Overview

This chapter contains the following sections:

Cisco UCS Director Express for Big Data

Cisco UCS Director Express for Big Data provides a single touch solution that automates deployment of Big Data infrastructure and provides a single management pane across both physical infrastructure and Hadoop software. It supports key Hadoop distributions including Cloudera, MapR, and Hortonworks.

Cisco UCS Director Express for Big Data delivers end-to-end automation of Hadoop cluster deployment that allows you to spin up and expand clusters on-demand. Configuration of the physical infrastructure, which includes compute, internal storage, network, and installation of operating system, Java packages, Hadoop along with provisioning of Hadoop services are handled automatically with minimal user input. This is achieved through the innovative Cisco UCS service profiles wherein both the physical infrastructure and Hadoop configuration are incorporated into a Hadoop cluster deployment profile.

Cisco UCS Integrated Infrastructure for Big Data

Cisco UCS Integrated Infrastructure for Big Data is an industry leading architecture designed to meet a variety of Big Data workloads. It scales as processing and storage needs grow without increasing management challenges and delivers predictable performance along with reduced total cost of ownership (TCO).

Cisco UCS Integrated Infrastructure is comprised of the following components:

- Cisco UCS Fabric Interconnects

- Cisco UCS 2200 Series Fabric Extenders

- Cisco UCS C-Series Rack-Mount Servers

- Cisco UCS Virtual Interface Cards (VICs)

- Cisco UCS Manager

You can read more about the Cisco UCS Integrated Infrastructure for Big Data in the Data Center Designs Cloud Computing - Design Zone for Big Data .

Manage Cisco UCS Director and Cisco UCS Director Express for Big Data Personalities

Cisco UCS Director is the default personality made available after deployment but you can switch to use only Cisco UCS Director Express for Big Data, or both Cisco UCS Director and Cisco UCS Director Express for Big Data.

You can manage personalities here: **Administration** > **License** > **License Keys** > **Manage Personalities**.

Table 1: Personality Switch Behavior

Personality Selection	Cisco UCS Director Features	Cisco UCS Director Express for Big Data Features
Cisco UCS Director, Release 5.4 (Default)	Yes	No
Cisco UCS Director Express for Big Data, Release 2.0	No	Yes
Cisco UCS Director, Release 5.4 and Cisco UCS Director Express for Big Data, Release 2.0	Yes	Yes

Note Depending on the personality you start with and the personality selection, Cisco UCS Director and Cisco UCS Director Express for Big Data features are enabled or disabled with the restart of services on the appliance.

Create User Roles

You can create user roles that are specific to Cisco UCS Director Express for Big Data, and define menu settings and permissions for the users. You must ensure that you create a group before you add users to any role.

Note   You can determine the default roles in the system only if the **Default Role** column in the **User Roles** page is marked with **Yes** here: **Administration** > **System** > **User Roles**.

For example, you can create the fallowing user roles, and then create users with this role:

- HadoopUser—A Hadoop user

- HadopAdmin—A Hadoop admin

For more information on Managing Users and Groups, see the latest *Cisco UCS Director Administration Guide*.

Hadoop Admin Permissions

Hadoop admin can:

- Read—permission to only read a file.

- Write—permission to read, write, and modify a file.

- Read/Write—permission to read and write to a file.

The following table shows a list of operations that an Hadoop admin can do:

Operations	Permissions	
	Read	**Write**
Virtual Computing	Yes	Yes (Only VM Management Actions)
VM Label	Yes	
Assign VM to vDC	Yes	
Virtual Storage	Yes	Yes
Virtual Network	Yes	Yes
Physical Computing	Yes	Yes
Physical Storage	Yes	Yes
Physical Network	Yes	Yes
Group Service Request	Yes	Yes
Approver Service Request	Yes	Yes
Budgeting	Yes	Yes

Operations	Permissions	
	Read	**Write**
Resource Accounting	Yes	
Chargeback	Yes	
System Admin	Yes	Yes
Users and Groups	Yes	Yes
Virtual Accounts	Yes	Yes
Catalogs	Yes	Yes
vDC	Yes	Yes
Computing Policy	Yes	Yes
Storage Policy	Yes	Yes
Network Policy	Yes	Yes
Service Delivery	Yes	Yes
Resource Limit Report	Yes	Yes
Group Users	Yes	Yes
Cloudsense Reports	Yes	Yes
Cloudsense Assessment Reports	Yes	Yes
Orchestration	Yes	Yes
Open Automation Modules	Yes	Yes
CS Shared Reports	Yes	Yes
Remote VM Access		Yes
Mobile Access Settings	Yes	Yes
End User Chargeback	Yes	
Resource Groups	Yes	Yes
Tag Library	Yes	Yes
Big Data Infra	Yes	

Operations	Permissions	
	Read	**Write**
Big Data Accounts		Yes
Big Data Cluster Management		Yes
Big Data Node Management		Yes
Big Data Performance Test		Yes
Big Data Service Management		Yes
Big Data Role Management		Yes
Big Data UCS SP Template		Yes
Big Data Hadoop Profile Template		Yes
Big Data Hadoop Deploy Template		Yes
Big Data Cluster Deployment		Yes
Big Data License Upload		Yes
Big Data Configuration Parameters Template		Yes
Big Data Faults		Yes
Big Data Settings - QoS		Yes
Big Data Settings - IP Pool		Yes
Big Data Settings - Pre_Cluster Sanity		Yes
Big Data Settings - Hadoop Software Upload		Yes
Big Data Settings - Configuration Check Rules		Yes

Hadoop User Permissions

Hadoop user can:

- Read—permission to only read a file.

Hadoop User Permissions

• Write—permission to read, write, and modify a file.

• Read/Write—permission to read and write to a file.

The following table shows a list of operations that an Hadoop user can do:

Operations	Permissions	
	Read	**Write**
Virtual Computing	Yes	
VM Label	Yes	
Assign VM to vDC	Yes	
Virtual Storage	Yes	
Virtual Network	Yes	
Physical Computing	Yes	
Physical Storage	Yes	
Physical Network	Yes	
Group Service Request	Yes	Yes
Approver Service Request	Yes	Yes
Budgeting	Yes	
Resource Accounting	Yes	
Chargeback	Yes	
System Admin	Yes	
Users and Groups	Yes	
Virtual Accounts	Yes	
Catalogs	Yes	
vDC	Yes	
Computing Policy	Yes	
Storage Policy	Yes	
Network Policy	Yes	

6

Operations	Permissions	
	Read	**Write**
Service Delivery	Yes	
Resource Limit Report	Yes	
Group Users	Yes	
Cloudsense Reports	Yes	
Cloudsense Assessment Reports	Yes	
Orchestration		
Open Automation Modules		
CS Shared Reports		
Remote VM Access		
Mobile Access Settings		
End User Chargeback		
Resource Groups		
Tag Library		
Big Data Infra	Yes	
Big Data Accounts		
Big Data Cluster Management		
Big Data Node Management		
Big Data Performance Test		
Big Data Service Management		
Big Data Role Management		
Big Data UCS SP Template		
Big Data Hadoop Profile Template		
Big Data Hadoop Deploy Template		
Big Data Cluster Deployment		

Operations	Permissions	
	Read	**Write**
Big Data License Upload		
Big Data Configuration Parameters Template		
Big Data Faults		
Big Data Settings - QoS		
Big Data Settings - IP Pool		
Big Data Settings - Pre_Cluster Sanity		
Big Data Settings - Hadoop Software Upload		
Big Data Settings - Configuration Check Rules		

Supported Hadoop Distributions

Cisco UCS Director Express for Big Data supports the following Hadoop distributions:

- Cloudera 5.4
- MapR 3.1, 4.0, 4.1, and 5.0
- Hortonworks 2.1, 2.2, and 2.3

Table 2: Java and JDK Software for Hadoop Distributions

Hadoop Distribution	Supported Hadoop Distribution Versions	Installed Java and JDK
Cloudera	5.0.1, 5.0.6, 5.2.0, 5.2.1, 5.3.0, and 5.4.1	oracle-j2sdk1.7
MapR	3.1.1, 4.0.1, 4.0.2, 4.1.0, and 5.0.0	java-1.7.0-openjdk
Hortonworks	2.1, 2.2, and 2.3	java-1.7.0-openjdk

High Level Work Flow to Create an Instant Hadoop Cluster

Step 1   Create a Cisco UCS Manager account. For more information, see Adding a Cisco UCS Manager Account .

Step 2   Configure Big Data IP pools. For more information, see Adding a Big Data IP Pool.

Step 3   Create an Instant Hadoop Cluster. For more information, see Creating an Instant Hadoop Cluster.

High-Level Work Flow to Create a Customized Hadoop Cluster

Step 1   Configure a Cisco UCS Service Profile template for Big Data. For more information, see Creating a Cisco UCS Service Profile Template for Big Data.

Step 2   Configure an Hadoop cluster template. For more information see, Creating an Hadoop Cluster Template.

Step 3   Configure an Hadoop cluster deploy template. For more information, see Creating an Hadoop Cluster Deploy Template.

Step 4   Create a customized Hadoop cluster. For more information, see Creating a Customized Hadoop Cluster.