

Horizon DaaS Platform 6.1 Service Provider Installation - vCenter

This guide provides information on how to install and configure the DaaS platform Service Provider appliances using vCenter discovery of the management compute resources.

Revision History

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09/03/2014	1.0	Initial release
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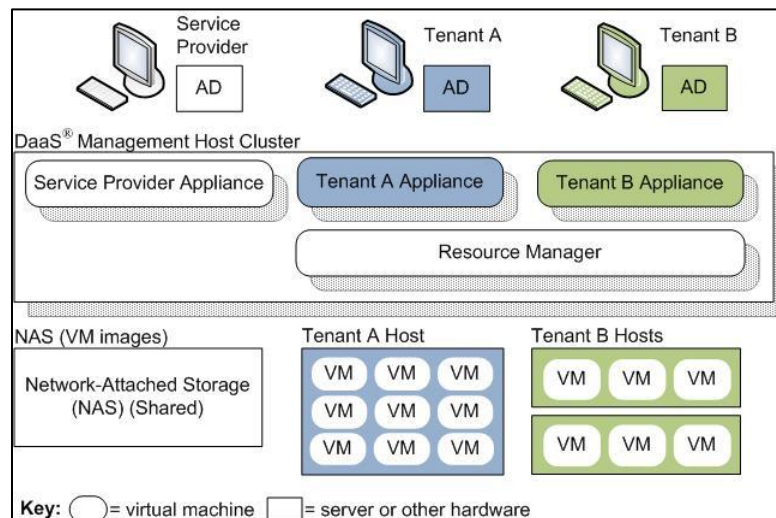
1 Overview

This guide provides you with information on how to install and configure the DaaS platform 6.1 Service Provider appliances using vCenter discovery of the management compute resources.

In this installation, you complete the following:

1. Install the first Service Provider appliance¹ in the first datacenter.
2. Bootstrap the Service Provider appliance. Once bootstrapped, the Service Provider Appliance provides the foundation to install the remainder of the DaaS application.
3. Start the Service Center on the DaaS Management Appliance and configure the Service Provider environment. Create a second Service Provider appliance for high availability (HA).

The Service Center provides a web-based UI for managing data center resources (hosts, storage, and the DaaS management appliances). You also use the Service Center to manage tenant contracts, configure tenant appliances and networks, and create and assign roles and permissions.



¹ A DaaS appliance is a virtual machine combined with a functional unit of software in the DaaS platform. The Service provider appliance provides two types of access to the system: via the Service Center web based UI; as a transit point for enabling ssh access to all the management appliances in the data center.

2 Service Provider Prerequisites

Before you can install the DaaS platform, you first need to complete the tasks listed in this chapter. Contact your customer service representative for help with any of these prerequisites. You will also need the Service Provider Installation Worksheet and Platform Install Checklist found in the DaaS Blueprint to help organize and collect all the information needed to complete the install.

The supported combinations for managing your management appliances and tenant desktops using VMware vCenter hypervisor management software are the following:

Table 2–1 vCenter used as Hypervisor Manager

	ESXi 5.0	ESXi 5.1	ESXi 5.5**
vCenter v 5.1	Supported	Supported	NA
vCenter v 5.5*	NA	Supported	Supported

* vCenter Server 5.5U1b only

** ESXi 5.5.0 U1 EP04 only

1. Build the network infrastructure required to support multi-tenancy, typically accomplished with:
 - VLAN tagging for network separation at layer 2
 - VRFs to isolate tenants and allow for a separate routing table per tenant

The configured VLANs must be the same across all management hosts. In vCenter, there is an additional option of using distributed virtual switches (DVS). By integrating either the VMware vSphere Distributed Switch or the Cisco Nexus 1000V with vCenter, separation can be accomplished using distributed switch port groups. The port group must be configured to use ephemeral port binding. See DaaS Blueprint for more details.

2. Allocate at least 2 ESXi hosts or at least 1 cluster for DaaS management appliances.

Install a vCenter management server meeting the version requirements (ref Table 2-1). The ESXi hosts or cluster allocated for DaaS management appliances should be in the same vCenter Datacenter. All ESXi hosts should have the compute (RAM, CPU, local disk) required to meet expected Tenant Appliance density. Please reference the DaaS Blueprint for more details.

Note: Single and Multiple vCenter(s) may be used to satisfy both desktop and appliance needs. If you are using the same vCenter, all the compute resources required for management appliances and tenant desktops must be in the same vCenter Datacenter.

3. Provide an account to access the hypervisor manager API.

On the vCenter, configure an account which can be used for the DaaS platform to manage the virtual resources via the vSphere API. This account must have appropriate privileges.

4. Assign one subnet to the service provider network. This subnet also needs to have access to the API of the hypervisors.
5. Assign service provider network.

Assign a VLAN or a Distributed Virtual Port Group (DVPG) to the service provider network. This VLAN or DVPG must map to a virtual network assigned to all management hosts.

6. Assign a network to be used for DaaS platform management traffic.

Assign one VLAN (non-routable subnet) or one Distributed Virtual Port Group (DVPG) as the Link Local Network. If using a DVPG, the VLAN policy of the DVPG must be configured as 'Private VLAN'.

7. Allocate link-local addresses.

For a typical data center, it's suggested to use a /22 network (for example, 169.254.16.0/22). However, a demo environment or small data center can use a /24 network. You should not use anything smaller than /24.

Note: If you have more than one data center, the link-local address space must be unique (non-overlapping) across data centers.

A link-local address is an IP address used only for communications within a link (segment of a local network) or a point-to-point connection to which a host is connected. Routers do not forward packets with link-local addresses. The address block 169.254.1.0 through 169.254.254.255 is reserved for link-local addressing in Internet Protocol Version 4. You cannot choose addresses outside this range. Refer to Internet Engineering Task Force (IETF) RFC 3927 for more information.

8. Allocate storage for management appliances.

By default, the DaaS platform will clone out management appliances on local disk (via a local datastore). This is considered a best practice. However, if desired, it's possible to use shared storage for management appliances. If using shared storage for management appliances on vCenter there are a few guidelines:

- Any shared storage (NFS, iSCSI, or FC) can be used. Ensure that the appropriate configuration has been done (e.g. LUN masking, zoning, etc.) to allow one or more LUNs to be mapped to all of the management hosts. The DaaS platform will use the native vCenter cloning APIs to provision management appliances using FC or iSCSI. In order for this to work properly, datastore(s) must be created and mapped to the same LUN(s) on all the management hosts with the same exact name (case sensitive).
- Datastores must be manually created on each of the management hosts
- The datastore name must be identical (case sensitive) on each management

NFS Storage Requirements

If you are using NetApp, Isilon, or Nexenta storage for DaaS management appliances, create an account on the storage system for access to the storage system APIs.

If you are using the NetApp VSC plugin for vSphere, it must be installed on the same machine as the vCenter server. Supported versions of the NetApp VSC plugin are 4.1.P1 and 4.2.1. When registering the VSC plug-in with vCenter, use the vCenter administrator account credentials, which will also be used to discover the management hypervisor in section 4 of this document. For further information please refer to the NetApp VSC installation and configuration guide.

9. DNS Configuration

There must be a DNS server available from the Service Provider (SP) network which can be used to resolve the name of the domain so that the Service Center can authenticate. Confirm all vSphere servers are defined in the DNS and that the hosts and storage systems are configured locally with the matching DNS name as well.

10. IP Address Allocation

Allocate five IP addresses in the SP network: two for the Service Provider appliances plus one for the shared floating IP and two for the Resource Manager appliances. If the Service Provider wants to access the Service Center using a hostname instead of an IP address, setup a DNS record to point to the floating IP address of the Service Provider appliance pair.

11. NTP Configuration

There must be at least one NTP server available from the SP network to allow for time synchronization.

12. Active Directory Configuration

There must be an Active Directory accessible on the SP network for authentication. Have available the information listed in Table 2-2 to configure the domain for the Service Provider. It is highly recommended that you confirm the values using an AD tool such as AD Explorer. You can download AD Explorer with the following link:

<http://technet.microsoft.com/en-us/sysinternals/bb963907>

Table 2-2 Network Information for DaaS Management Host

Configuration	Example
NETBIOS	SP
Domain Suffix	sp.desktone.com
Protocol	Ldaps
Port	636
Context	dc=sp,dc=desktone,dc=com
Primary DNS Server IP and name	172.16.109.2 (You only need to specify one Domain Name Server - the rest should be automatically identified)
Service Account	CN= Administrator,CN=Users
Used to parse your AD structure through a standard LDAP query - may be read only	(UserMustChangePassword = false, Password Never Expires) (Do not include the context in the service account name)
Service Account Password	ADPasswd
Super Admin (Service Center Access)	cn=serviceprovideradmin,ou=groups (do not include the context)
Admin Level1 (Optional)	cn=Admin-1,cn=admins,ou=groups
Admin Level2 (Optional)	cn=Admin-2,cn=admins,ou=groups

13. SSL Certificate

Provide an SSL Certificate in Apache2 format to install for a valid certificate. For more details, see Apply Service Provider Certificate Files to Service Provider Appliances on page 12.

2.1 Required Files

Make sure you have all the files listed in Table 2-3 before you begin the installation. Contact your support representative for the necessary files.

Table 2–3 Required Files

File Contents	File Names
Appliance Template	BrightonTemplate20140825.ova
Debians	dt-platform-6_1_0.deb and dt-aux-1_4_0.deb
DaaS Agent	DaaSAgent_6.1.1.msi
dtRAM	dtram.3.0.3.ova

3 Bootstrap Primary Service Provider (SP1) Appliance

Important: If you have already installed your first Datacenter and now need to install an additional Datacenter, see [Installing Multiple Datacenters](#).

3.1 Prepare Storage Configuration on Both Management Hosts

On both management hosts, add the Service Provider datastore. Be sure to use the same name on each host.

Warning: The name you use in vSphere for the storage needs to be exactly the same on each host and will be entered into the platform as part of Section 5.

3.2 Deploy the DaaS OVA File

On a DaaS Management Host, using the vSphere client, deploy two copies of the DaaS ova file. The first copy becomes the primary Service Provider (SP1) appliance upon completion of the bootstrap process. The second copy becomes the template for all subsequent DaaS management appliances.

Note: Make sure that you have downloaded the DaaS ova file (Appliance Template) specified in section 2.1. You need to locate the file on a Windows drive accessible by the vSphere client in order to deploy it from the vSphere client. vSphere cannot natively mount a Linux partition or connect to an NFS share.

1. Start the vSphere client.
2. Select **File ► Deploy OVF Template** to deploy the first copy of the ova file, which becomes the first Service Provider appliance. The vSphere client launches the Deploy OVF Template wizard. The wizard has six steps. After completing each section, click **Next**.
 - a. **Source:** Browse for the .ova file you downloaded.
 - b. **OVF Template Details:** Click **Next** to skip this step.
 - c. **Name and Location:** Rename the VM with the name of the Service Provider Appliance you defined in the Service Provider Installation Worksheet, for example "DatacenterName-sp1".
 - d. **Storage:** Deploy the SP1 Appliance to local/shared storage on one of the two management hosts.
 - e. **Disk Format:** Click **Next** to skip this step.
 - f. **Network Mapping:** The first column lists the two Source Networks. For each, select a Destination Network. The first network (VM Network) should point to the Service Provider Network. The second network (Dev Network) should point to the Link Local Backbone Network.
 - g. **Ready to Complete:** Click **Finish**. A dialog indicates the status of the deployment.

3. Select **File ► Deploy OVF Template** again to deploy the second copy of the ova file, which becomes the template for all subsequent DaaS management appliances. In the wizard, specify the source of the ova file (the same as in Step 2a), a name that distinguishes the file as the DaaS management appliance template, the service provider local/NFS storage, and the destination network (as defined in the previous step). **We recommend you preface the name of your data center to the beginning of the appliance template name**, for example “DatacenterName-template”. The name of the template must be unique across all datacenters.

3.3 Run the Bootstrap Script to Configure Network on SP1 Appliance

Run the bootstrap script to configure the network on the Service Provider appliance.

1. From the vSphere client, power on the SP1 appliance and open the console window.
2. Login using User: **deskton** Password: **Deskton1**

Note: For greater security, you should specify a custom appliance password when prompted by the bootstrap script. Each datacenter can have its own unique appliance password.

3. Begin the bootstrap process by executing the following command:

```
sudo /usr/local/deskton/scripts/bootstrap.sh
```
4. The bootstrap script prompts you to enter network information for the fields listed in Table 3-1. The values shown are sample values only; enter the values you noted in the Service Provider Installation Worksheet and Platform Install Checklist found in the DaaS Blueprint. After you finish entering the network information, the host reboots. It might take five minutes for the appliance to start after reboot. Because the node is not configured until the reboot completes, disregard any error messages displayed on the console.
5. After the host reboots, you can login via putty or any other ssh terminal you choose.

Table 3–1 Installing the First Datacenter: Network Information for DaaS Management Host

Field	Sample Value	Notes
Accept EULA agreement?	yes	If the EULA agreement is not accepted the bootstrap script will exit.
Existing multi-datacenter setup	no	This is asking are you building a new environment or joining an existing one. Select “no” to install the first datacenter.
Datacenter name	CityOfFirstDC	
IP for eth1 (backbone)	169.254.4.20	For the Backbone network (must be a link-local address)
Netmask CIDR format (0-32)	22	For the Backbone network
IP for eth0 (SP)	172.16.109.20	For the SP network
Netmask CIDR format (0-32)	24	For the SP network
Gateway	172.16.109.1	For the SP network
Hostname (appliance FQDN)	SP1.DESKTON.COM	Match the name used for the IP on the SP datacenter.
Name server	172.16.109.2	
NTP server	172.16.3.1	Enter a value only if you have a time server.

Is this an HA Service Provider appliance setup?	yes	
Floating IP Address	172.16.109.26	
psql password	dtPasswd	This alters the psql passwords for admin, master, slave and slony user. The password is not displayed on the screen.
Appliance password	myPasswd	The user-defined password for Service Provider appliances in this datacenter. Any Service Provider appliance accessible by ssh requires this custom password.
Does this configuration look correct?	yes or no.	The information echoed back includes two internal values, Data Center UID and VMGR UID, which you can ignore.

3.4 Copy the DaaS Software to the Service Provider Appliance

1. Log into the SP1 appliance via putty (or equivalent), using the following credentials:

User: **desktone**

Password: **the appliance password you established in Section 3.3.**

2. Copy the following files to the /tmp directory on the SP1 appliance. **Note: Do not copy the files to /data/repo at this time.**

```
dt-platform-6_1_0.deb
dt-aux-1_4_0.deb
```

3. At the appliance command prompt, move the files into the /data/repo directory on the appliance.

```
sudo mv /tmp/dt-platform-6_1_0.deb /data/repo
sudo mv /tmp/dt-aux-1_4_0.deb /data/repo
```

Note: You can confirm that you have copied the correct files by running the following:

```
sudo -i
cd /data/www/repo
```

```
sudo reprepro -A amd64 list precise dt-platform-6-1-0
precise|main|amd64: dt-platform-6-1-0 6.1.0
```

```
sudo reprepro -A amd64 list precise dt-aux
precise|main|amd64: dt-aux 1.4.0
```

3.5 Run bootstrap Script to Install the DaaS Software

1. Run the bootstrap shell script a second time to install the DaaS software:

```
sudo /usr/local/desktone/scripts/bootstrap.sh
```

System reboots.

2. SSH into the system again and wait for the log file to appear and watch desktone.log file:

```
tail -f /var/log/desktone/desktone.log
```

The system is up when you see a message similar to this in the log:

```
JBoss (Microcontainer) [5.1.0.GA (build: SVNTag=JBoss_5_1_0_GA  
date=200905221634)] Started
```

3. Open a browser and log into <https://172.16.109.xxx/service>, or whatever IP you supplied for “IP for eth0 (SP)” above.

Note: It might take five minutes for the appliance to start after reboot. Because the node is not configured until the reboot cycle completes, you can disregard any error messages displayed on the console.

4 Configure Service Center

4.1 Start the Service Center

1. Start the Service Center by entering the URL or IP address in a browser. For example:
`https://<IP for eth0 (SP)>/service`
 Replace `<IP for eth0 (SP)>` with the IP address that you specified in Table 3-1.
2. You can safely ignore the warning about the website's security certificate and proceed to the Service Center page.

4.2 Register the Service Provider Domain

The first time you access the DaaS Service Center, the Register a domain page displays so that you can provide Microsoft Active Directory domain information. You enter the information on two tabs: Domain Bind and Group Info. This information is required to access Microsoft Active Directory and to authenticate users. Make sure you have the DN information available to register the domains.

Important: You must enter all information on both tabs (Domain Bind and Group Info) without letting your browser session expire. If you need to enter the information on the second tab (Group Info) at a later date, make note of the URL of the first tab (Domain Bind) so that you can navigate back to the Register a Domain page

1. On the Register a Domain page, Domain Bind tab, enter values for the fields listed in Table 4-1.

Table 4-1 Domain Registration, Domain Bind Tab

Field	Sample Value
Name	SP
Domain Suffix	sp.desktone.com
Protocol	Ldaps
Directory Server Name	MicrosoftAD (leave this default, you don't need to select a Directory Server Name)
Port	636
Domain Controller IPs (DNS Server)	172.16.109.2
Context	dc=sp,dc=desktone,dc=com
Domain Bind Account DN	CN=Administrator,CN=Users (do not include the context)

Password	ADPasswd
Password Verify	ADPasswd

- Click **Save**.
- On the Register a Domain page, Group Info tab, start typing a value for Admin Groups. The system will offer suggestions for auto-complete. For example, cn=serviceadmins,ou=groups.
- Click **Save**.
The Service Center login page is displayed.
- Enter your username, password, and domain then click **Login**.

4.3 Discover the DaaS Management Server

The Discover Management Server page is displayed. Use this page to discover the vCenter Server which holds the DaaS Management Appliance Template (.ova file) you imported in section 3.2. The template is used for creating DaaS management appliances.

- Enter values for the fields listed in Table 4-1. Enter the IP address or FQDN of the vCenter Server that is hosting the SP1 appliance.

Table 4–2 vCenter Management Discovery

Field	Sample Value
IP Address/Hostname	mgVC1.domain.desktone.com
Username	root
Password	vCenterPasswd

- Click Discover Server. The system indicates it is discovering host and calculating capacity.
- If prompted, select the vCenter Datacenter that contains the compute resources for DaaS. This vDC should also contain the DaaS Appliance Template (.ova file) that you imported.

Note: If you only have 1 vDC, it will be automatically selected and a prompt will not appear

- Select the Compute Resource(s) (ESXi hosts or Cluster) you have set assign for DaaS Appliances. These will be used to provision Appliances.

Note: A minimum of 2 ESXi hosts is required for high availability (HA). A cluster is considered to be HA on its own.

- For each selected Compute, a Capacity popup will be displayed. If the server is too small to accommodate the ratios, you may be prompted to re-configure them. Click Save to set the ratios.
- After setting the ratios, a VM list will be displayed containing all the VMs from the compute selected as part of step 5. Select the DaaS appliance template from this list.

Note: This should NOT be the Service Provider appliance itself, but should be the Appliance .ova that was deployed earlier.

Once the system has discovered the appliance template, the Browse Tenants screen is displayed.

4.4 (Optional) Rename Resource Manager

1. In the Service Center, Select service **grid ► resources**.
2. In the Resource Managers panel on the left, click on the IP address of the resource manager.
3. On the General tab, in the Name field, double-click on the IP address of the resource manager. A text box opens in which you can change the name.
4. Change the name to the user friendly name, for example “Service Provider RMGR” and click **OK**.

4.5 (Optional) Turn off Local Disk Provisioning

If you are installing the DaaS management appliances on shared storage and you intend to deploy and run your management appliances from the shared storage instead of local storage, then you must first change the default behavior of the application:

1. Select **tenants ► policy** to display the Policy Configuration screen.
2. Select Service Provider from the dropdown.
3. Scroll through the list of policies and double click the value to set the **vmgr.appliance.local.disk** policy to **false**.

5 (Optional) Configuring the Netapp VSC Plugin

If you are **not using the Netapp VSC plugin** for storage then skip this section and proceed to the next section entitled Create the Remaining Service Provider Appliances to continue the vCenter install. There is no need to define storage when managing with vCenter in the DaaS platform as this is already configured through the vCenter client.

If you are using the Netapp VSC plugin for storage perform the following steps:

1. Service Center, select **service grid ► resources**.
2. Select the “Service Provider RMGR” in the pane on the left, then Storage Systems in the pane on the right.
3. On the Storage Systems tab, select the **Add Storage System** link.
4. Enter values for the fields listed in Table 5-1.

Important: When adding a storage system to the DaaS platform, the Address field must match how the VSC plug-in was discovered for vCenter. If the plug-in was discovered as an IP address you must enter the IP address in the Address field. If it was discovered as a FQDN, then you must enter the complete domain name in the Address field.

Table 5–1 Storage System

Field	Sample Value
Address	storage.desktone.com or 172.16.10.21
Username	root
Password	storagePswd

5. Click the **Add Storage System** button.

The system adds the name of the storage system to the Storage Systems tab.

6 Create the Remaining Service Provider Appliances

DaaS requires that Service Provider management appliances be installed as High Availability (HA) pairs. To ensure physical hardware high availability, HA DaaS Management appliance pairs are distributed across two physical DaaS Management Hosts. With vCenter, the appliances are automatically distributed to the management hosts you selected in Section 4.3.

6.1 Create HA Service Provider (SP2) Appliance

1. Select **service grid ► data centers**.
2. Click the **Edit** button (at end of line for new data center). The system displays the Edit Data Center popup.
3. Verify the displayed information and click **Add Appliances**.

The Appliance Install screen displays.

4. Select Service Provider Appliance from the Appliance Type drop-down and enter values for the fields listed in Table 6-1.

Table 6–1 Secondary Server

Field	Sample Value	Notes
Name	SP2	Do not use fully qualified domain name.
IP Address	172.16.109.21	

5. Enter values for the New Reservation fields listed in Table 6-2.

Table 6–2 New Reservation

Field	Sample Value	Notes
Friendly Name	Create SP2	
Start Date		Select Today from the drop-down or enter the month, day, and year.
Start Time		Enter 00:00 to indicate now, or the actual time in UT format.

6. Click **Create Appliance**.

If you want to check the status of a reservation, select **appliances ► reservations**.

6.2 Apply Service Provider Certificate Files to Service Provider Appliances

The DaaS platform allows you to upload custom SSL certificates for each service provider appliance. To enable a custom certificate, you upload three certificate files in Apache format: SSL Certificate, SSL Key, and CA Certificate.

Note: To upload the three certificate files, you navigate to the **Certificates** tab under configuration (this is a different **Certificates** tab than the one used for tenants).

Procedure

7. In Service Center, select **configuration ► general**.
8. Select the **Click here** link.
9. Click the **Certificates** tab.
10. On the **Certificates** tab, browse for and select the following three files:
 - **CA Certificate:** The public certificate from a certificate authority that was used to sign the service provider certificate. This file will have a .pem or .crt extension.
 - **SSL Certificate:** The service provider's public certificate, which was signed by the CA. This file has a .crt extension, which indicates that it is a certificate file.
 - **SSL Key:** The private key used to decrypt the service provider's SSL certificate. This is needed in order to be able to respond to certificate requests. This file has a .key file extension.
11. Click **Submit** to upload the files.
12. Select the **Click here** link to install the certificate on the service provider appliances.

To get the SSL Certificate file the service provider administrator should submit a certificate sign request to their certificate authority. Their certificate authority will provide the administrator with a certificate file (.crt) which can be provided to the DaaS service provider to be uploaded. For more information on how to get a signed certificate, contact the certificate authority.

Note: If the IP address or URL for the Service Center does not resolve to the service provider CN in their certificate, the service provider administrator may wish to include in their certificate a Subject Alternative Name so that the desktop portal's URL accessed by web clients can be matched to the uploaded service provider certificate. For more details on how to add a Subject Alternative Name to the certificate, contact the certificate authority.

7 Add Tenant Resource Manager

7.1 Create a Tenant Resource Manager Appliance

1. In the Service Center, select **service grid ► data centers**. The Data Centers page appears. The page contains a table of the available data centers.
2. Find the line for your data center and click Edit. The Edit Data Center popup appears.
3. Click **Add Appliances**.

The Appliance Install page appears.

4. In the Appliance Type drop-down, select Resource Manager.

The page displays the data entry fields for the Primary and Secondary resource managers.

5. Enter values for the fields listed in Table 7-1. The IPs belong in the Service Provider network (not the link-local network)

Table 7–1 Resource Manager

Field	Sample Value
Primary Name	RMGR1
Primary IP	172.16.109.22
Secondary Name	RMGR2
Secondary IP	172.16.109.23

6. Enter values for the New Reservation fields listed in Table 7-2.

Table 7–2 New Reservation

Field	Sample Value	Notes
Friendly Name	Create RSMGR	
Start Date		Select Today from the drop-down or enter the month, day, and year.
Start Time		Enter 00:00 to indicate now, or the actual time in UT format.

7. Click **Create Appliance**.

If you want to check the status of a reservation, select **appliances ► reservations**.

8. Select **service grid ► resources** to see the tenant resource manager once it is up and running.

7.2 (Optional) Give the Tenant Resource Manager a Friendly Name

1. In the Resource Managers panel on the left side of the page, click on the IP address of the new resource manager.
2. On the General tab, in the Name field, double-click on the IP address of the resource manager. A text box opens in which you can change the name.
3. Change the name to the user friendly name, for example “Tenant RMGR” and click **OK**.

7.3 (Optional) Configuring Netapp VSC plugin for Tenants

If you are **not using the Netapp VSC plugin** for storage then skip this section and proceed to the next section entitled Define Tenant Models to continue the vCenter install. There is no need to define storage when managing with vCenter in the DaaS platform as this is already configured through the vCenter client. See Section 2 for more details on allocating storage for management appliances.

If you **using the Netapp VSC plugin** for storage perform the steps below:

1. In the Service Center, select **service grid ► resources**.
2. Select the “Tenant RMGR” in the pane on the left, then Storage Systems in the pane on the right.
3. On the Storage Systems tab, select the **Add Storage System** link.
4. Enter values for the fields listed in Table 7-3.

Important: When adding a storage system to the DaaS platform, the Address field must match how the VSC plug-in was discovered for vCenter. If the plug-in was discovered as an IP address you must enter the IP address in the Address field. If it was discovered as a FQDN, then you must enter the complete domain name in the Address field.

Table 7–3 Storage System

Field	Sample Value
Address	storage.desktone.com or 172.16.10.21
Username	root
Password	storagePswd

5. Click the **Add Storage System** button.

The system adds the name of the storage system to the Storage Systems tab.

8 Define Tenant Models

1. In the Service Center, on the main menu, select **Configuration ► Desktop Models**.

The Desktop Models page appears.

2. Click the **Add desktop model** link.
3. Enter values for the fields listed below.

Table 8–1 Add Desktop Model

Field	Explanation
Name	Use a generic name that describes the hardware and that you can reuse between tenants. The name you enter appears in the Enterprise Center configuration ► service summary page.
Session Based	Choose Yes to provision remote desktop connections using Microsoft RDSH (Remote Desktop Services). Selecting Yes automatically sets the Desktop Type to dynamic.
Reference ID	An optional text field that can be used for a customer specific tracking ID.
Desktop Type	Choose one of the types from the dropdown: Selectable, Static, or Dynamic.
Memory	Enter the memory allocated to each virtual desktop, specified in megabytes. For a session-based model (RDSH), the memory the Administrator allocates to each desktop is typically higher because each desktop is supporting many sessions.
Number of CPUs	Enter the number of virtual CPUs allocated to each virtual desktop.

Important: Carefully review your model settings, models cannot be deleted once created.

4. Click **Add desktop model**.

A summary line for the new desktop model appears in the table.

Appendix A Installing Multiple DaaS Datacenters

This appendix walks you through setting up an additional datacenter (DC2) after you have successfully installed your first datacenter (DC1). You need to have completed the DC1 Service Provider Prerequisites for DC2.

Note: Each DaaS Datacenter must be in its' own vCenter. Therefore DC2 will require a separate vCenter from the one hosting DC1.

Within that DC2 vCenter, you can host both your management appliances and tenant desktops or you can use separate vCenters for each. If you are using the same vCenter, all the hosts required for management appliances and tenant desktops must be in the same vCenter Datacenter.

A.1 Prepare Storage Configuration on Both Management Hosts

On both DC2 management hosts, add the Service Provider datastore. Be sure to use the same name on each host.

A.2 Deploy OVA File

On the DaaS Management Host for DC2, using the vSphere client, deploy two copies of the DaaS Management Appliance Template OVA file. The first copy becomes the SP1 appliance for DC2 upon completion of the bootstrap process. The second copy becomes the template for all subsequent DaaS management appliances in DC2.

Prerequisite: Make sure that you have downloaded the DaaS ova file (appliance template), as outlined in Service Provider Prerequisites on page 2. You need to locate the DaaS ova file on a Windows drive accessible by the vSphere client in order to deploy it from vSphere (vSphere cannot natively mount a Linux partition or connect to the NFS share).

1. In the vSphere client, select Deploy OVF Template to deploy the first copy of the ova file, which becomes the first Service Provider appliance in the new datacenter.
2. In the vSphere client, select Deploy OVF Template again to deploy the second copy of the ova file, which becomes the template for all subsequent DaaS management appliances in this new datacenter. We recommend you preface the name of your data center to the beginning of the appliance template name. The name of the template must be unique across all datacenters.

A.3 Run the Bootstrap Script

Run the bootstrap script to configure the network on the Service Provider appliance. You run the bootstrap script twice: once to configure the network on the appliance, and then a second time to complete the bootstrap process.

1. From the vSphere client, power on the primary Service Provider appliance in DC2 and open the console window.
2. Login using the following credentials:

User: **deskstone**

Password: **Deskstone1**

Note: For greater security, you should specify a custom appliance password when prompted by the bootstrap script. Each datacenter can have its own unique appliance password.

3. Begin the bootstrap process by executing the following command:
`sudo /usr/local/deskstone/scripts/bootstrap.sh`
4. The bootstrap script prompts you to enter network information for the new Datacenter needed by the DaaS Management Host. The network information requested by the script is listed in Table 8-2. The values shown are sample values only; the values you enter are the values you collected in the Service Provider Installation Worksheet and Platform Install Checklist found in the DaaS Blueprint.

Table 8–2 Installing Subsequent Datacenter: Network Information for DaaS Management Host

Field	Sample Value	Notes
Accept EULA agreement?	Yes	If the EULA agreement is not accepted the bootstrap script will exit.
Existing multi-datacenter setup?	Yes	Because this is not the first datacenter but is instead an additional datacenter, answer yes.
Is this the master datacenter?	No	The master datacenter is always the first datacenter
Master Datacenter Information		
Enter the eth0 IP address of any SP appliance in the other Datacenter	172.16.110.234	
Local Datacenter Information		
Datacenter name	CityofSecondDC	
IP for eth1 (backbone)	169.254.4.20	For the DC2 Backbone network (must be a link-local address)
Netmask CIDR format (0-32)	22	For the DC2 Backbone network
IP for eth0 (SP)	172.16.109.20	For the DC2 SP network
Netmask CIDR format (0-32)	24	For the DC2 SP network
Gateway	172.16.109.1	For the DC2 SP network
Hostname (appliance FQDN)	SP1.DESKTONE.COM	Match the name used for the IP on the SP data center.
Name server	172.16.109.2	

NTP server	172.16.3.1	Enter a value only if you have a time server.
Is this an HA Service Provider appliance setup?	yes	
Floating IP Address	172.16.109.26	
Appliance password	myPasswd	The user-defined password for Service Provider appliances in this datacenter. Any Service Provider appliance accessible by ssh require this custom password.
Does this configuration look correct?	yes or no.	The information echoed back includes two internal values, Data Center UID and VMGR UID, which you can ignore.

- After the host reboots, you can login to the SP1 appliance via putty or any other ssh terminal you choose using the following credentials:

User: **desktone**

Password: **the appliance password you established during bootstrap for DC2**

A.4 Rerun the Bootstrap Script

You run the bootstrap script a second time to install the DaaS software. Note that you do not need to copy the software to the primary Service Provider appliance in DC2. It will be automatically downloaded from the first data center.

In the new Datacenter, rerun the bootstrap shell script:
`sudo /usr/local/desktone/scripts/bootstrap.sh`

Note: It might take five minutes for the appliance to start after reboot. Because the node is not configured until the reboot cycle completes, you can disregard any error messages displayed on the console.

A.5 Start the Service Center and Discover Management Host

- Open a browser window and start the Service Center on the new Service Provider Appliance you just bootstrapped. For example:

`https://<IP for eth0 (SP)>/service`

Replace `<IP for eth0 (SP)>` with the IP address that you specified in the table above.

- You can safely ignore the warning about the website's security certificate and proceed to the Service Center page.
- Enter your username, password, and domain then click Login.

The Discover Management Server page is displayed. Use this page to discover the vCenter Server which holds the virtual machine template (.ova file) you imported as a prerequisite to this installation. The template is used for creating DaaS management appliances.

Enter values for the fields listed in Table 8-3. Enter the IP address/fully qualified domain name of the vCenter Server that is hosting the SP1 Service Provider appliance of DC2:

Table 8–3 vCenter Management Discovery

Field	Sample Value
IP Address/Hostname	mgVC2.domain.desktone.com
Username	root
Password	vCenterPasswd

Note: Each DaaS Datacenter must be in its' own vCenter. Therefore DC2 will require a separate vCenter from the one hosting DC1.

- Click Discover Server. The system indicates it is discovering host and calculating capacity.
- If prompted, select the vCenter Datacenter that contains the compute resources for DaaS. This vDC should also contain the DaaS Appliance Template (.ova file) that you imported.

Note: If you only have 1 vDC, it will be automatically selected and a prompt will not appear

- Select the Compute Resource(s) (ESXi hosts or Cluster) you have set assign for DaaS Appliances. These will be used to provision Appliances.

Note: A minimum of 2 ESXi hosts is required for high availability (HA). A cluster is considered to be HA on its own.

- For each selected Compute, a Capacity popup will be displayed. If the server is too small to accommodate the ratios, you may be prompted to re-configure them. Click Save to set the ratios.
- After setting the ratios, a VM list will be displayed containing all the VMs from the compute selected as part of step 5. Select the DaaS appliance template from this list.

Note: This should NOT be the Service Provider appliance itself, but should be the Appliance .ova that was deployed earlier.

Once the system has discovered the appliance template, the Browse Tenants screen is displayed.

A.6 Complete Datacenter Build Out

The remainder of the process for the additional Datacenter is the same as for the first Datacenter, beginning in Section 4.4. You need to complete the following tasks:

- (Optional) Rename Resource Manager
- (Optional) Turn off Local Disk Provisioning
- (Optional) Add Storage for Service Provider Appliances
- Create the Remaining Service Provider Appliances
- Add Tenant Resource Manager
- Define Tenant Models