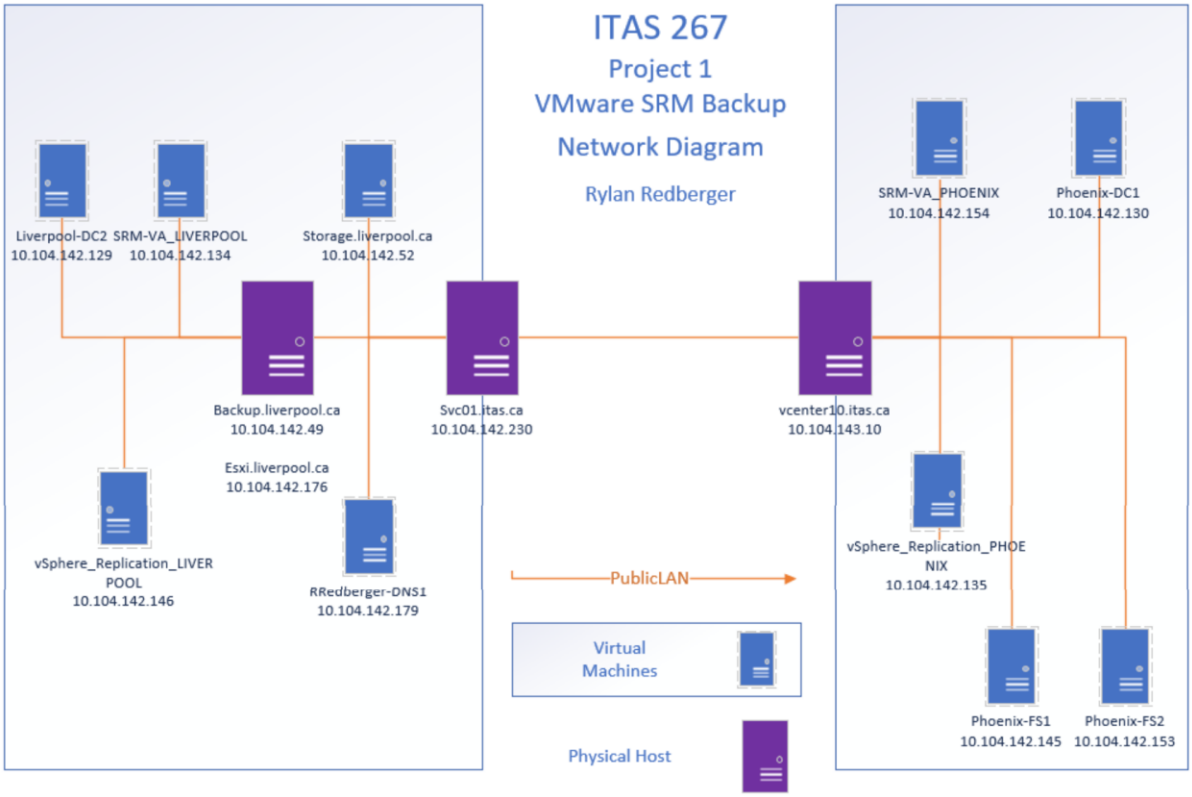

Figure 1 Network Diagram

IP Table

Host Name	IP Address
Liverpool-DC2	10.104.142.129
Srm.liverpool.ca	10.104.142.134
Srm.phoenix.ca	10.104.142.154
Replication.phoenix.ca	10.104.142.135
Replication.liverpool.ca	10.104.142.146
RRedberger-DNS1	10.104.142.179
Phoenix-DC1	10.104.142.130
Phoenix-FS1	10.104.142.145
Phoenix-FS2	10.104.142.153
Vcenter10.itas.ca	10.104.143.10
Backup.liverpool.ca	10.104.142.49
Esxi.liverpool.ca	10.104.142.176

To start, we need 2 ESXi hosts to replicate VMs between. In this case, I have my tower *vcenter10.itas.ca* and I am replicating over *PublicLAN* to the *backup.liverpool.ca* which is hosted on *svc01.itas.ca.* With this basic configuration complete, all of the problems must be addressed. First, everything is only able to be completed with DHCP, as I am operating on the *PublicLAN*. This is not a problem unless the IPs change. If this were too happen, a singular place to reconfigure the new IP address is ideal. This is solved by a DNS server, and using DNS to manage all hosts. Above, you can see the DNS server located on *svc01.itas.ca.* Below is a screenshot of all the records that the DNS server provides.

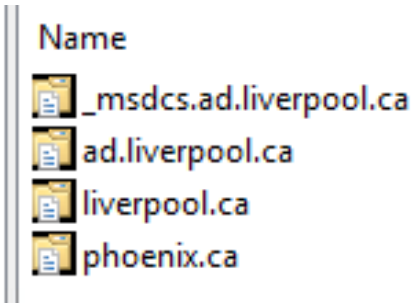

Figure 2 DNS domains

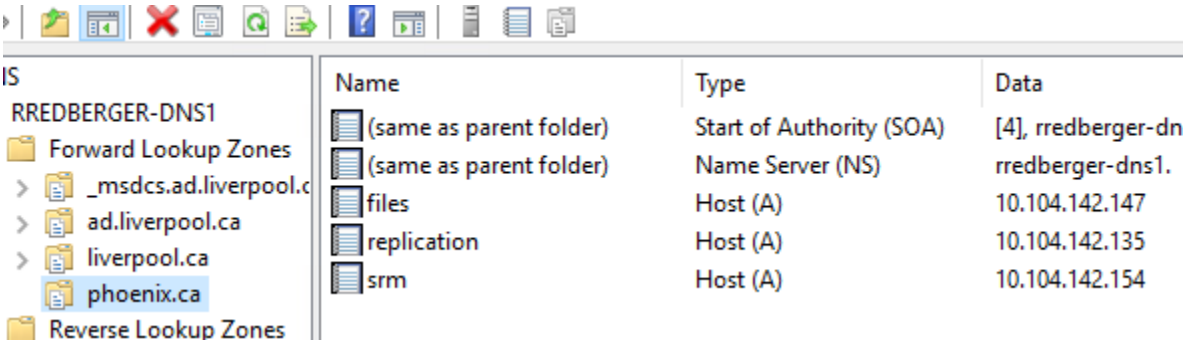

Figure 3 Phoenix.ca DNS entries

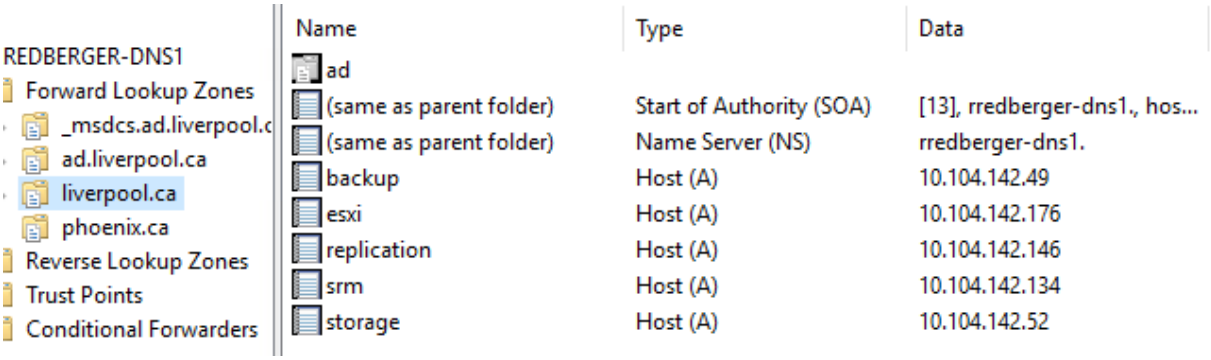

Figure 4 Liverpool.ca DNS entries

As you might have noticed, I also used this DNS server to be a Domain Controller to allow SSO logon into the Liverpool vCenter server.

Each ESXi host has vCenter installed on top, as well as an SRM VM, and a Replication VM. This setup was most of the project, but the next section of documentation will cover setting up and deploying both replication VMs.

Deploying Replication VMs

After downloading the OVF templates, I could begin deployment in vCenter.

Figure 5 Deploy OVF Template

Next I simply selected the required OVF files.

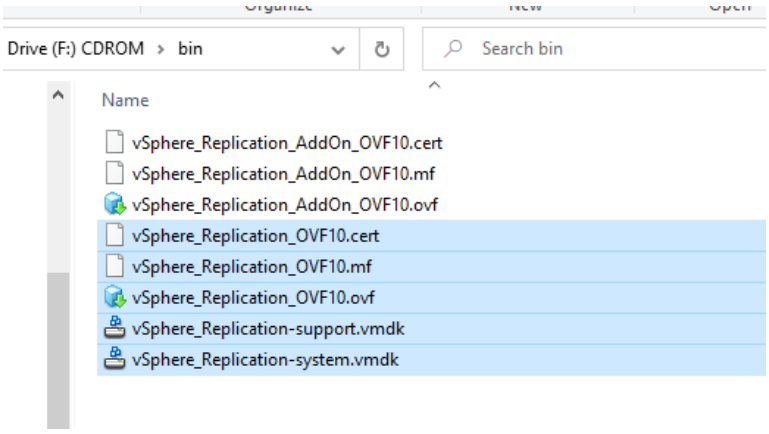

Figure 6 OVF files selection

After agreeing to the license, I could choose how many vCPUs to deploy.

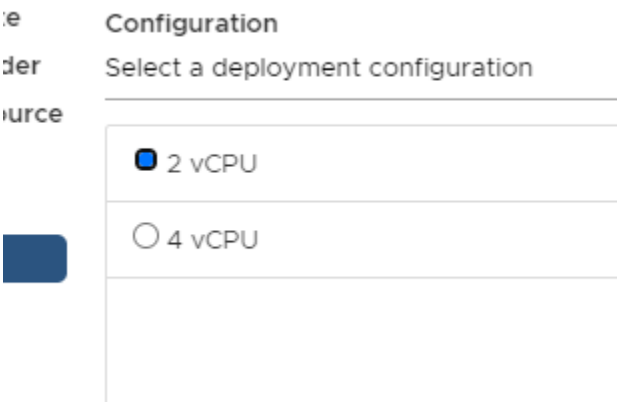

Figure 7 2vCPU selection

I then selected the datastore, as well as the destination network. To finish deployment, I set all the passwords on the final page, and let the VM deploy.

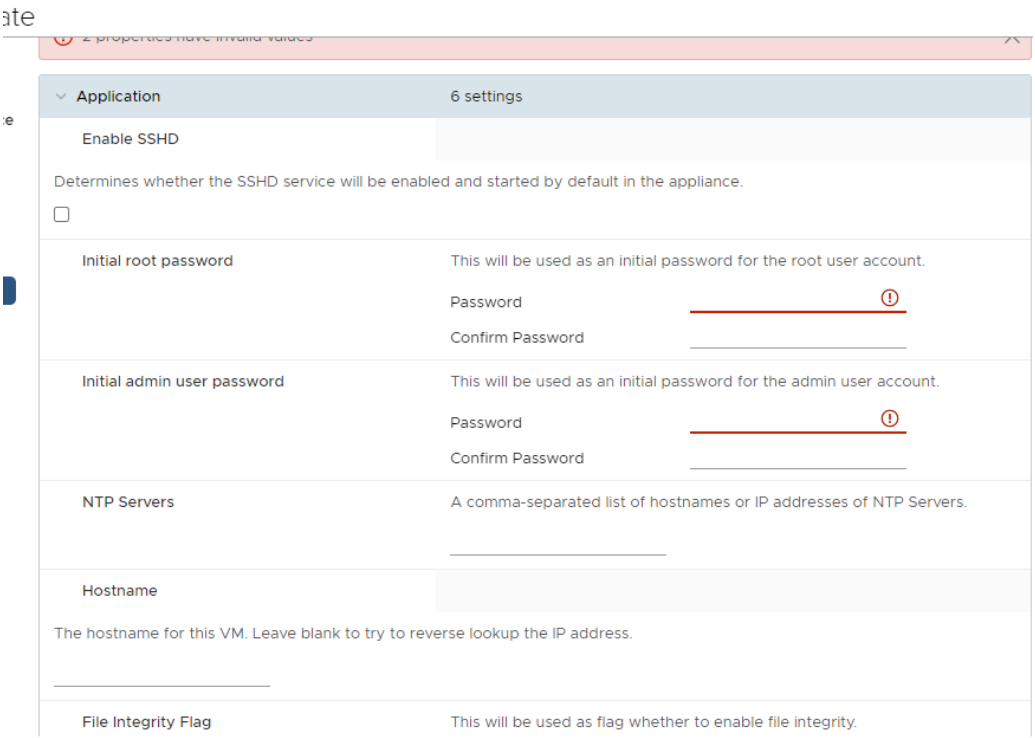

Figure 8 Passwords input

All the deployments are very similar, and since I am using DHCP I was able to get IP's without statically setting them. Now all I needed to do is create DNS entries as well as point the applications to the DNS server manually.

Configuring the Replication VMs

This section covers configuration of the replication appliances, including creating a site pair, creating protection groups, and recovery plans.

Creating a Site Pair

To start with creating a site pair, simply click the *New Site Pair* option.

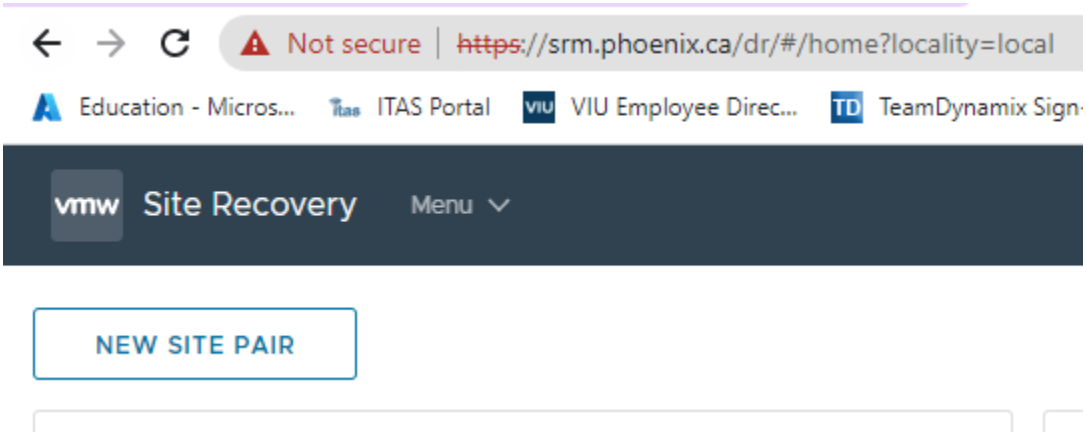

Figure 9 New Site Pair button

Leave the pair type at the default and input the hostname as well as the logon password and username.

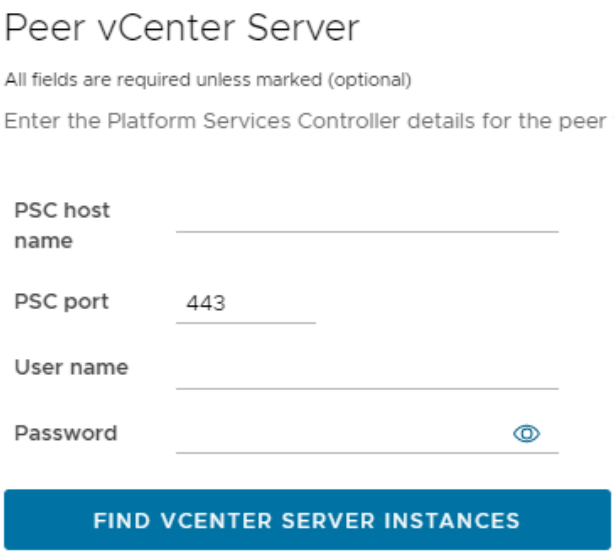

Figure 10 Find vCenter Server Instances

Click through the installer and select both the replication services. Finally, complete the installer and click on details on the site pair.

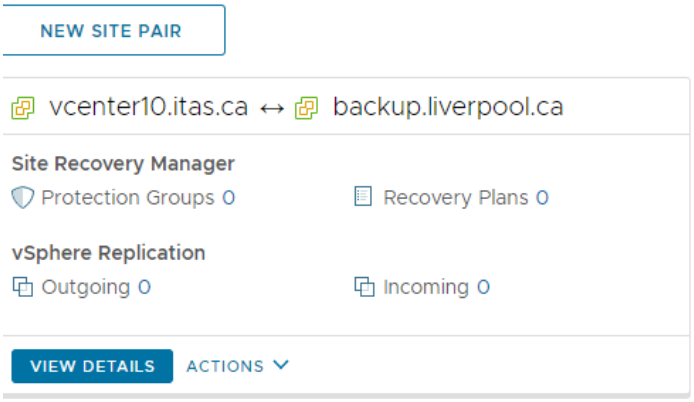

Figure 11 Site pair completed

In this management interface, replications as well as protection groups and recovery plans can be created.

Creating Replications

To create replications simply navigate to the replications tab and create a new outgoing replication by using the outgoing tab and clicking new.

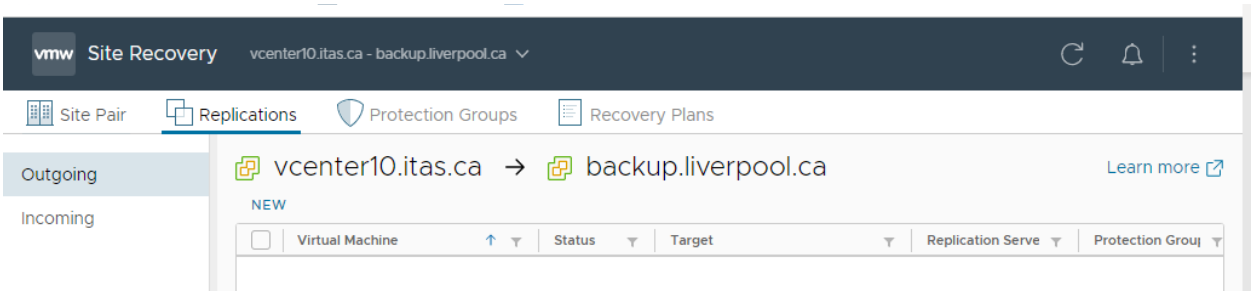

Figure 12 Replications tab

Next, select the target replication server.

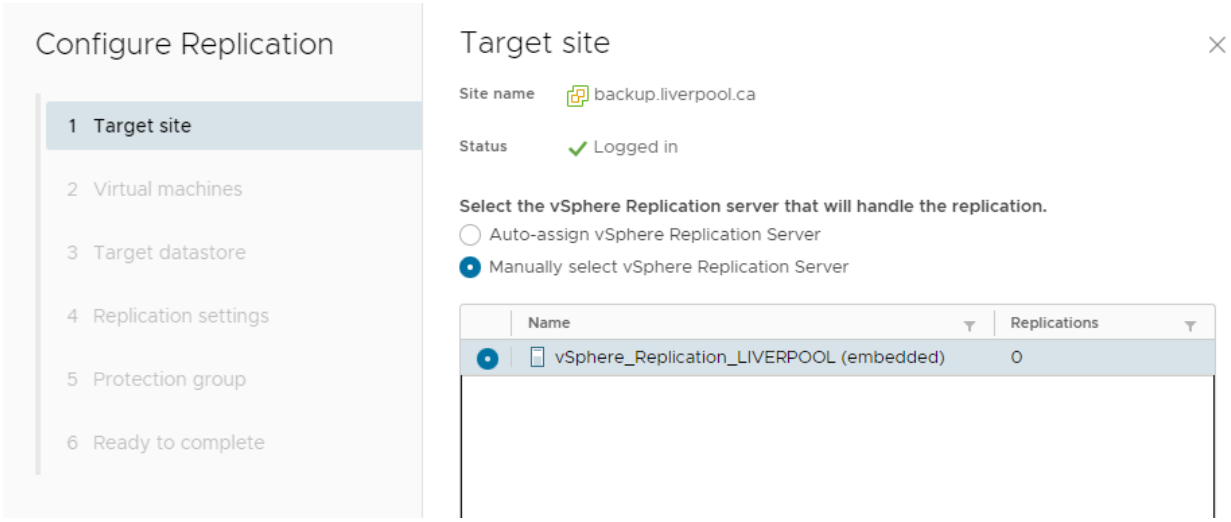

Figure 13 Target site

Choose the VMs you would like to replicate over to the secondary site.

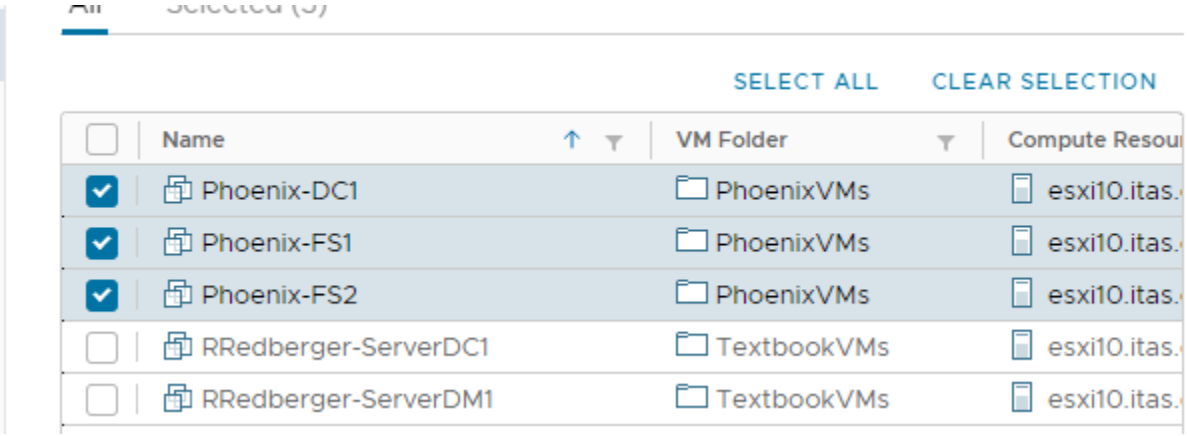

Figure 14 Replication VM selection

Select the target datastore.

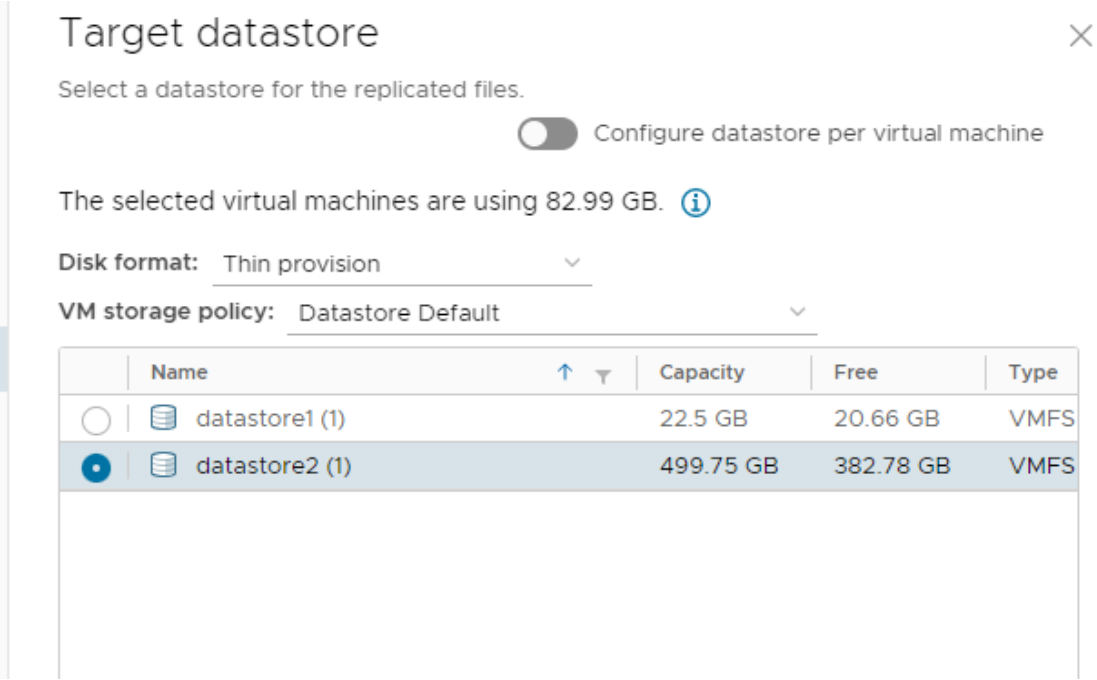

Figure 15 Choose target datastore

Select the replication settings that are required. In my case I chose to replicate every hour and **Enable Guest OS Quiescing.**

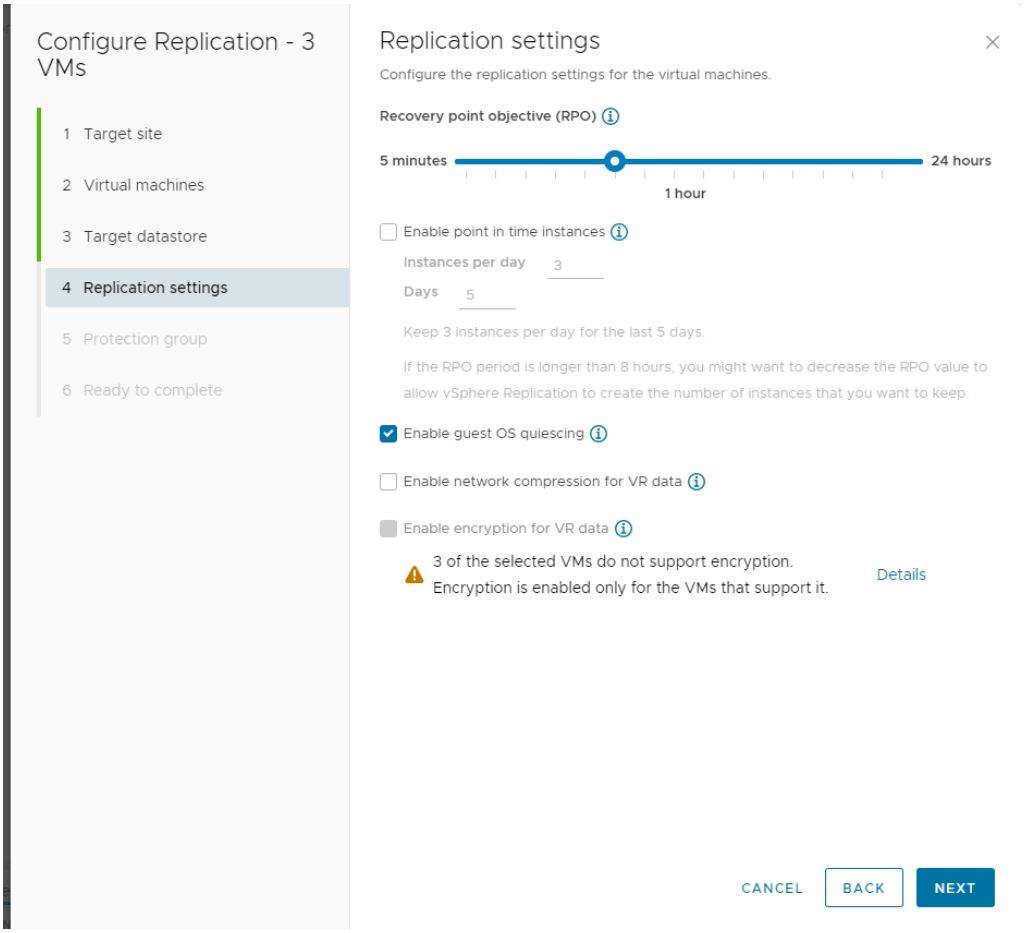

Figure 16 Set replication settings

Next, I added a new Protection Group and named it PhoenixOutProtection. On the next page, I created a Recovery Group named PhoenixRecovery.

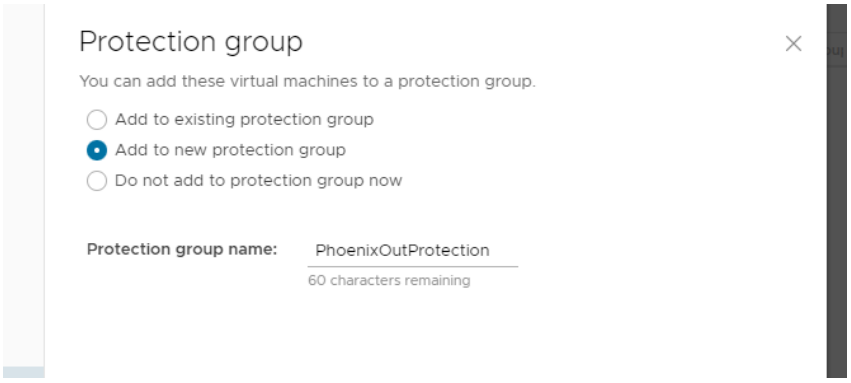

Figure 17 Protection group creation

Next, I assigned all the missing mappings for network, folder, and resources.

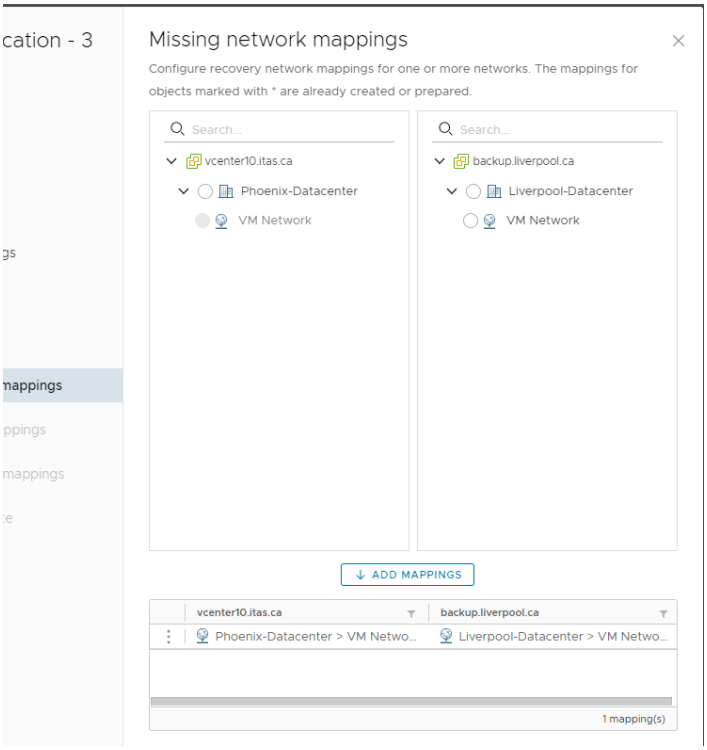

Figure 18 Network mappings

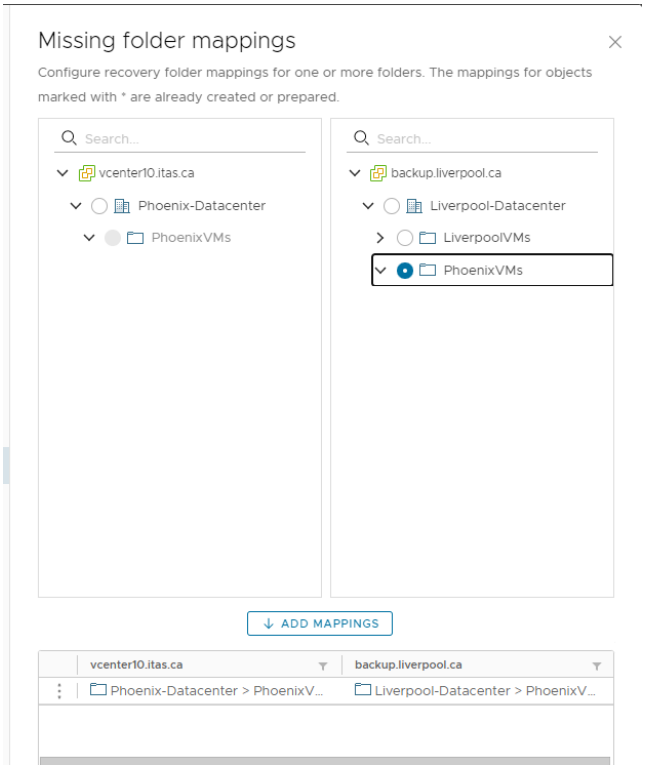

Figure 19 Folder mappings

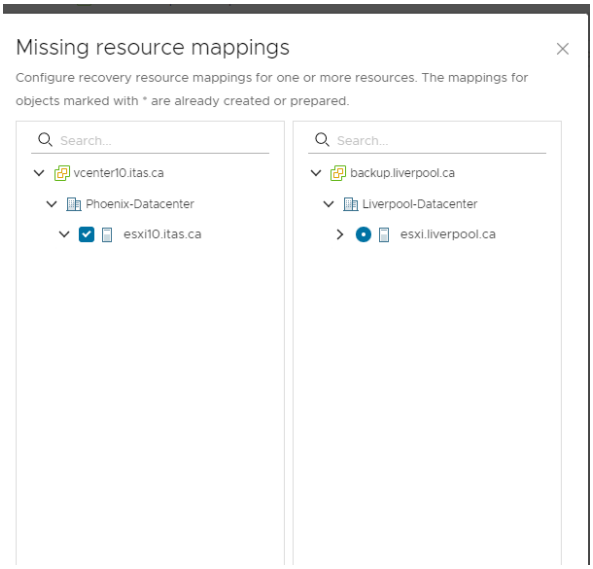

Figure 20 Resource mappings

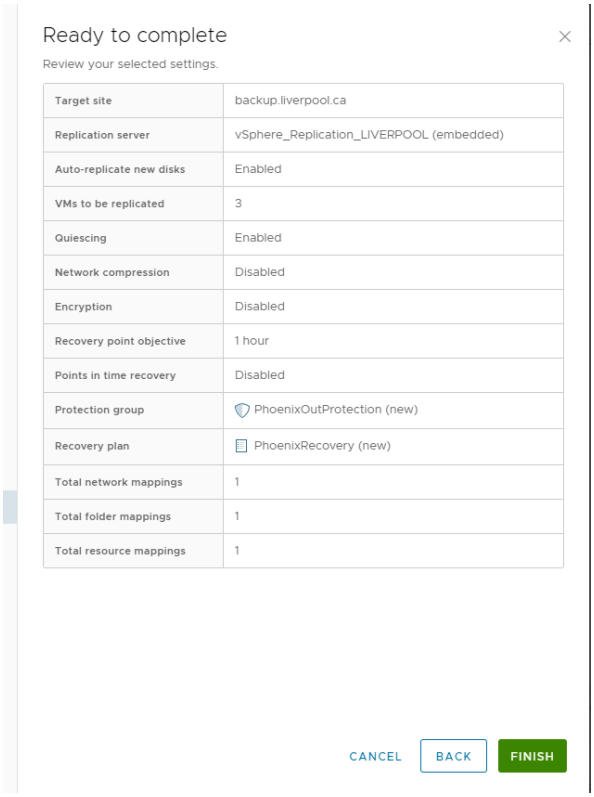

Figure 21 Completion

After completing the steps outlined above you will see your replicated VMs being synced.

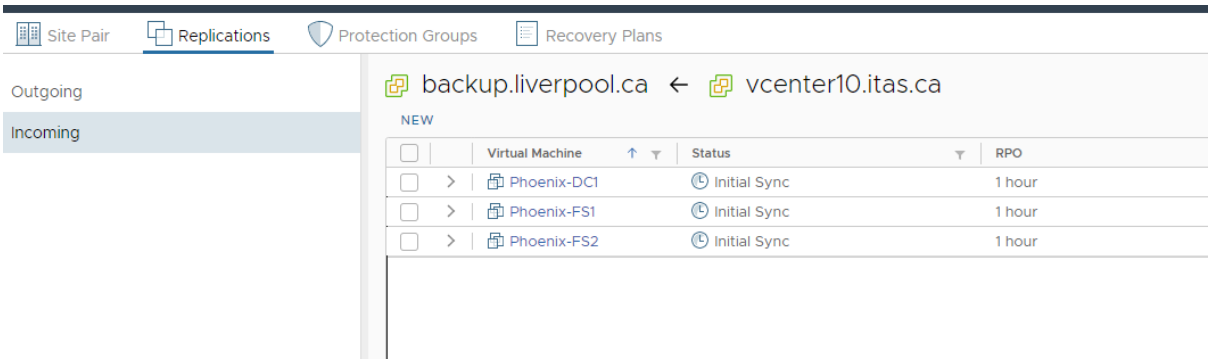

Figure 22 VMs being replicated

These VMs will be synced after some time. As you may have noticed the protection group, and recovery plan was created in the same installer and can be seen in their respective tabs.

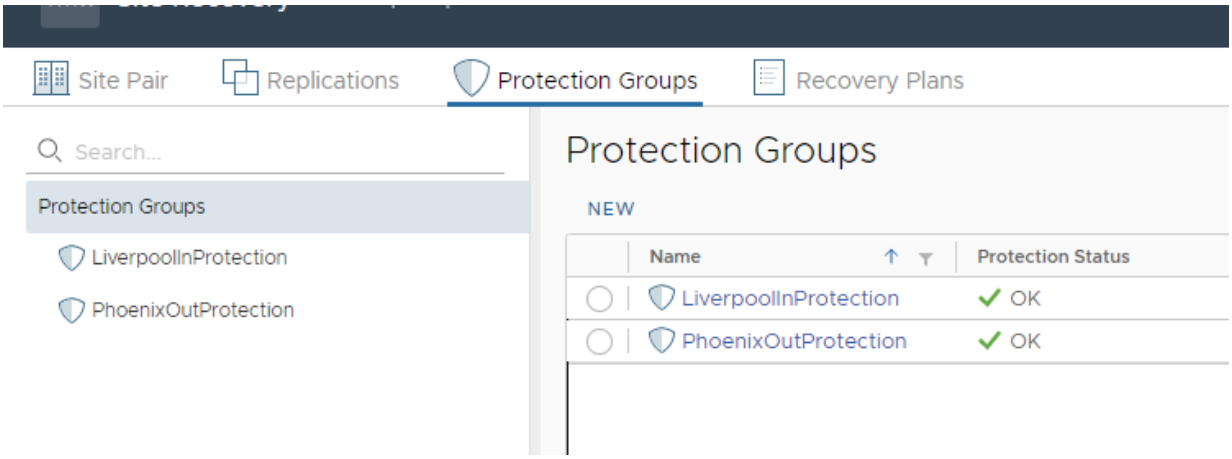

Figure 23 Protection groups created

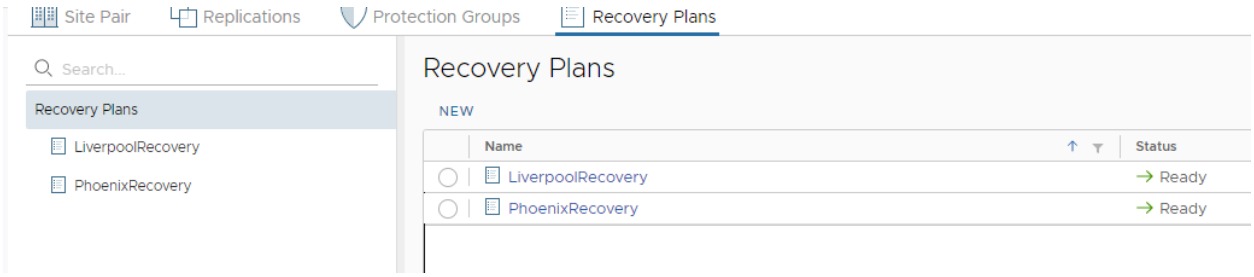

Figure 24 Recovery plans created

Your replications are now in progress and should happen hourly. At the top of this document is the video demonstration showing the whole system working.

Summary

This document covered deploying and configuring VMware SRM, and VRMS. These tools allow VMs to be replicated across vCenter servers. Once the initial infrastructure was set up the VMware Appliances deployed quickly and were easy to set up and configure. This project taught me about replication using VMware tools.