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XenApp 7.x on Oracle Cloud Infrastructure

OUT OF BAND DEPLOYMENT GUIDE

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Deploying Citrix Cloud XenApp and XenDesktop Service with Oracle Cloud Infrastructure

Deploying Citrix Cloud Services on Oracle Cloud (also known as Oracle Cloud Infrastructure or OCI) provides greater agility in provisioning applications and desktops. Using Oracle Cloud can supplement resources of on-premises datacenters, allowing IT to satisfy sudden demand and support rapid geo expansion. This document guides you through the process of configuring Citrix XenApp and XenDesktop Cloud Services with Oracle Cloud.

Introduction

Whether your organization is just beginning to adopt the cloud or has already achieved a cloud-first approach, Citrix Cloud Services meets you where you are in your cloud journey. Citrix Cloud Services are available to help extend existing on-premises Citrix software deployments, to help create hybrid workspace services, and to provide simple approaches to consuming cloud-native technology. By deploying Citrix software as a service, Citrix Cloud Services simplify management of Citrix technologies. Unify virtual apps, desktops, data, device management, and networking on any cloud or infrastructure. This integrated approach is the simplest way to securely create and deliver digital workspaces.

This deployment guide also describes Oracle Cloud Infrastructure concepts and components, and basic OCI implementation with Citrix Cloud Services. The architecture presented here delivers Citrix application and hosted shared desktop services to users via Citrix Cloud Services. It enables a hybrid approach in which organizations can simplify the running of Citrix management services form on-premise to Citrix Cloud Services and use OCI to deliver cloud-based XenApp services. In the current release of this solution with OCI, there are some limitations within Citrix Cloud Services that need to be considered when reviewing the overall solution.

Oracle Cloud Infrastructure, is Oracle's second generational cloud infrastructure and was built from the ground up to be an Enterprise Cloud, equally capable of running traditional multi-tiered enterprise applications, high-performance workloads, and modern serverless and container-based architectures

To understand design decisions, this paper describes underlying Oracle Cloud and Citrix Cloud Services components that are required for a deployment and explains the process for deploying Citrix Cloud Services with OCI.

The first part of this guide describes the solution architecture. The second part is a "runbook" that gives specific procedures to install and configure a Proof of concept XenApp deployment on Oracle Cloud Infrastructure from Citrix Cloud Services.

Note: All references to Oracle Cloud or OCI in the remainder of this document refer to Oracle Cloud Infrastructure (OCI)

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Planning a Citrix XenApp Deployment: Design Choices

Runbook: Configuring XenApp and NetScaler Gateway Service in OCI

The remainder of this document will focus on the step-by-step process of setting up and deploying the system. There are 7 major steps in the overall process:

1. Create a Citrix Cloud account via the onboarding service and subscribe to the Citrix Cloud XenApp and XenDesktop Service
2. Create a Oracle account and subscribe to Oracle Cloud Infrastructure
3. Configure OCI Windows infrastructure VMs (Active Directory, Cloud Connectors) , page 4.
4. Prepare the XenApp workload Golden Image, page 14.
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7. Configure NetScaler Gateway Service (NGS), page 24.

Step 1: Plan Your Deployment

The first step in an OCI implementation is to create a sizing plan based on specific requirements. There are different server functions that must be considered in the sizing of OCI resources: Infrastructure servers, XenApp workload servers. In planning, it's necessary to consider the appropriate sizing of each.

Sizing for Infrastructure Server Components

For most deployments, a single OCI Project Plan can host the infrastructure server components i.e. the Cloud Connectors, Active Directory, Bastion, File Services. To enhance availability, it is recommended that you deploy pairs of infrastructure instances in different zones with a region. As Table 3 shows, this results in a total of 7 infrastructure VMs.

Table 1: Infrastructure VMs Required.

Infrastructure Server	# VMs required
Citrix Cloud Connectors	2
Active Directory /DHCP/DNS	2
File Services	2
Bastion (Remote Host Management)	1
Total	7

Sizing for Workload Servers

In planning an OCI deployment, it's necessary to evaluate requirements; classify user types, such as XenApp hosted shared desktop (HSD) users and virtual desktop (VDI) users; and gauge application workload requirements for each user type. It's recommended that you perform some initial proof-of-concept (POC) workload testing to collect performance data to be used in deployment sizing. Complete the table below for each category of user.

You may need to expand or condense columns in the table depending on how many types of users you anticipate. Include the expected number of XenApp hosted shared desktop (HSD) users. Your deployment may feature more than one category of HSD workload (perhaps simulated with the Login VSI workloads). To accurately size the deployment, complete Table 4 using results from your proof-of-concept testing with representative application workloads.

Table 2: Workload Characteristics.

Resource	User Type #1	User Type #2	User Type #3
Workload description (e.g., Task Worker, Office Worker, Knowledge Worker)			
Workload classification (VDI or HSD)			
Expected number of users			
Expected IOPS per user			
Expected outgoing n/w bandwidth per user			
Expected CPU utilization (in cores) per user			
Expected memory requirement per user			
instance series used			
Storage consumption			
Expected storage type			

Sizing for XenApp HSD Servers

Step 2: Configure OCI Topology

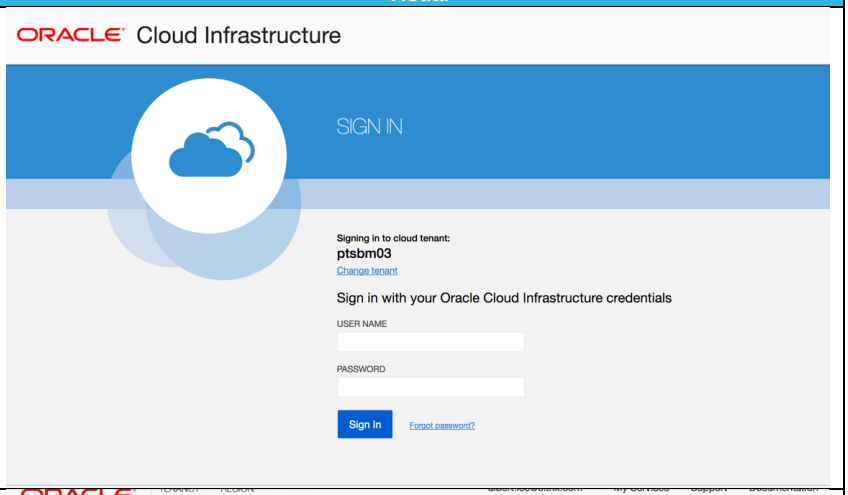
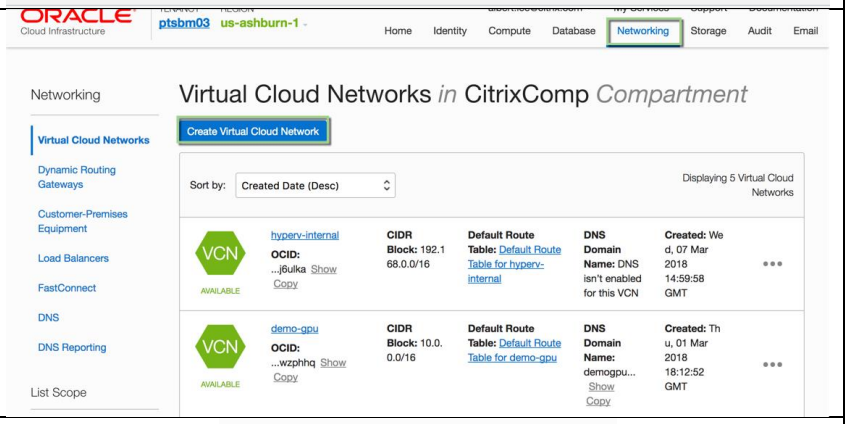
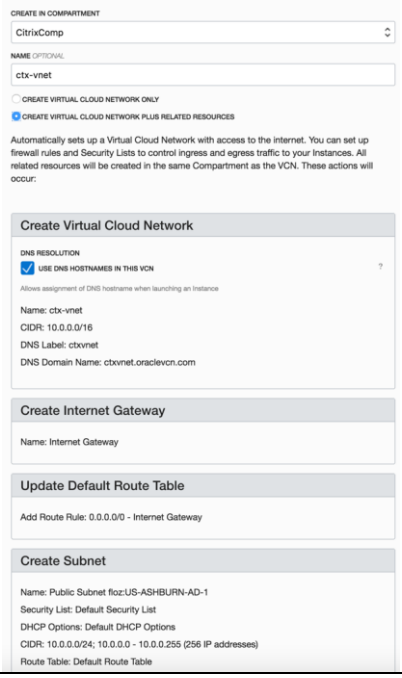
In this step, the administrator creates the required OCI IaaS topology, including virtual network and VMs that will be used with XenApp infrastructure software components.

It's assumed that the administrator has first created the Oracle account, and has some general experience with creating VMs in OCI. To configure the IaaS topology in OCI for a XenApp deployment, you must first establish these four prerequisites:

- Configure Active Directory (AD)
- Creating VMs for infrastructure servers for Cloud Connectors

Create an OCI Virtual Network

First the administrator should create a virtual network. Each virtual network contains subnets, each with a defined IP range, and each capable of holding multiple instances and other resources.

Instructions	Visual
Sign in to the Coracle Cloud Infrastructure console	
Click the Network tab. Click the **IP Network** tab in the left pane and then click **IP Networks**. Click **Create IP Network**	
Enter the required information: **Name**: Enter a name for the IP network. **IP Address Prefix**: choose “create virtual cloud network plus related resources” for the initial setup. It will also create necessary *Internet Gateway, Route Table and Subnet*. Click **Create Virtual Cloud Network**.	

Create and configure Active Directory

Citrix Cloud requires Microsoft Active Directory (AD) for authentication for users and for integration with the Citrix Cloud Connector and XenApp instances. Before a XenApp VM or Citrix Cloud Connector can be accessed in a OCI subscription for XenApp, it must successfully authenticate against the OCI AD domain controller. Repeat the same steps above and create VM for Active Directory.

In addition:

- Each VM should be joined to the Active Directory Domain instance in OCI with outbound port 443 open to allow access to the Internet.

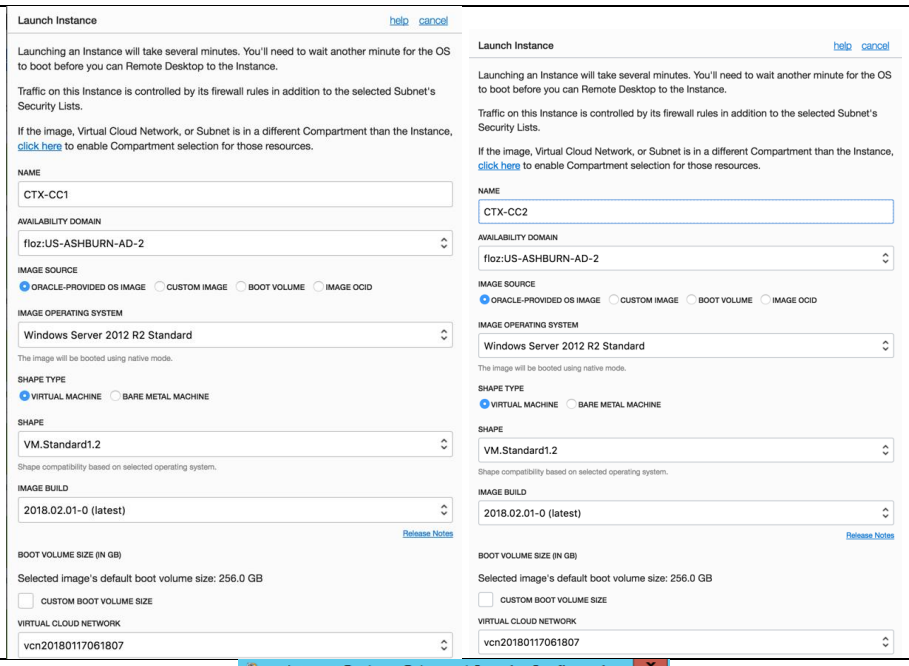
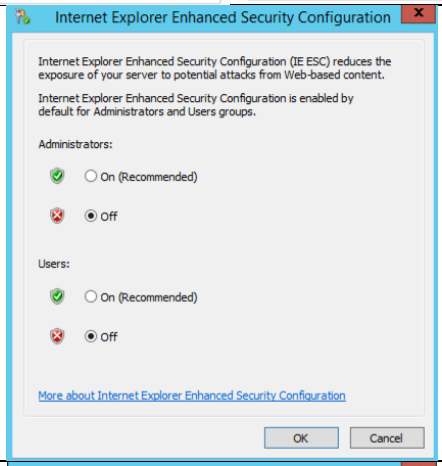
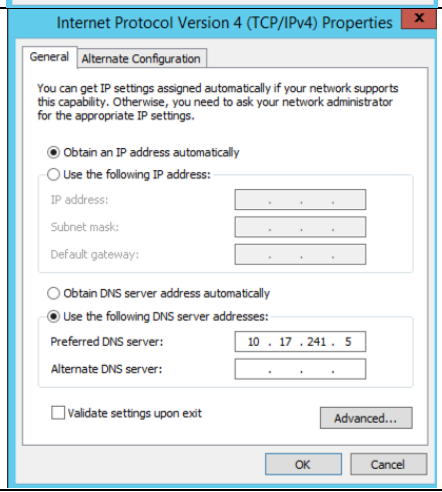
Create Infrastructure Citrix Cloud VMs

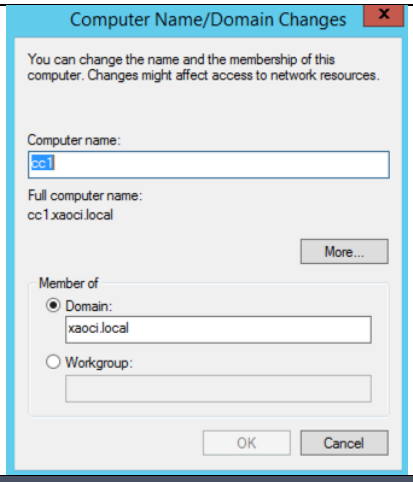
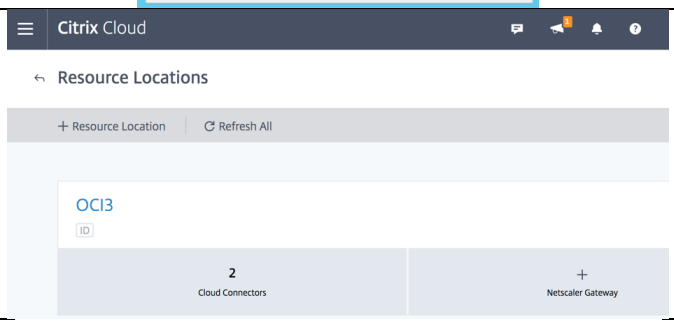
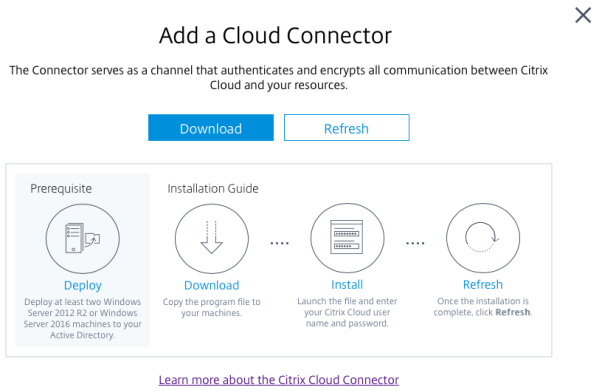
Next, create VMs that will be installed with the required Citrix Cloud components. The Citrix Cloud Connector serves as a channel for communication between Citrix Cloud and your Resource Locations enabling cloud management without requiring any complex networking or infrastructure configuration such as VPNs or IPSec tunnels. The Cloud Connector authenticates and encrypts all communication between Citrix Cloud and your Resource Locations such as Oracle Cloud Infrastructure. There are no incoming connections. All connections are established from the Cloud Connector to the cloud. No communications between the Cloud Connector and Citrix Cloud are inbound. The connections all use the standard HTTPS port (443) and the TCP protocol. After you have installed the Cloud Connector, there is no need for any special configuration on the server. This removes all the hassle of managing delivery infrastructure.

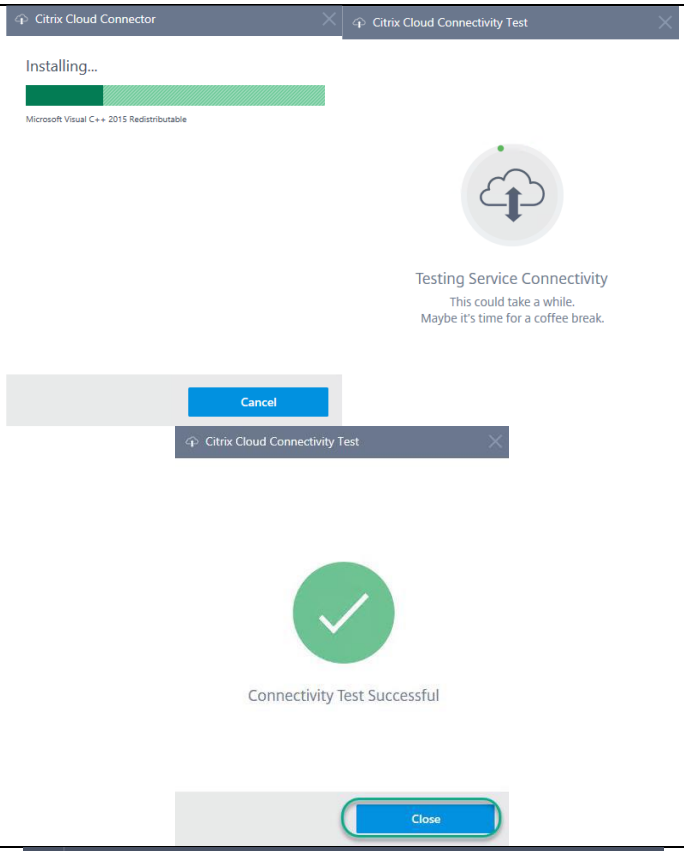
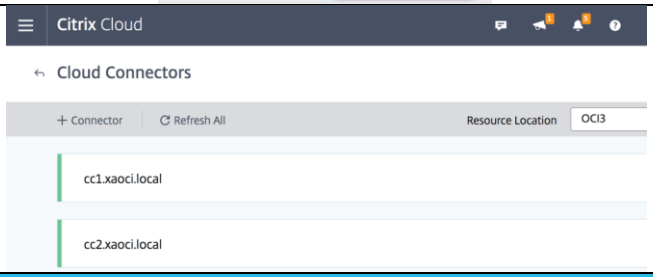
Citrix Cloud requires you install the Citrix Cloud Connector on two machines inside Oracle Cloud Infrastructure. This ensures continuous availability of your resource location. It enables you to manage and focus on the resources that provide the value to your end users. The Citrix Cloud Connector is stateless. All logs and alerts are sent back to Citrix Cloud.

Table 3: VM Creation Settings

VM Name	Description	Project Name	Instance	Region
CTX-CC-1	Citrix Cloud Connector			
CTX-CC-2	Citrix Cloud Connector			
CTX-VDA	Citrix XenApp Golden Image			

1. Create two virtual machines from OCI console for Cloud Connectors installation		
2. Disable the IE Sec feature if enabled on the connector. Click Ok		
3. Changed the preferred DNS server to be the Active Directory DNS Server.		

4. Join the machines to the AD domain	
5. Login to Citrix Cloud console: https://citrix.cloud.com Navigate to 'Resource Locations' Click '+ Resource Location', name it and click Save	
6. Under the newly created resource location, click '+ Cloud Connectors' Click on 'Download'	
7. Install the Connector. Login with the Citrix Cloud Subscription credentials and complete the installation	

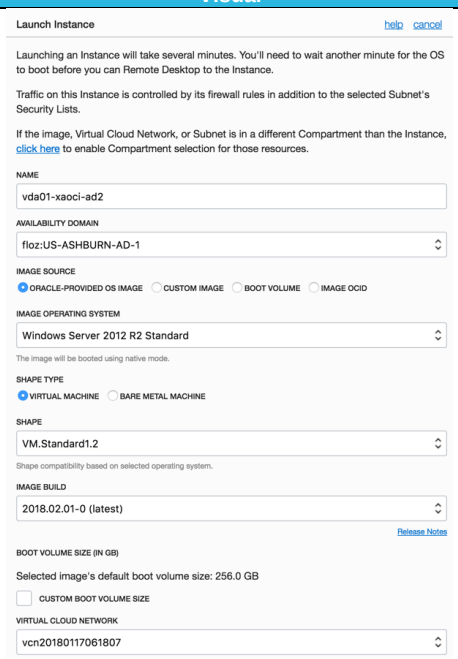
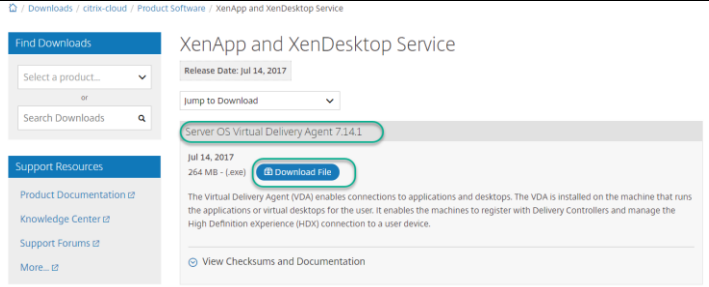
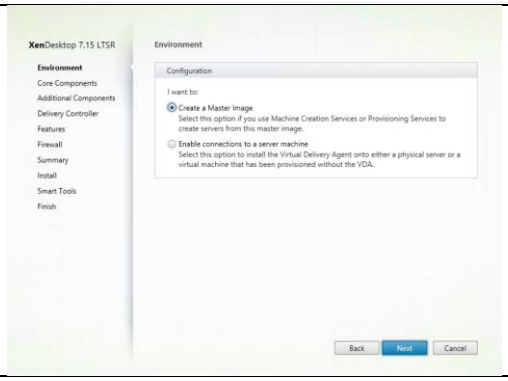
8. The installation will begin and takes approximately 5 minutes. Once the installation has finished, the service connectivity tests are performed the result should show test successful. Click close to continue.	
Once complete two cloud connectors should appear inside the Citrix Cloud Resource Locations	

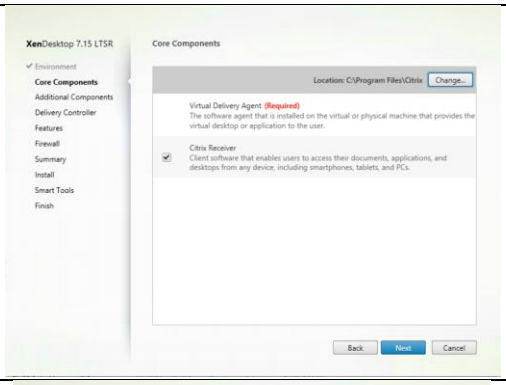
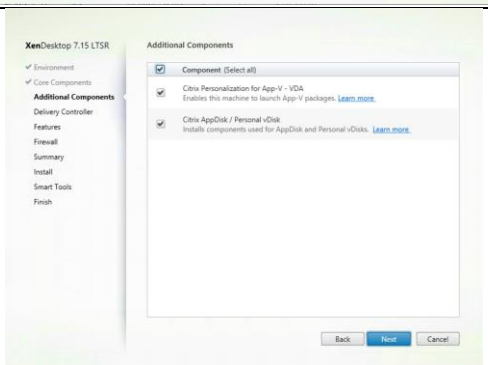
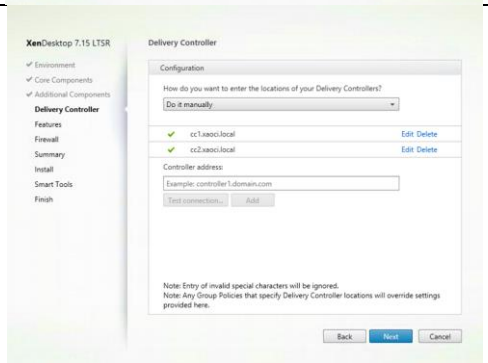
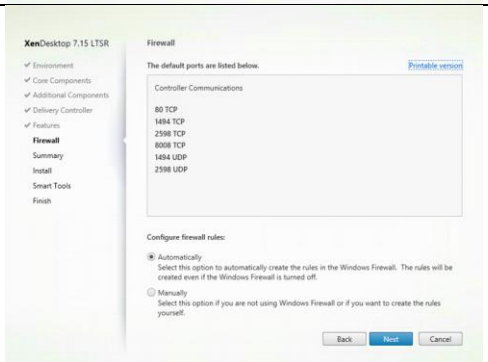
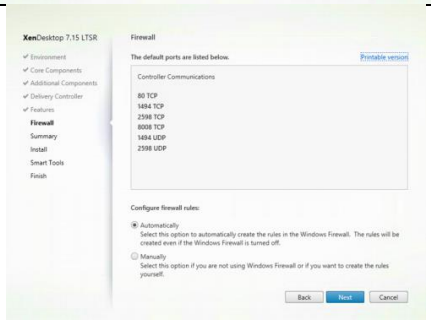
Step 3. Prepare the XenApp Golden Image VM

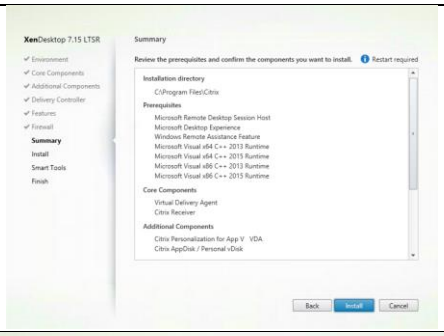
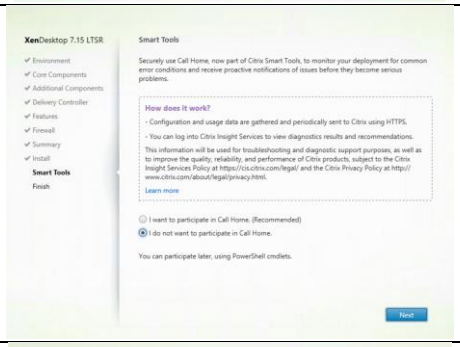
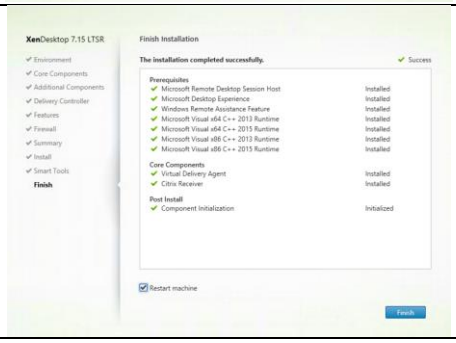
Virtual Delivery Agent (VDA) Installation

A Virtual Delivery Agent (VDA) is installed on each VM instance created on OCI that you want to make available to users. It enables the machine to register with the Citrix Cloud Connector, which in turn allows the machine and the resources it is hosting to be made available to users. In this release of Citrix Cloud with OCI there is no MCS provisioning integrated. *Manual* provisioning is required.

http://docs.citrix.com/en-us/citrix-cloud/xenapp-and-xendesktop-service/configure-vdas.html

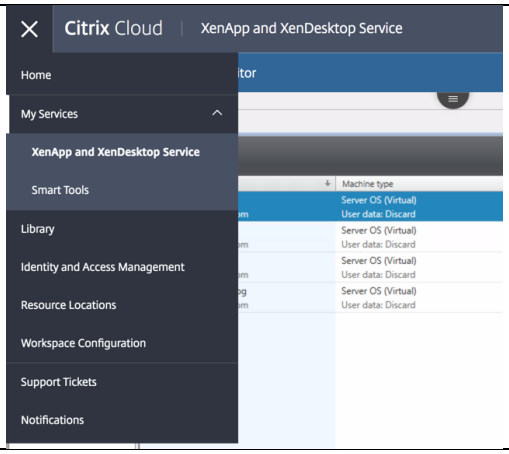
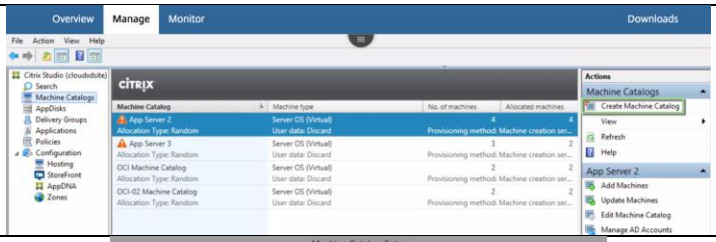
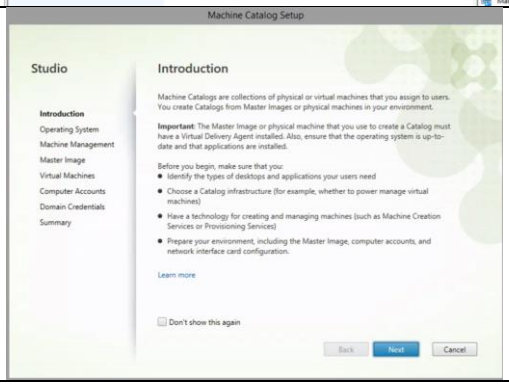
Instructions	Visual
From Oracle Cloud Infrastructure console, create a instance with proper *availability domain*, *virtual cloud network* and *subnet*.	
From the Citrix Cloud page click on XenApp and XenDesktop Service. Then click Downloads	
Download the VDA to the XenApp instance (virtual machine created above) in OCI	
A new web page will appear redirecting you to download the VDA. Choose Server OS VDA	
Right click the installer and chose Run as Administrator. Select create a master image and click next.	

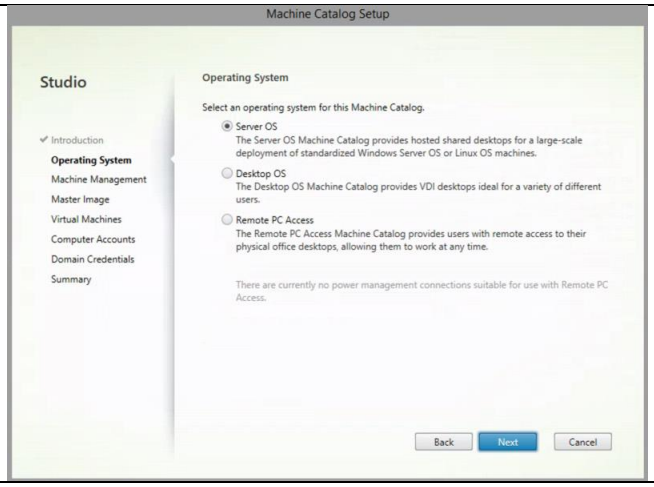
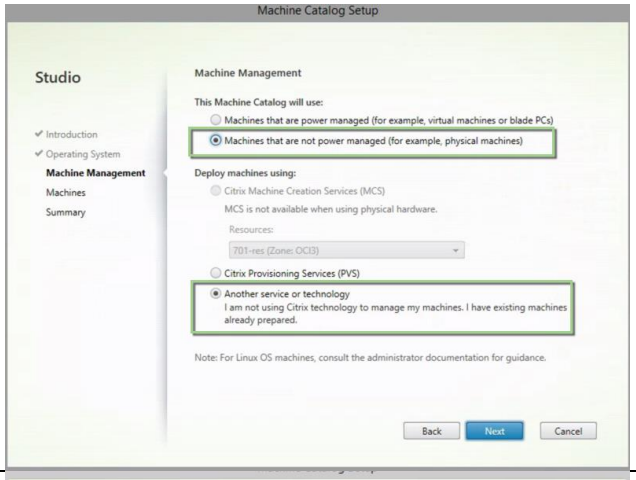
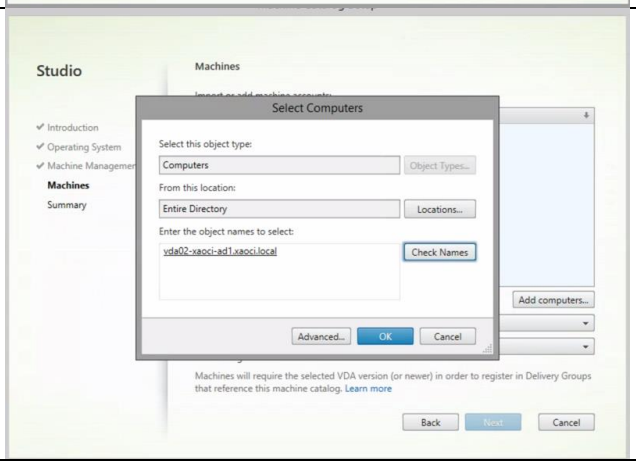
Uncheck the Citrix Receiver agent and then click Next	
Uncheck the components for App-V VDA and App Disk then click Next	
Select Do it manually. Enter in the FQDN of two cloud connections. Click Next	
Select Optimize performance and click Next.	
Select Automatically and click Next to configure firewall rules automatically.	

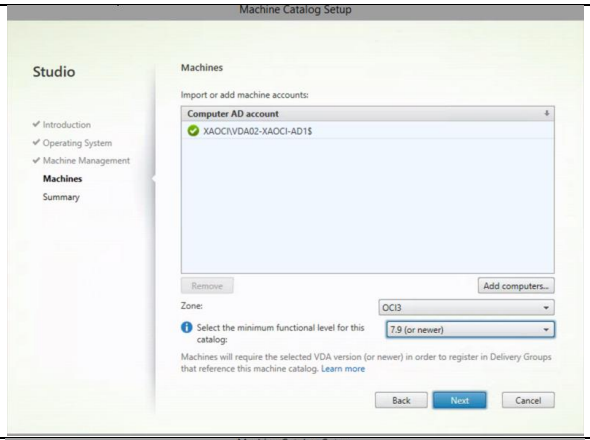
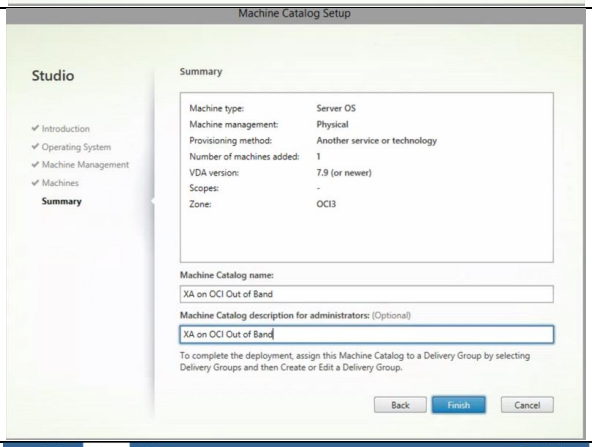
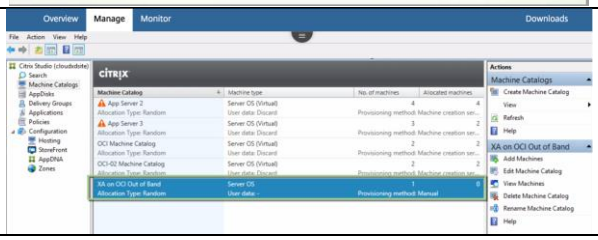
Click Install to start installation and it will take approximately 5 minutes.		
Select I do not want to participate in Call Home and click Next.		
Click Finish. The VM will restart since the Restart machine box is checked by default.		

Step 4: Create a Machine Catalog

The next step constructs a machine catalog that will contain machines generated from a master image. The virtual hard disk (VHD) for the OCI VM containing the XenApp golden image is used as the master software image. In this early release of Citrix Cloud with Oracle Cloud Infrastructure, Citrix Machine Creation Services (MCS), power management, and Oracle Cloud as a hosting connection are not available, however manual connections can still be made. In order to make connections to an instance in OCI, an out-of-band connection is available that allows for machine to be connected to in OCI using Citrix Cloud and NetScaler Gateway Service for secure access to the XenApp sessions. The process below shows how to create and out-of-band machine catalog to an instance in OCI.

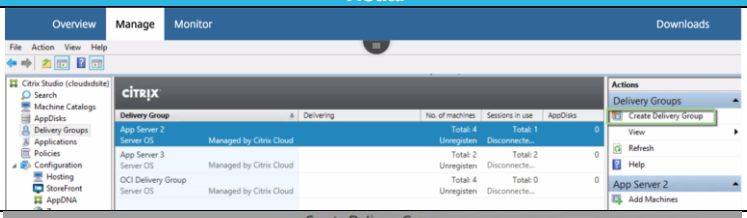
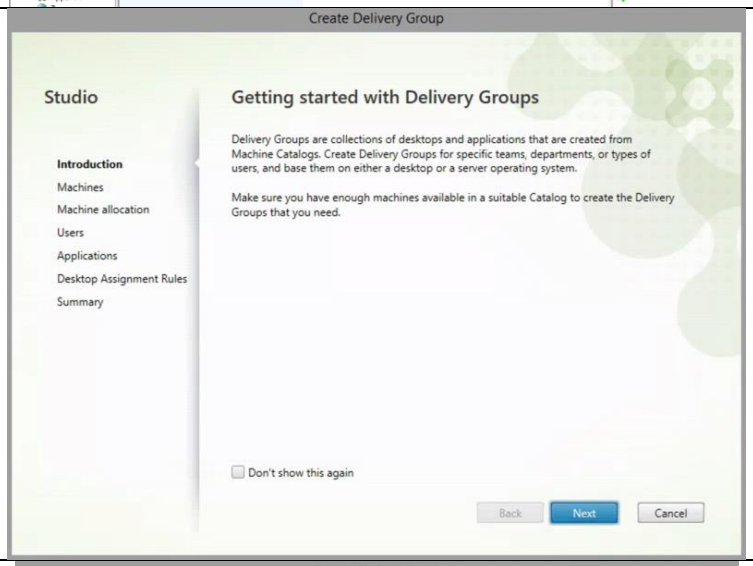
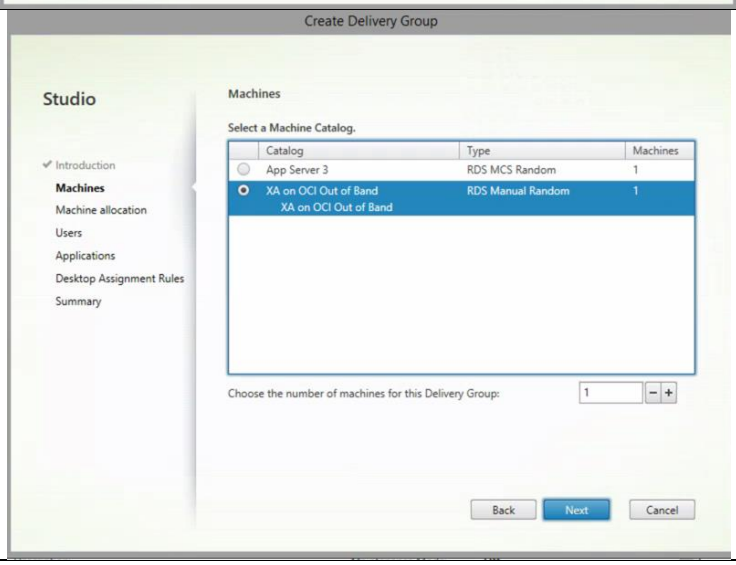
XenApp and XenDesktop Service on Citrix Cloud Login to Citrix Cloud console: https://citrix.cloud.com Select the appropriate 'Customer' you have subscribed to	
Click on the hamburger menu. Click on XenApp and XenDesktop Service then click on Manage Service Creation.	
Click manage	
In the Studio console click Create Machine Catalog.	
The Studio window will appear. Click Next.	

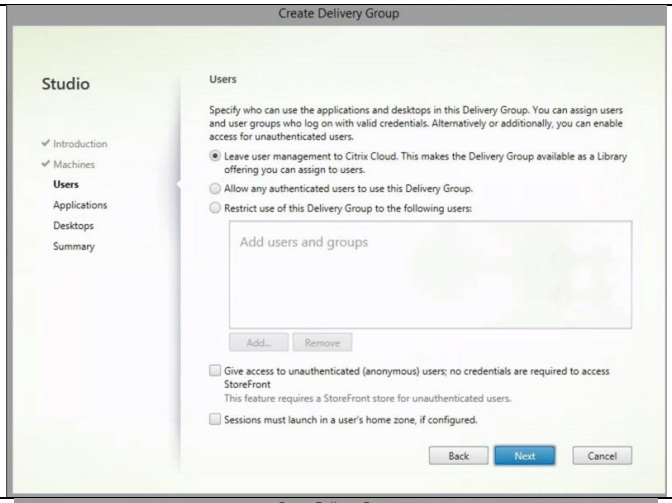
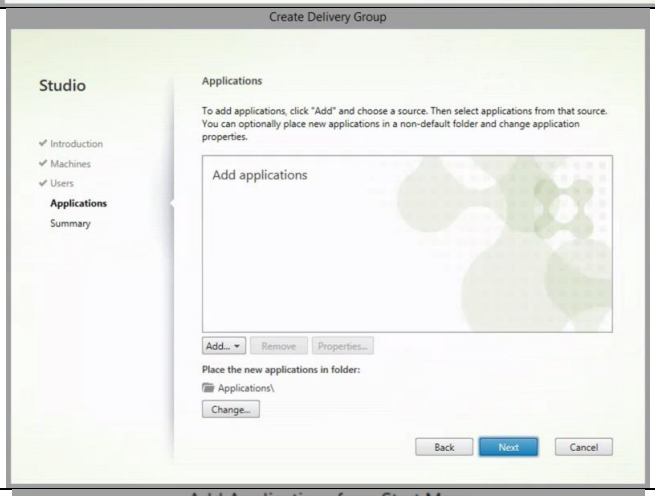
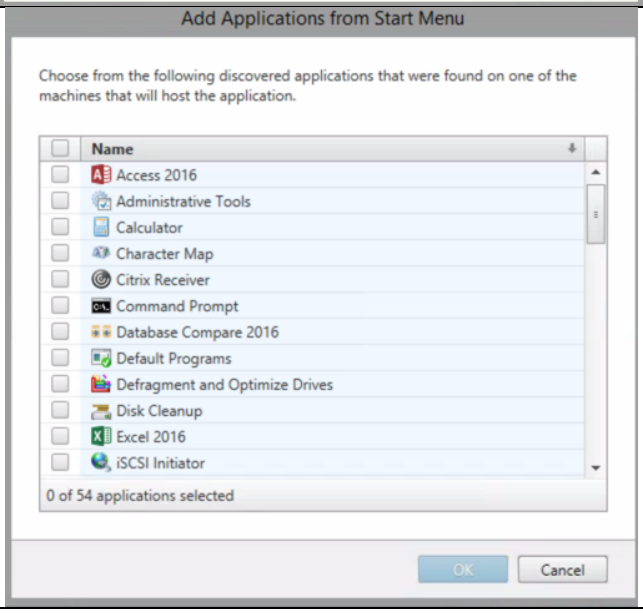
In the Operating System section select Server OS for deploying a XenApp Catalog. Click Next.	
In the Machine Management screen select Machines that are not power managed. Select another service or technology. Click Next	
Locate the machine on which VDA is installed on in Active Directory by searching in Add Computers. Click Ok. Click Next	

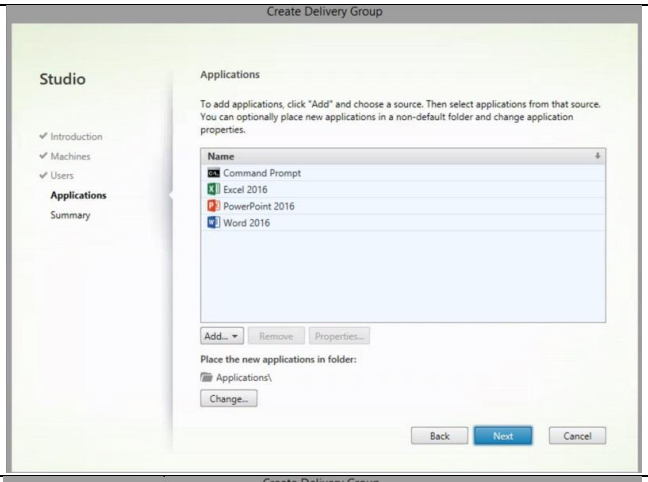
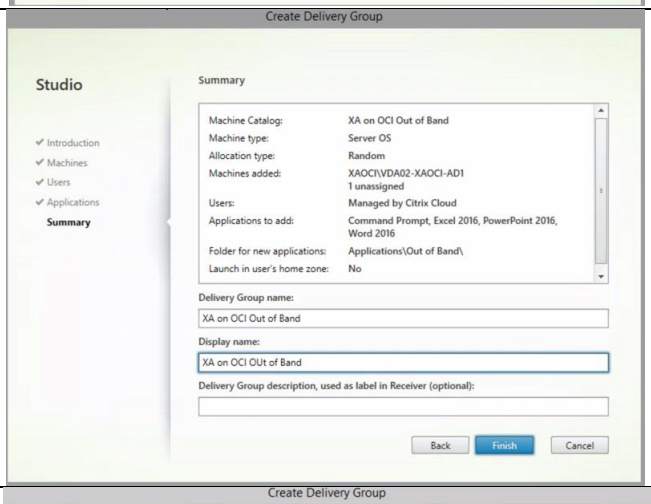
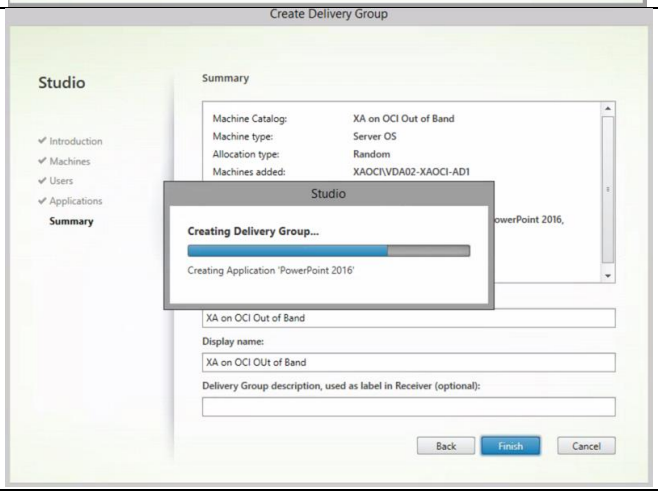
	
Enter a description for the Catalog then click Finish	
	

Step 5: Create a Delivery Group

The next step uses Citrix Studio to create a Delivery Group for the XenApp deployment.

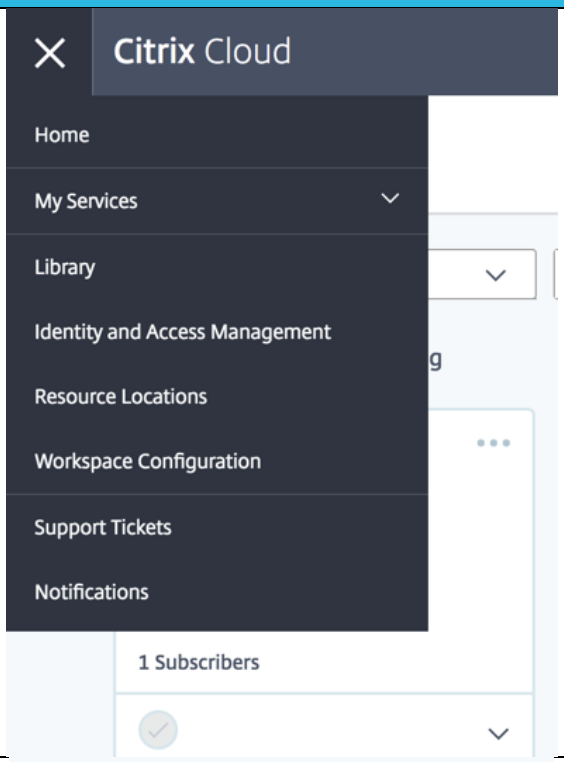
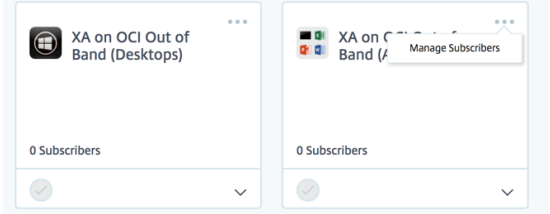
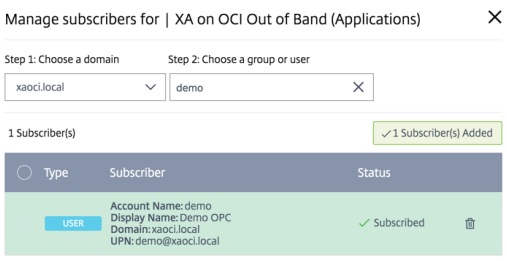
instructions	Visual
In the Studio console right click on Delivery Groups. Click Create Delivery group. Click Next.	
	
Select the new catalog created called XenApp on OCI. Click Next.	

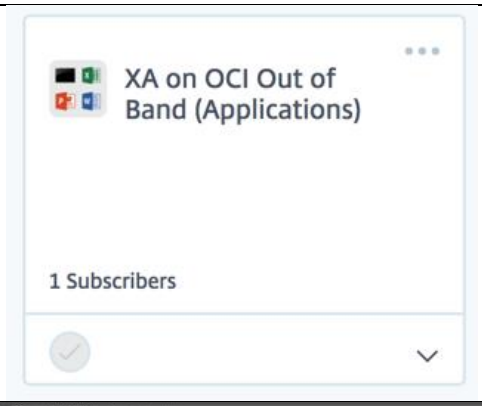
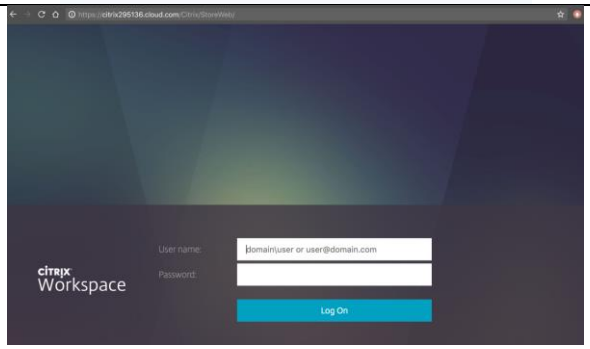
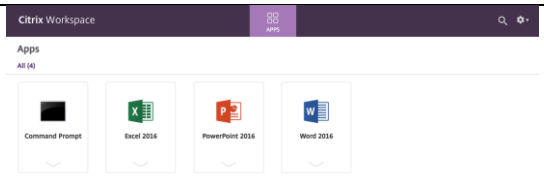
In the Users section select Leave user management to Citrix Cloud. Click Next.	
At the applications screen Click Next.	
Add available applications from Start Menu of VDA VM	

	
In the Delivery Group Name enter XenApp on OCI. Click Finish.	
The Delivery Group will be created.	

Step 6: Securely accessing OCI using NetScaler Gateway Service

Once the Citrix Cloud connectors, Machine Catalogs, and Delivery groups are created the base XenApp instance can be remotely accessed. In order to assign the correct subscribers to the instance appropriate permission need to be applied using the Citrix Cloud Library.

instructions	Visual
From the hamburger menu click on Library	
Select the XenApp published resource in the Library then click on the … then click manage subscribers	
Enter in the name of the user or group to publish the desktop to	

The resource should now be published.	
Login to the Storefront URL, which is secure with NetScaler Gateway Service, with the created AD credentials and launch the XenApp or XenDesktop session	
The XenApp on OCI instance is now available for user to login to	

Learn more

For more information about deploying XenApp on Oracle Cloud Infrastructure, see also these resources.

Resource	URL

Resource	URL

Revision and Signoff Sheet

Change Record

Date	Author	Version	Change Reference

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