

Module 2: Ambari Architecture / Installations

Hands-on

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Setting Up Repository (Offline Installation)

1. Download the tarball for Ambari rpms from below URL (CentOS 6)
 - a. <http://public-repo-1.hortonworks.com/ambari/centos6/2.x/updates/2.1.2.1/ambari-2.1.2.1-centos6.tar.gz> (Tarball)
 - b. <http://public-repo-1.hortonworks.com/ambari/centos6/2.x/updates/2.1.2.1/ambari.repo> (Repo File)
 - c. <http://public-repo-1.hortonworks.com/ambari/centos6/2.x/updates/2.1.2.1> (base URL)
2. Similarly Download HDP repository from web
 - a. HDP
 - i. <http://public-repo-1.hortonworks.com/HDP/centos6/2.x/updates/2.3.2.0>
 - ii. <http://public-repo-1.hortonworks.com/HDP/centos6/2.x/updates/2.3.2.0/hdp.repo>
 - iii. <http://public-repo-1.hortonworks.com/HDP/centos6/2.x/updates/2.3.2.0/HDP-2.3.2.0-centos6-rpm.tar.gz>
 - b. HDP UTILS
 - i. <http://public-repo-1.hortonworks.com/HDP-UTILS-1.1.0.20/repos/centos6>
 - ii. <http://public-repo-1.hortonworks.com/HDP-UTILS-1.1.0.20/repos/centos6/HDP-UTILS-1.1.0.20-centos6.tar.gz>

3. Setting up the Offline Repo

- a. Folder for creating mirror Server
 - i. `mkdir -p /var/www/html/`
- b. Go that directory and untar the tarball which you have download like below:
 - i. `tar -xzf ambari-2.1.2.1-centos6.tar.gz`
 - ii. `tar -xzf HDP-2.3.2.0-centos6-rpm.tar.gz`
 - iii. `tar -xzf HDP-UTILS-1.1.0.20-centos6.tar.gz`
- c. Now open the repo file for all the three (ambari / HDP/HDP-Util) and update the base URL in it.
 - i. [http://\\${ambari_host}/ambari-2.1.2.1/centos6](http://${ambari_host}/ambari-2.1.2.1/centos6)
 - ii. [http://\\${ambari_host}/hdp/HDP/centos6/2.x/updates/2.3.2.0](http://${ambari_host}/hdp/HDP/centos6/2.x/updates/2.3.2.0)
 - iii. [http://\\${ambari_host}/hdp/HDP-UTILS-1.1.0.20/repos/centos6](http://${ambari_host}/hdp/HDP-UTILS-1.1.0.20/repos/centos6)
- d. Now move the repo files inside `/etc/yum.repos.d/` directory
 - i. `mv ambari.repo /etc/yum.repos.d`
 - ii. `mv hdp.repo /etc/yum/repos.d`

Ambari Installation (Online)

Step 1: Login as root and run the below commands

1. Download the ambari repo to do the online installation:
`wget -nv http://public-repo-1.hortonworks.com/ambari/centos6/2.x/updates/2.1.2.1/ambari.repo -O /etc/yum.repos.d/ambari.repo`
2. Check the repolist if its working file with below command
 - a. `yum repolist`
3. Install the ambari server on the ambari node
 - a. `yum install ambari-server`

Step 2: Run the set up commands to setup Ambari on ambari server

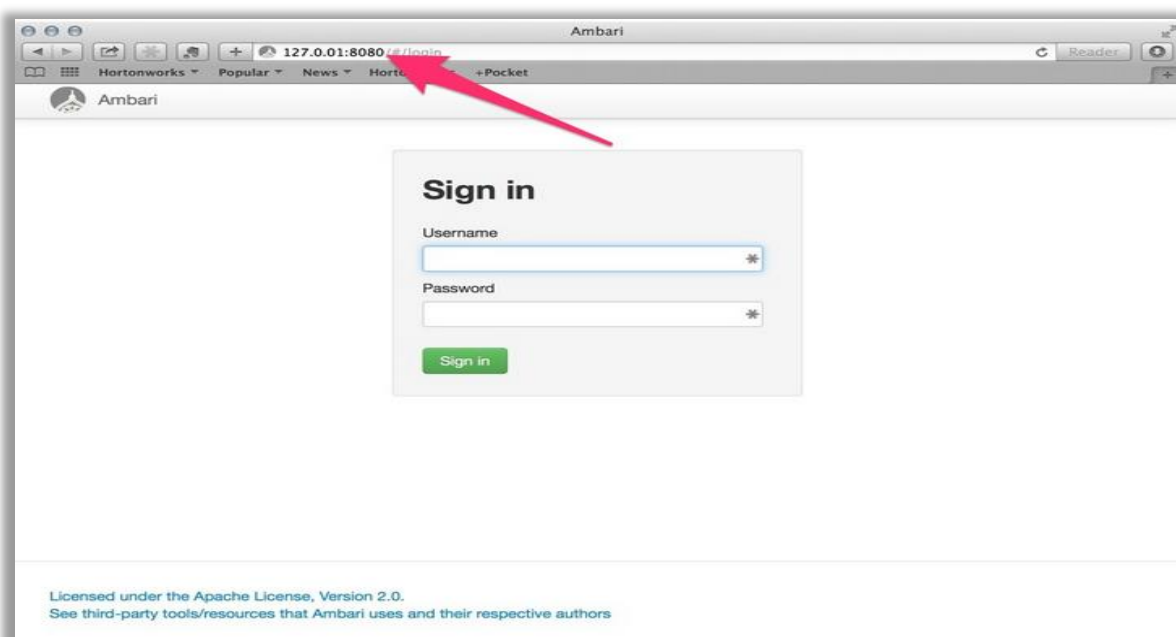
1. Run the below command to set up the ambari server
 - a. `ambari-server setup`
2. If you don't want to use existing database (use default db which is postgres)
 - a. Select n while asking for Enter advanced database configuration
3. Else you can select y to use your existing database

Step 3

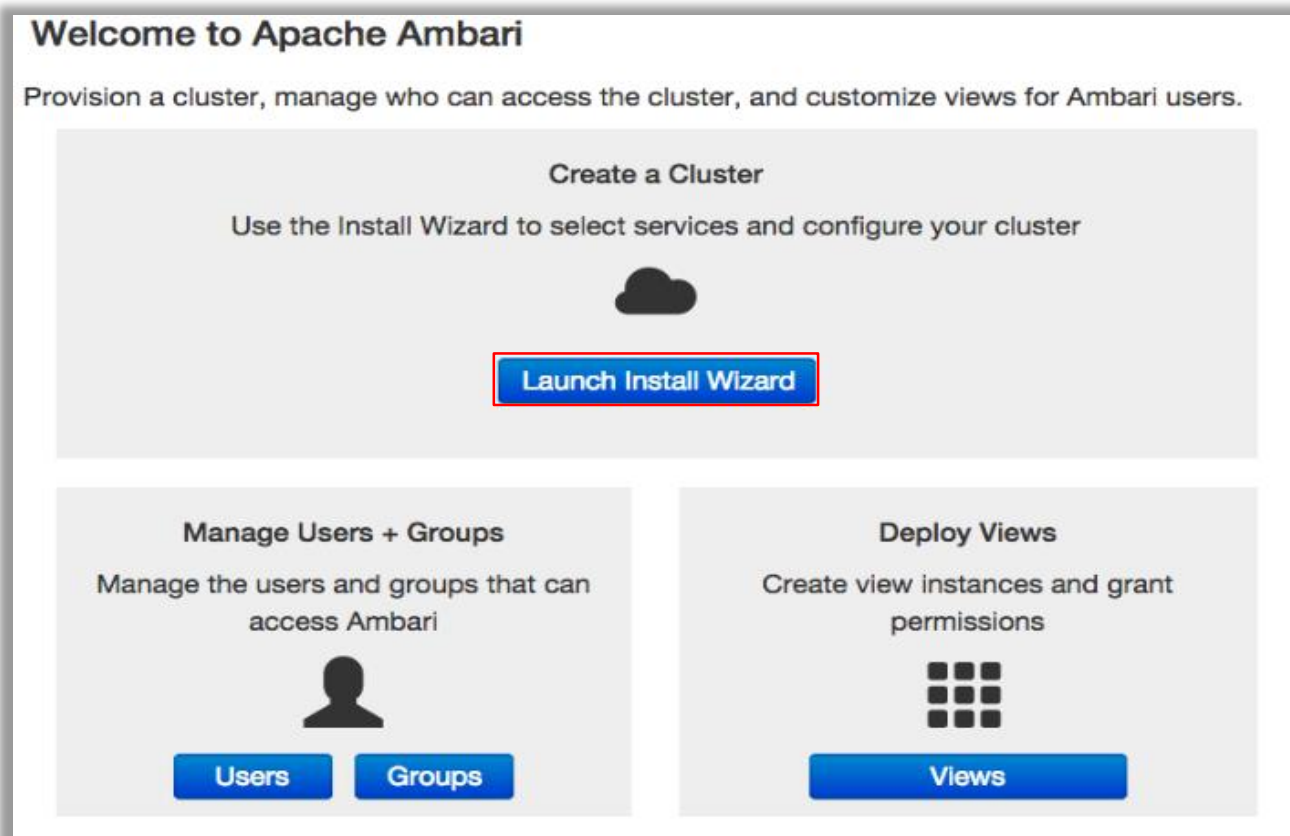
1. Run the following command on the Ambari Server host:
 - a. `ambari-server start`
2. To check the Ambari Server processes
 - a. `ambari-server status`
3. To stop the Ambari Server
 - a. `ambari-server stop`

Step 4: Open Ambari web-console: [http://\\${ambari-host}:8080](http://${ambari-host}:8080)

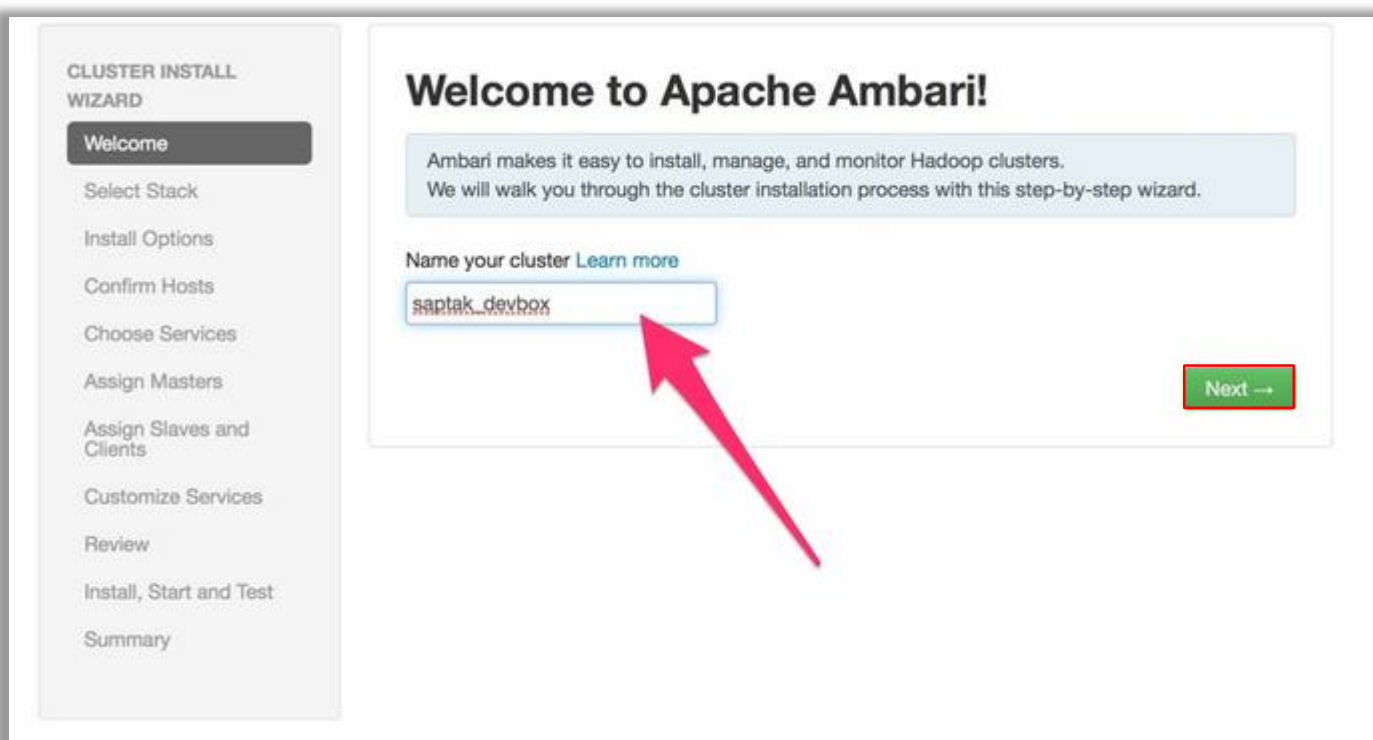
Deploying HDP Cluster

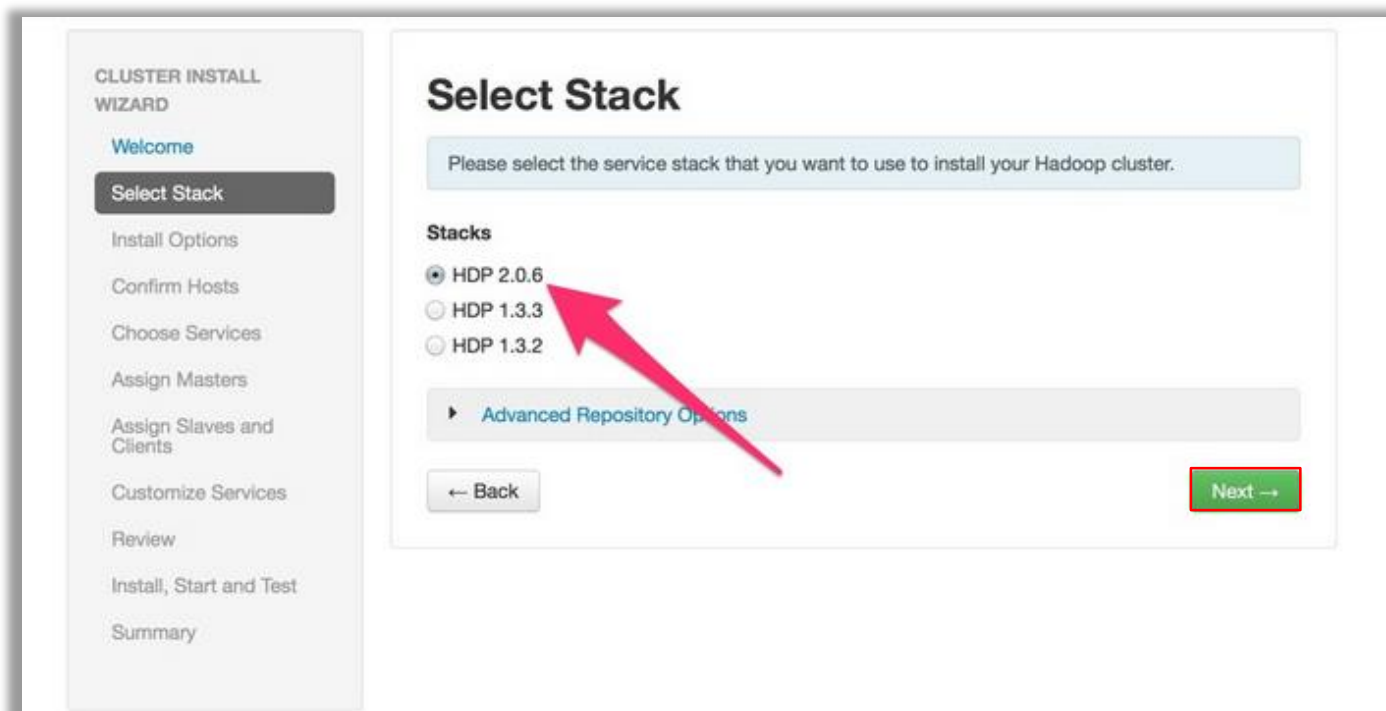
Step 1: Login Screen: admin/admin

Step 2: Now Launch the Install Wizard to Create Cluster



Step 3: Enter the Name of the cluster



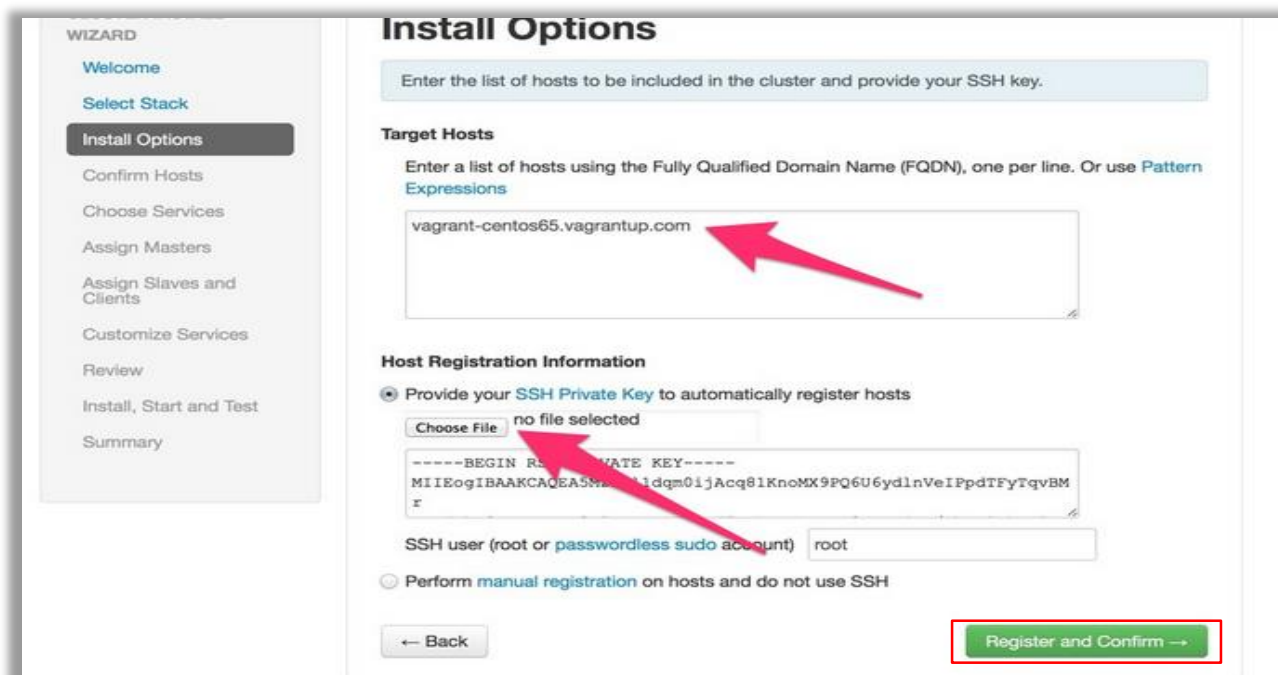


The screenshot shows the 'Select Stack' step of the Ambari Cluster Install Wizard. On the left is a sidebar with the following steps: Welcome, **Select Stack**, Install Options, Confirm Hosts, Choose Services, Assign Masters, Assign Slaves and Clients, Customize Services, Review, Install, Start and Test, and Summary. The main area is titled 'Select Stack' and contains the instruction: 'Please select the service stack that you want to use to install your Hadoop cluster.' Under the 'Stacks' section, there are three radio buttons: ☒ HDP 2.0.6, ☐ HDP 1.3.3, and ☐ HDP 1.3.2. A red arrow points to the HDP 1.3.3 option. Below the stacks is a link for 'Advanced Repository Options'. At the bottom are 'Back' and 'Next' buttons, with the 'Next' button highlighted with a red border.

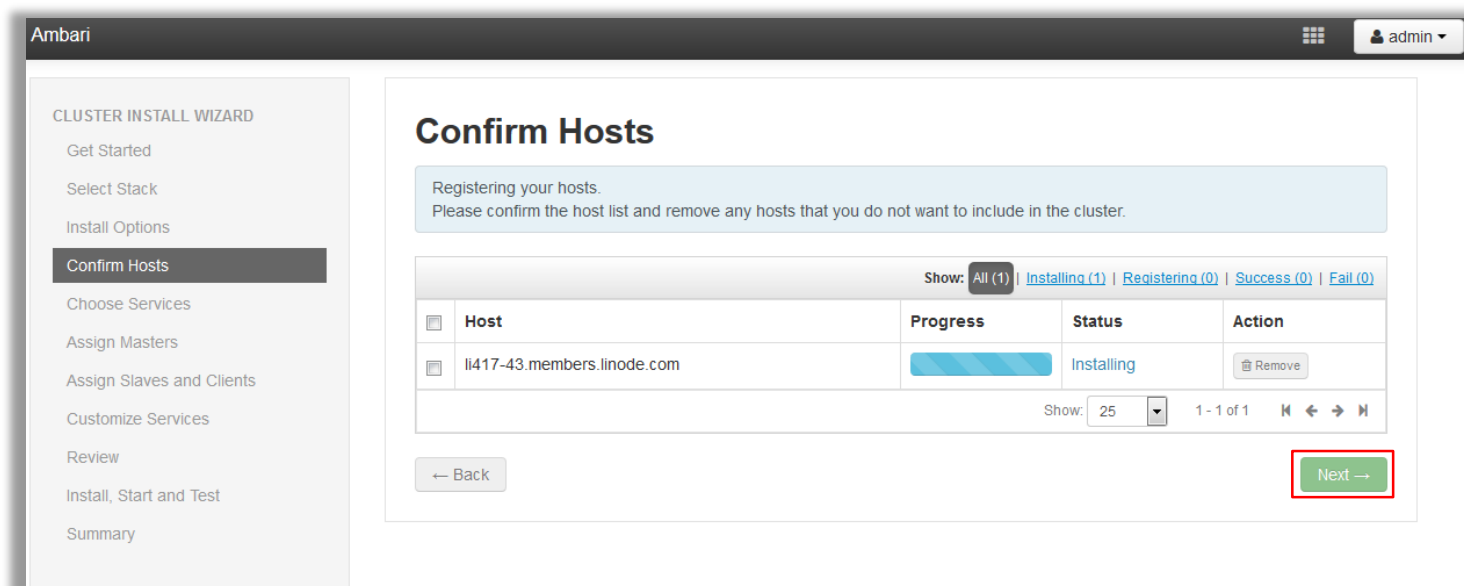
Advance Option: It is advance option where you can give the local (offline) repository where you have already downloaded the packages / rpms for installation

Once you click on it you can see the options for different operation systems as well. It will automatically choose the operating system and download the repository accordingly

Step 5: Provide the hostname and private to login into hosts



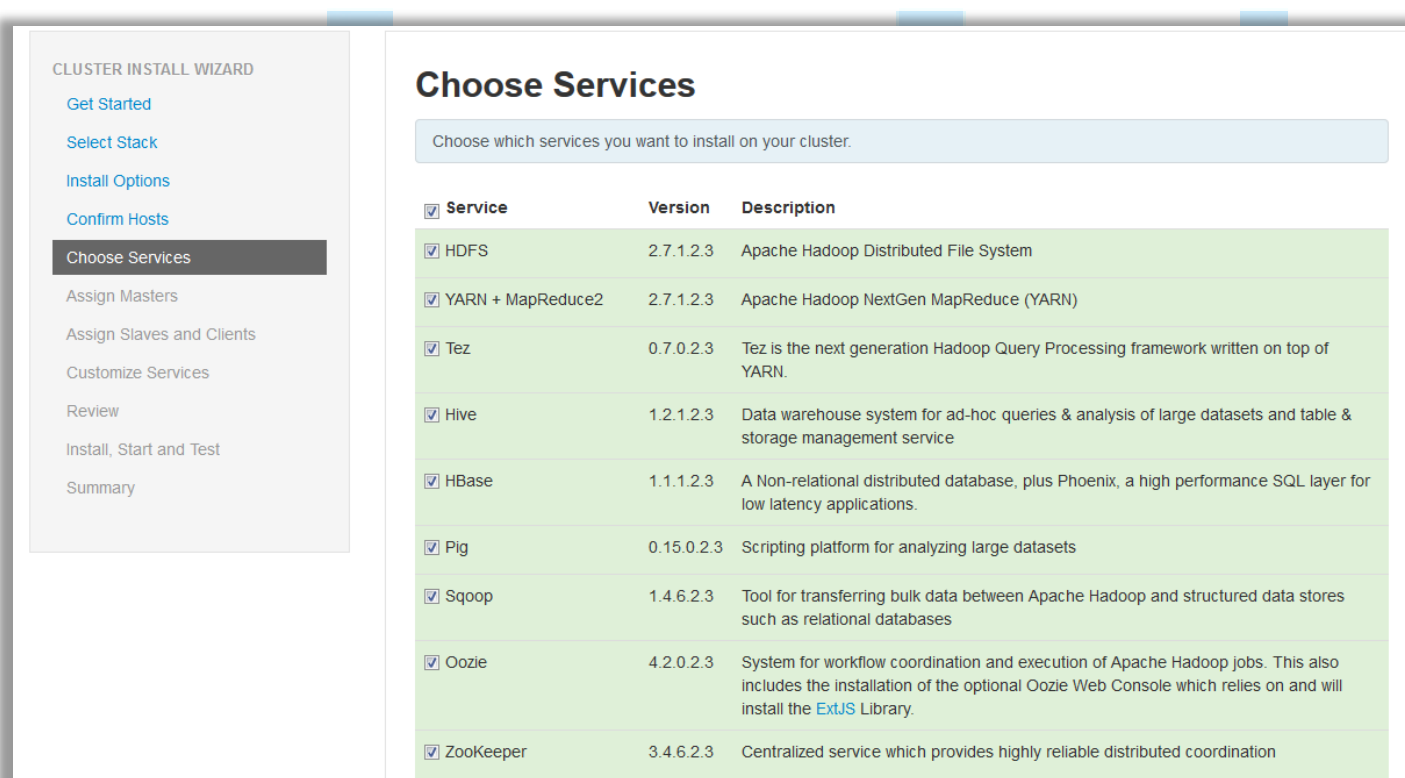
The screenshot shows the 'Install Options' step of the Ambari Cluster Install Wizard. The sidebar on the left has the following steps: Welcome, Select Stack, **Install Options**, Confirm Hosts, Choose Services, Assign Masters, Assign Slaves and Clients, Customize Services, Review, Install, Start and Test, and Summary. The main area is titled 'Install Options' and contains the instruction: 'Enter the list of hosts to be included in the cluster and provide your SSH key.' Under 'Target Hosts', there is a text area with 'vagrant-centos65.vagrantup.com' and a red arrow pointing to it. Below this is the 'Host Registration Information' section. It has a radio button selected for 'Provide your SSH Private Key to automatically register hosts'. There is a 'Choose File' button and a text area showing a sample private key. A red arrow points to the 'Choose File' button. Below the key is a text field for 'SSH user (root or passwordless sudo account)' with 'root' entered. At the bottom are 'Back' and 'Register and Confirm' buttons, with the 'Register and Confirm' button highlighted with a red border.



The screenshot shows the Ambari web interface at the 'Confirm Hosts' step of the cluster installation wizard. The left sidebar lists the steps: Get Started, Select Stack, Install Options, **Confirm Hosts**, Choose Services, Assign Masters, Assign Slaves and Clients, Customize Services, Review, Install, Start and Test, and Summary. The main content area has a title 'Confirm Hosts' and a message: 'Registering your hosts. Please confirm the host list and remove any hosts that you do not want to include in the cluster.' Below this is a table with columns: Host, Progress, Status, and Action. There is one host listed: 'li417-43.members.linode.com' with a progress bar and status 'Installing'. A 'Remove' button is next to it. At the bottom right, a 'Next →' button is highlighted with a red box. The top right shows the user 'admin'.

Host	Progress	Status	Action
li417-43.members.linode.com	<div></div>	Installing	Remove

Step 7: Once everything went fine and it get register successfully you will see the below screen to install services



The screenshot shows the Ambari web interface at the 'Choose Services' step of the cluster installation wizard. The left sidebar lists the steps: Get Started, Select Stack, Install Options, Confirm Hosts, **Choose Services**, Assign Masters, Assign Slaves and Clients, Customize Services, Review, Install, Start and Test, and Summary. The main content area has a title 'Choose Services' and a message: 'Choose which services you want to install on your cluster.' Below this is a table with columns: Service, Version, and Description. All services are checked. The services listed are: HDFS, YARN + MapReduce2, Tez, Hive, HBase, Pig, Sqoop, Oozie, and ZooKeeper.

Service	Version	Description
<input checked="" type="checkbox"/> HDFS	2.7.1.2.3	Apache Hadoop Distributed File System
<input checked="" type="checkbox"/> YARN + MapReduce2	2.7.1.2.3	Apache Hadoop NextGen MapReduce (YARN)
<input checked="" type="checkbox"/> Tez	0.7.0.2.3	Tez is the next generation Hadoop Query Processing framework written on top of YARN.
<input checked="" type="checkbox"/> Hive	1.2.1.2.3	Data warehouse system for ad-hoc queries & analysis of large datasets and table & storage management service
<input checked="" type="checkbox"/> HBase	1.1.1.2.3	A Non-relational distributed database, plus Phoenix, a high performance SQL layer for low latency applications.
<input checked="" type="checkbox"/> Pig	0.15.0.2.3	Scripting platform for analyzing large datasets
<input checked="" type="checkbox"/> Sqoop	1.4.6.2.3	Tool for transferring bulk data between Apache Hadoop and structured data stores such as relational databases
<input checked="" type="checkbox"/> Oozie	4.2.0.2.3	System for workflow coordination and execution of Apache Hadoop jobs. This also includes the installation of the optional Oozie Web Console which relies on and will install the ExtJS Library.
<input checked="" type="checkbox"/> ZooKeeper	3.4.6.2.3	Centralized service which provides highly reliable distributed coordination

Step 8: After selecting your choice of service you can go next and see the below screen

CLUSTER INSTALL WIZARD

[Get Started](#)
[Select Stack](#)
[Install Options](#)
[Confirm Hosts](#)
[Choose Services](#)
Assign Masters
[Assign Slaves and Clients](#)
[Customize Services](#)
[Review](#)
[Install, Start and Test](#)
[Summary](#)

Assign Masters

Assign master components to hosts you want to run them on.
* HiveServer2 and WebHCat Server will be hosted on the same host.

NameNode:

SNameNode:

History Server:

App Timeline Server:

ResourceManager:

Hive Metastore:

WebHCat Server:

HiveServer2:

ZooKeeper Server:

Metrics Collector:

li417-43.members.linode.com (984.3 MB, 8 cores)

NameNode

SNameNode

History Server

App Timeline Server

ResourceManager

Hive Metastore

WebHCat Server

HiveServer2

ZooKeeper Server

Metrics Collector

Step 9: Now you need to assign the client on client nodes

Ambari

admin

CLUSTER INSTALL WIZARD

[Get Started](#)
[Select Stack](#)
[Install Options](#)
[Confirm Hosts](#)
[Choose Services](#)
[Assign Masters](#)
Assign Slaves and Clients
[Customize Services](#)
[Review](#)
[Install, Start and Test](#)
[Summary](#)

Assign Slaves and Clients

Assign slave and client components to hosts you want to run them on.
Hosts that are assigned master components are shown with *.
"Client" will install HDFS Client, MapReduce2 Client, YARN Client, Tez Client, HCat Client, Hive Client, Pig and ZooKeeper Client.

Host	all none	all none	all none	all none
li417-43.members.linode.c...*	<input checked="" type="checkbox"/> DataNode	<input type="checkbox"/> NFSGateway	<input checked="" type="checkbox"/> NodeManager	<input checked="" type="checkbox"/> Client

Show: 25 1 - 1 of 1

← Back

Next →

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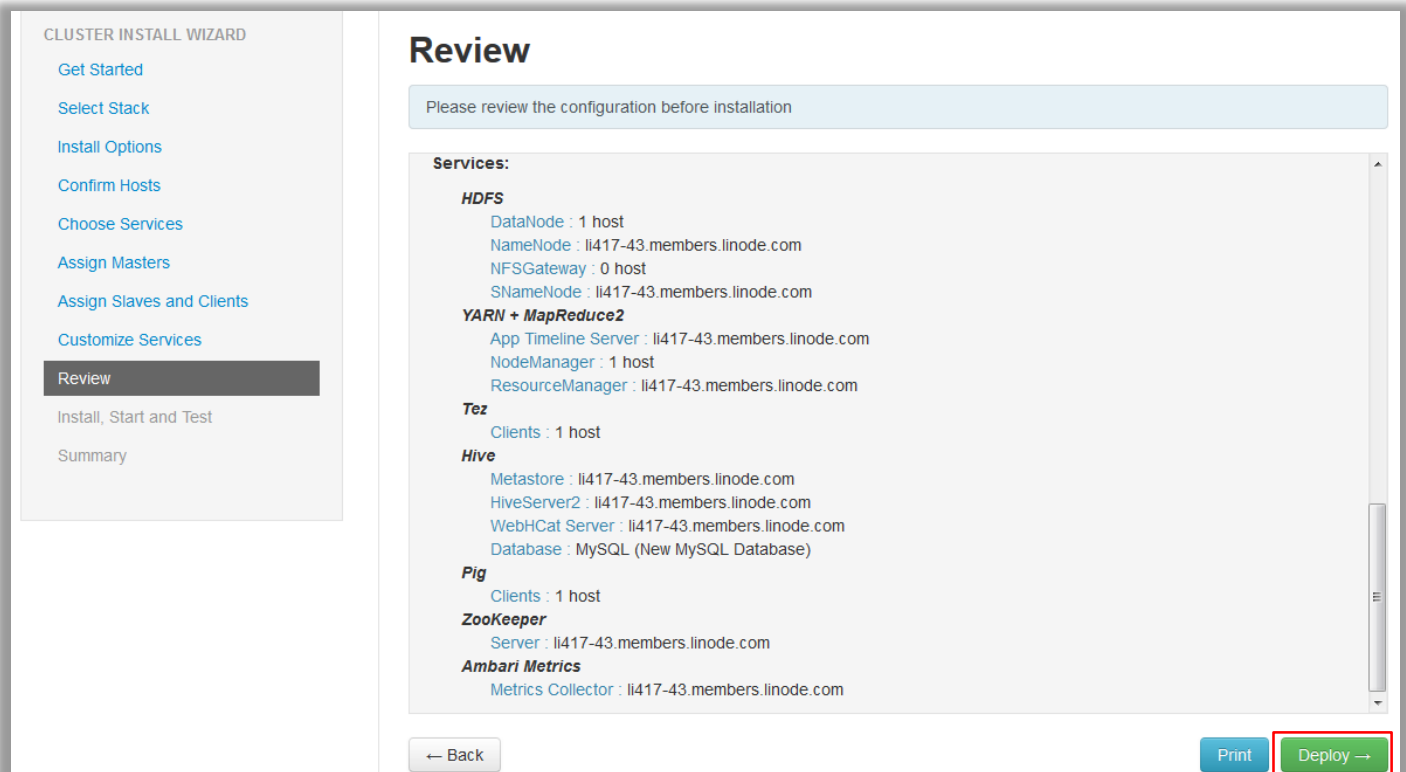
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Step 10: Now you can customize the directory/memory for the entire component you have installed

Step 11: If anything goes wrong or not properly set it will show you this screen

Service	Property	Value	Description
HIVE	hive.tez.container.size	170	Values smaller than 682MB are not recommended By default, Tez uses the java options from map tasks. Use this property to override that value.
HIVE	hive_security_authorization	None	hive_security_authorization should not be None if hive.security.authorization.enabled is set

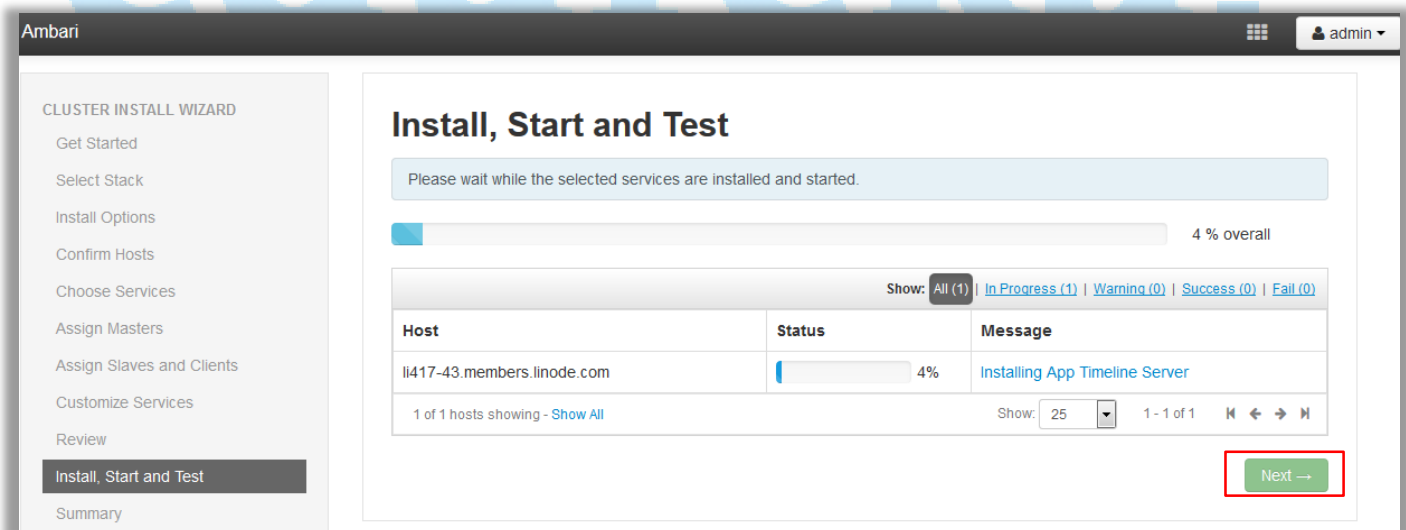
At the bottom right of the dialog are two buttons: 'Cancel' and 'Proceed Anyway'.

Step12: Final Review of your work

The screenshot shows the 'Review' step of the Ambari Cluster Install Wizard. The left sidebar lists the steps: Get Started, Select Stack, Install Options, Confirm Hosts, Choose Services, Assign Masters, Assign Slaves and Clients, Customize Services, Review (highlighted), Install, Start and Test, and Summary. The main content area is titled 'Review' and contains a message: 'Please review the configuration before installation'. Below this, a list of services and their configurations is displayed:

- Services:**
- HDFS**
 - DataNode : 1 host
 - NameNode : li417-43.members.linode.com
 - NFSGateway : 0 host
 - SNameNode : li417-43.members.linode.com
- YARN + MapReduce2**
 - App Timeline Server : li417-43.members.linode.com
 - NodeManager : 1 host
 - ResourceManager : li417-43.members.linode.com
- Tez**
 - Clients : 1 host
- Hive**
 - Metastore : li417-43.members.linode.com
 - HiveServer2 : li417-43.members.linode.com
 - WebHCat Server : li417-43.members.linode.com
 - Database : MySQL (New MySQL Database)
- Pig**
 - Clients : 1 host
- ZooKeeper**
 - Server : li417-43.members.linode.com
- Ambari Metrics**
 - Metrics Collector : li417-43.members.linode.com

At the bottom, there are three buttons: 'Back', 'Print', and 'Deploy' (highlighted with a red box).

Step 13: Now it will be start installing

The screenshot shows the 'Install, Start and Test' step of the Ambari Cluster Install Wizard. The left sidebar lists the steps: Get Started, Select Stack, Install Options, Confirm Hosts, Choose Services, Assign Masters, Assign Slaves and Clients, Customize Services, Review, Install, Start and Test (highlighted), and Summary. The main content area is titled 'Install, Start and Test' and contains a message: 'Please wait while the selected services are installed and started.' Below this, a progress bar shows '4 % overall'. A table displays the installation progress for the host 'li417-43.members.linode.com':

Host	Status	Message
li417-43.members.linode.com	4%	Installing App Timeline Server

At the bottom right, there is a 'Next' button (highlighted with a red box).