



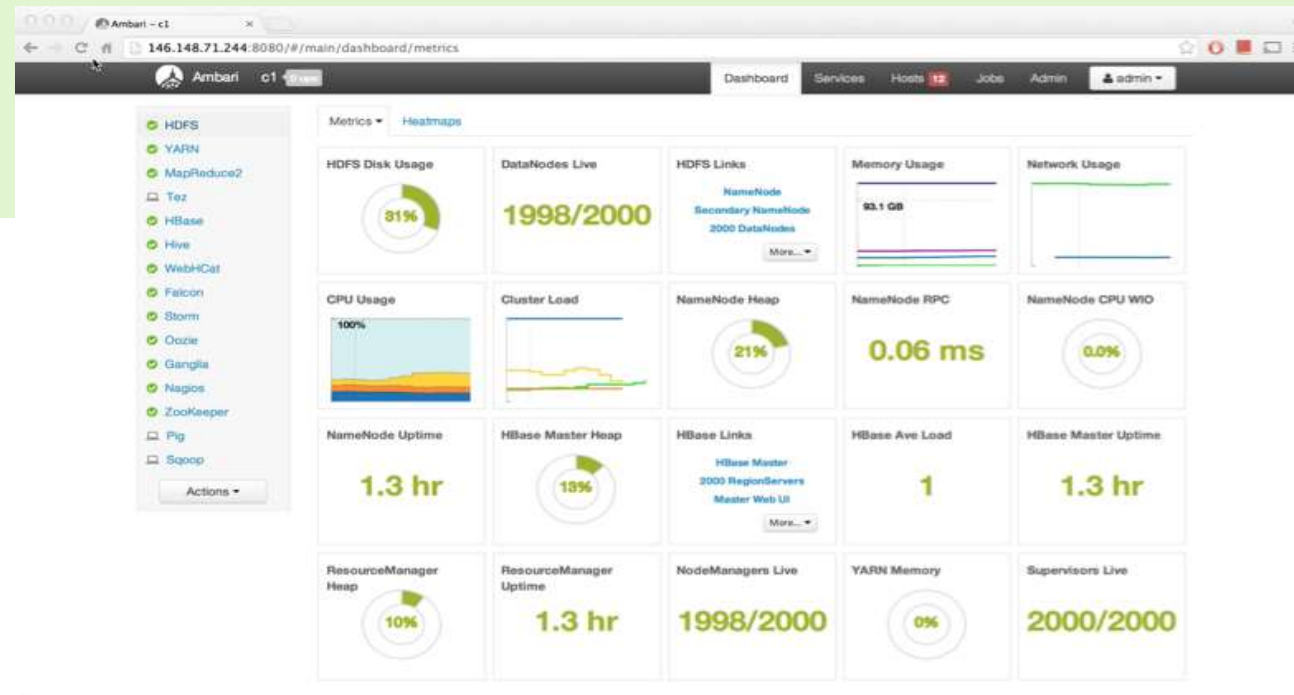
# Apache Ambari 2.1

What's New

July 2015

# What is Ambari?

**Apache Ambari is the open source operational platform to provision, manage and monitor Hadoop clusters**



# What's New in Ambari 2.1

## Core Platform

Guided Configs (AMBARI-9794)

Customizable Dashboards (AMBARI-9792)

Manual Kerberos Setup (AMBARI-9783)

Rack Awareness (AMBARI-6646)

## HDP Stack Support

Storm Nimbus HA (AMBARI-10457)

Ranger HA (AMBARI-10281, AMBARI-10863)

## Ambari Platform

New OS: RHEL/CentOS 7 (AMBARI-9791)

New JDKs: Oracle 1.8 (AMBARI-9784)

## Blueprints API

Host Discovery (AMBARI-10750)

## Views Framework

Auto-Cluster Configuration (AMBARI-10306)

Auto-Create Instance (AMBARI-10424)

**For a complete list of changes:**

<https://issues.apache.org/jira/browse/AMBARI/fixforversion/12328677>

# Kerberos Improvements

# Ambari 2.1 Kerberos Improvements

## \*New\* Manual Kerberos (AMBARI-9783)

- Enable and manage Kerberos manually

## Automated Kerberos

- Option to “not” install Kerberos clients
- Customizable Password rules

## General Improvements

- Specify Kerberos client utilities path

### Get Started

Welcome to the Ambari Security Wizard. Use this wizard to enable kerberos security in your cluster. Let's get started.

Note: This process requires services to be restarted and cluster downtime. As well, depending on the options you select, might require support from your Security administrators. Please plan accordingly.

What type of KDC do you plan on using?

- ☐ Existing MIT KDC
- ☐ Existing Active Directory
- ☒ Manage Kerberos principals and keytabs manually

Manage Kerberos principals and keytabs manually:

Following prerequisites needs to be checked to progress ahead in the wizard.

- ☐ Cluster hosts have network access to the KDC
- ☐ Kerberos client utilities (such as kinit) have been installed on every cluster host
- ☐ The Java Cryptography Extensions (JCE) have been setup on the Ambari Server host and all hosts in the cluster
- ☐ The Service and Ambari Principals will be manually created in the KDC before completing this wizard
- ☐ The keytabs for the Service and Ambari Principals will be manually created and distributed to cluster hosts before completing this wizard

Next →

# Automated vs. Manual Kerberos

	Automated	Manual
KDC Infrastructure	MIT, Active Directory	MIT, Active Directory, FreeIPA
Requires KDC administrative credentials	Yes	No
Installation of Kerberos clients	Yes, optional	No
Management of Kerberos client krb5.conf	Yes, optional	No
Creation of principals	Yes	No
Creation of keytabs	Yes	No
Distribution of keytabs	Yes	No
Cluster configuration	Yes	Yes

## So...why Manual Kerberos?

- **FreeIPA**
- **Corporate security policy does not allow admin access to KDC infra**

# \*New\* Manual Kerberos Option

## Get Started

Welcome to the Ambari Security Wizard. Use this wizard to enable kerberos security in your cluster.  
Let's get started.

Note: This process requires services to be restarted and cluster downtime. As well, depending on the options you select, might require support from your Security administrators. Please plan accordingly.

What type of KDC do you plan on using?

- ☐ Existing MIT KDC
- ☐ Existing Active Directory
- ☒ Manage Kerberos principals and keytabs manually



### Manage Kerberos principals and keytabs manually:

Following prerequisites need to be checked to progress ahead in the wizard.

- ☐ Cluster hosts have network access to the KDC
- ☐ Kerberos client utilities (such as kinit) have been installed on every cluster host
- ☐ The Java Cryptography Extensions (JCE) have been setup on the Ambari Server host and all hosts in the cluster
- ☐ The Service and Ambari Principals will be manually created in the KDC before completing this wizard
- ☐ The keytabs for the Service and Ambari Principals will be manually created and distributed to cluster hosts before completing this wizard

Next →

**Manage Kerberos manually**

**No automatic creation of principals or keytabs**

**No automatic distribution of keytabs**



# Manual Kerberos: Specify Realm, Client Utilities Path


**Configure Kerberos**

Please configure kerberos related properties.

Kerberos

▼ KDC

KDC type: Manage Kerberos principals and keytabs manually


Realm name:  

▼ Advanced kerberos-env

Executable Search Paths:

☒ All configurations have been addressed.

[< Back](#) [Next >](#)





# Manual Kerberos: Principal and Keytab CSV

## Configure Identities

## Download CSV

host	description	principal name	principal type	local user	keytab file path	keytab file owner	key	keytab file group	keytab	keytab file permissions	keytab file installed
c6402.ambai.jpncgo	HTTP/c6402.ambai.apache.org@EXAMPLE.COM	HTTP/c6402.ambai.apache.org@EXAMPLE.COM	SERVICE	local user	/etc/security/keytabs/jpncgo.service.keytab	root	f	hadoopk	f	440	unknown
c6402.ambai/jmkses	ambai-gaX@EXAMPLE.COM	ambai-gaX@EXAMPLE.COM	USER	ambai-ga	/etc/security/keytabs/jmkses.user.keytab	ambai-gaX	f	hadoopk	f	440	unknown
c6402.ambai/ams_hbase_m	ams_hbase/c6402.ambai.apache.org@EXAMPLE.COM	ams_hbase/c6402.ambai.apache.org@EXAMPLE.COM	SERVICE	amsX	/etc/security/keytabs/ams_hbase.master.keytab	amsX	f	hadoopk	f	440	unknown
c6402.ambai/datanode_dn	dn/c6402.ambai.apache.org@EXAMPLE.COM	dn/c6402.ambai.apache.org@EXAMPLE.COM	SERVICE	hdX	/etc/security/keytabs/dn.service.keytab	hdX	f	hadoopk	f	440	unknown
c6402.ambai/hdfs	hdfsX@EXAMPLE.COM	hdfsX@EXAMPLE.COM	USER	hdX	/etc/security/keytabs/hdfs.headless.keytab	hdX	f	hadoopk	f	440	unknown
c6402.ambai/history_server	hsc/c6402.ambai.apache.org@EXAMPLE.COM	hsc/c6402.ambai.apache.org@EXAMPLE.COM	SERVICE	mapredX	/etc/security/keytabs/hsc.service.keytab	mapredX	f	hadoopk	f	440	unknown
c6402.ambai/nodemanager	nm/c6402.ambai.apache.org@EXAMPLE.COM	nm/c6402.ambai.apache.org@EXAMPLE.COM	SERVICE	yarnX	/etc/security/keytabs/nm.service.keytab	yarnX	f	hadoopk	f	440	unknown
c6402.ambai/secondary_nam	nm/c6402.ambai.apache.org@EXAMPLE.COM	nm/c6402.ambai.apache.org@EXAMPLE.COM	SERVICE	hdX	/etc/security/keytabs/nm.service.keytab	hdX	f	hadoopk	f	440	unknown
c6402.ambai/resource_manager	rm/c6402.ambai.apache.org@EXAMPLE.COM	rm/c6402.ambai.apache.org@EXAMPLE.COM	SERVICE	yarnX	/etc/security/keytabs/rm.service.keytab	yarnX	f	hadoopk	f	440	unknown
c6402.ambai/app_timeline_yarn	yarn/c6402.ambai.apache.org@EXAMPLE.COM	yarn/c6402.ambai.apache.org@EXAMPLE.COM	SERVICE	yarnX	/etc/security/keytabs/yarn.service.keytab	yarnX	f	hadoopk	f	440	unknown
c6402.ambai/ams_oozie	oozie/c6402.ambai.apache.org@EXAMPLE.COM	oozie/c6402.ambai.apache.org@EXAMPLE.COM	SERVICE	amsX	/etc/security/keytabs/oozie.service.ams.keytab	amsX	f	hadoopk	f	440	unknown

## Confirm Configuration

Please review the configuration before continuing the setup process

Important: Use the **Download CSV** button to obtain a list of the **required** principals and keytabs that are needed by Ambari to enable Kerberos in the cluster. **Do not proceed** until you have manually created and distributed the principals and keytabs to the cluster hosts.

Cluster Name: MyCluster

Manage Kerberos principals and keytabs manually: true

```
content: [libdefaults] renew_lifetime = 7d forwardable = true default_realm = {{realm|upper}} ticket_lifetime = 24h
dns_lookup_realm = false dns_lookup_kdc = false #default_tgs_enctypes = {{encryption_types}}
#default_tkt_enctypes = {{encryption_types}} {% if domains %} {% domain %} [domain_realm] {% for domain in domains.split(',') %}
{{domain}} = {{realm|upper}} {% endfor %} {% endif %} [logging] default = FILE:/var/log/krb5kdc.log
admin_server = FILE:/var/log/kadmind.log kdc = FILE:/var/log/krb5kdc.log [realms] {{realm}} = { admin_server =
{{admin_server_host|default(kdc_host, True)}} kdc = {{kdc_host}} } {% Append additional realm declarations below %}
```

kdc\_type: Manage Kerberos principals and keytabs manually

realm: EXAMPLE.COM

manage\_identities: false

install\_packages: false

executable\_search\_paths: /usr/bin, /usr/kerberos/bin, /usr/sbin, /usr/lib/mit/bin, /usr/lib/mit/sbin

encryption\_types: aes des3-cbc-sha1 rc4 des-cbc-md5

Exit Wizard

Download CSV

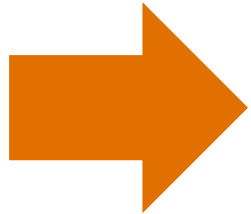
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# Automated Kerberos: Optional Client Install

Option to not install client packages

Specify client utilities path




▼ [Advanced kerberos-env](#)

Install OS-specific Kerberos client package(s) ☒

Executable Search Paths

# Automated Kerberos: Optional Password Rules

Password Length	<input type="text" value="20"/>	
Password Minimum # Lowercase Letters	<input type="text" value="1"/>	
Password Minimum # Uppercase Letters	<input type="text" value="1"/>	
Password Minimum # Digits	<input type="text" value="1"/>	
Password Minimum # Punctuation Characters	<input type="text" value="1"/>	
Password Minimum # Whitespace Characters	<input type="text" value="0"/>	

# Automated: Download CSV

Even if using Automated option, CSV is available for download

Useful for record of Ambari KDC changes (principals created, etc)

## Confirm Configuration

Please review the configuration before continuing the setup process.

Using the **Download CSV button**, you can download a csv file which contains a list of the principals and keytabs that will automatically be created by Ambari.

**KDC Type:** Existing MIT KDC

**KDC Host:** c6401.ambari.apache.org

**Realm Name:** EXAMPLE.COM

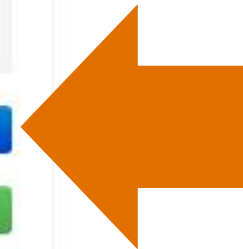
**Executable path:** /usr/bin, /usr/kerberos/bin, /usr/sbin, /usr/lib/mit/bin, /usr/lib/mit/sbin

← Back

Exit Wizard

Download CSV

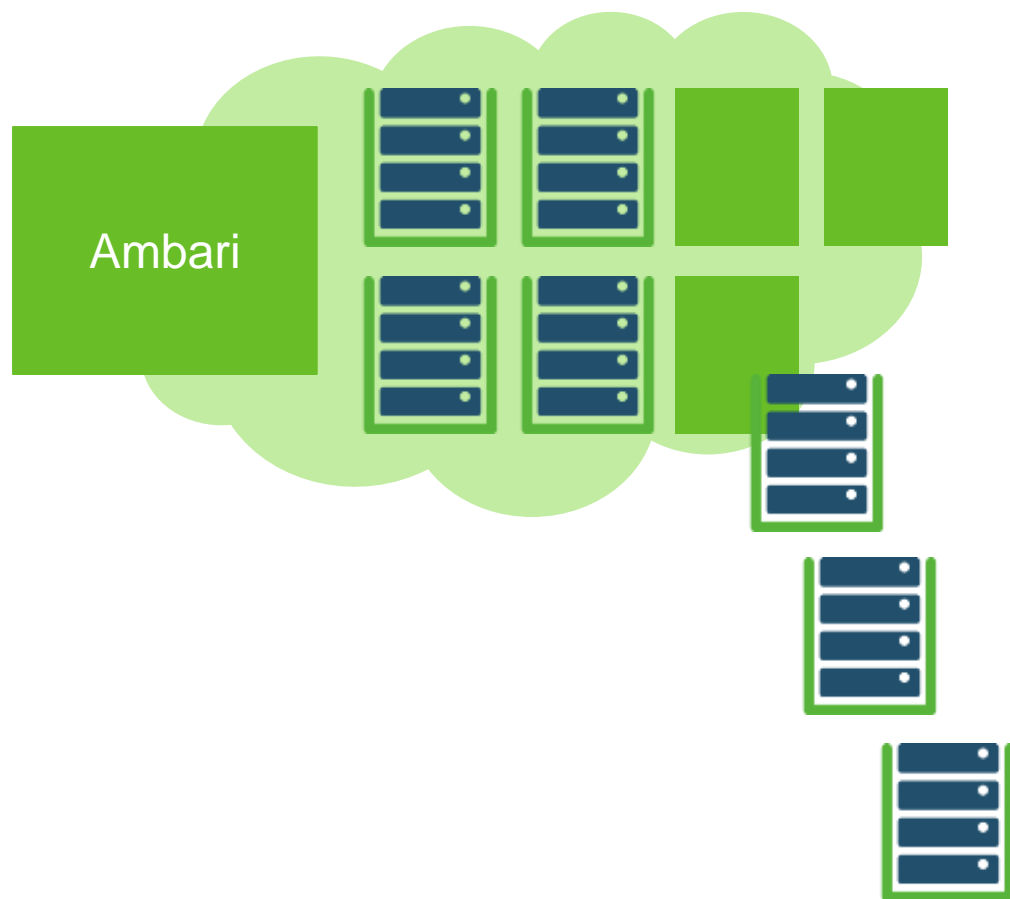
Next →



# Blueprint Improvements

# Blueprints Host Discovery (AMBARI-10750)

- **Provision cluster with all, some or no hosts. When Hosts come online and Agents register with Ambari, Blueprints will automatically put the hosts into the cluster**



```
POST /api/v1/clusters/MyCluster/hosts
```

```
[
  {
    "blueprint" : "single-node-hdfs-test2",
    "host_groups" : [
      {
        "host_group" : "slave",
        "host_count" : 3,
        "host_predicate" : "Hosts/cpu_count>1"
      }
    ]
  }
]
```

# Guided Configs



# Guided Configurations

- Improved layout and grouping of configurations
- New UI controls to make it easier to set values
- Better recommendations and cross-service dependency checks
- Implemented for HDFS, YARN, HBase and Hive
- Driven by Stack definition

The screenshot displays the 'Guided Configurations' interface, organized into three main sections: Memory, CPU, and YARN Features.

- Memory Section:**
  - Node:** A slider for 'Memory allocated for all YARN containers on a node' is set to 1877 MB, with a range from 0 MB to 1877 MB.
  - Container:**
    - Minimum Container Size (Memory):** A slider is set to 1024 MB, with a range from 0 MB to 1877 MB.
    - Maximum Container Size (Memory):** A slider is set to 1877 MB, with a range from 0 MB to 1877 MB.
- CPU Section:**
  - Node:**
    - CPU Scheduling:** A toggle switch is set to 'Disabled'.
    - CPU Isolation:** A toggle switch is set to 'Disabled'.
    - Percentage of physical CPU allocated for all containers on a node:** A slider is set to 80%, with a range from 0% to 100%.
    - Number of virtual cores:** A slider is set to 1, with a range from 0 to 2.
  - Container:**
    - Minimum Container Size (VCores):** A slider is set to 1, with a range from 0 to 1.
    - Maximum Container Size (VCores):** A slider is set to 1, with a range from 0 to 1.
- YARN Features Section:**
  - Node Labels:** A toggle switch is set to 'Disabled'.
  - Pre-emption:** A toggle switch is set to 'Disabled'.

# New Layout and Grouping

The screenshot displays the Hortonworks YARN configuration page. At the top, there are tabs for 'Summary', 'Heatmaps', and 'Configs', along with a 'Quick Links' dropdown and a 'Service Actions' button. Below this is a header bar showing the selected group 'YARN Default (1)' and a 'Manage Config Groups' link, followed by a 'Filter...' input field. A list of configuration groups (V10, V9, V8, V7) is shown, each with a version number, user, and timestamp. Below the list is a dark bar with a 'V10' label, a checkmark, and the text 'admin authored on Tue, Jul 14, 2015 19:37', with 'Discard' and 'Save' buttons. The main content area has 'Settings' and 'Advanced' tabs. The 'Advanced' tab is active, showing three sections: 'Memory Node', 'Container', and 'YARN Features'. The 'Memory Node' section has a slider for 'Memory allocated for all YARN containers on a node' with a value of 1024MB. The 'Container' section has two sliders: 'Minimum Container Size (Memory)' with a value of 170MB and 'Maximum Container Size (Memory)' with a value of 1024MB. The 'YARN Features' section has two toggle switches: 'Node Labels' and 'Pre-emption', both set to 'Disabled'. Four orange arrows point to specific features: 'Subtabs' points to the 'Advanced' tab, 'Groups' points to the 'YARN Features' section, 'New Controls' points to the sliders in the 'Container' section, and another 'Groups' points to the configuration group list at the top.

Subtabs

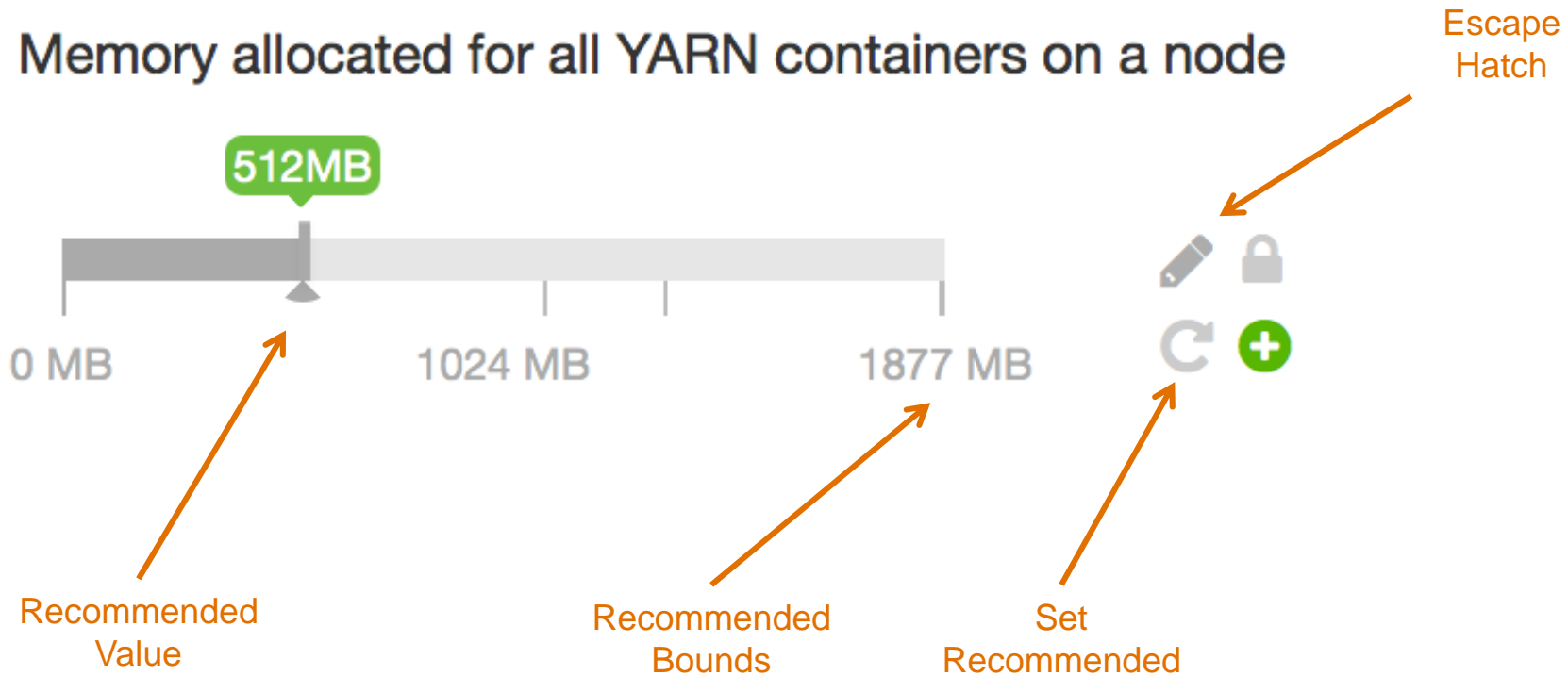
Groups

Groups

New Controls

New Controls

# New UI Controls



# Control “Escape Hatch”

Memory allocated for all YARN containers on a node

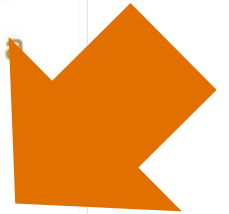
512 MB



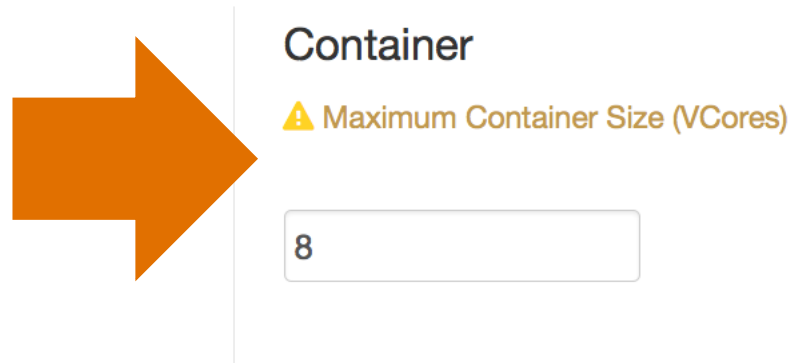
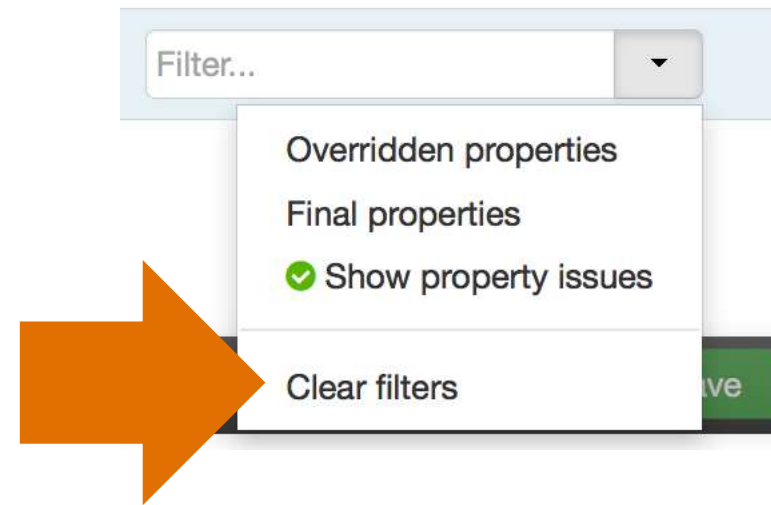
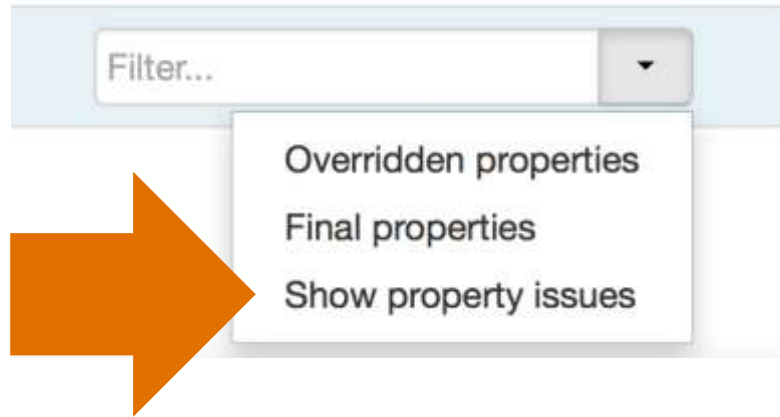
Node Values greater than 1877MB are not recommended

⚠ Memory allocated for all YARN containers on a node

3200 MB



# New Filtering



# More Dependency Checking

The screenshot displays the Ambari configuration interface. At the top, a status bar shows 'V10' and 'admin authored on Tue, Jul 14, 2015 19:37'. Below this, a yellow banner states 'There are 7 configuration changes in 1 service' with a 'Show Details' link. The 'Settings' tab is active, and the 'Advanced' sub-tab is selected. A modal window titled 'Dependent Configurations' is open, showing a table of recommended changes based on the current configuration. The table lists properties, services, config groups, file names, current values, and recommended values. Below the modal, the 'Memory' section shows a slider for 'Node' memory allocation set to 1024MB. The 'Container' section shows sliders for 'Minimum Container Size (Memory)' set to 768MB and 'Maximum Container Size (Memory)' set to 1024MB. The 'YARN Features' section shows 'Node Labels' and 'Pre-emption' both set to 'Disabled'.

Dependent Configurations

Based on your configuration changes, Ambari is recommending the following dependent configuration changes. Ambari will update all checked configuration changes to the Recommended Value. Uncheck any configuration to retain its Current Value.

Property	Service	Config Group	File Name	Current Value	Recommended Value
<input checked="" type="checkbox"/> mapreduce.map.memory.mb	MapReduce2	MapReduce2 Default	mapred-site	170	512
<input checked="" type="checkbox"/> mapreduce.reduce.memory.mb	MapReduce2	MapReduce2 Default	mapred-site	340	512
<input checked="" type="checkbox"/> yarn.app.mapreduce.job.command.opts	MapReduce2	MapReduce2 Default	mapred-site	-Xmx130m -Dhdp.version=\${hdp.version}	-Xmx514m -Dhdp.version=\${hdp.version}
<input checked="" type="checkbox"/> mapreduce.reduce.java.opts	MapReduce2	MapReduce2 Default	mapred-site	-Xmx272m	-Xmx400m
<input checked="" type="checkbox"/> yarn.app.mapreduce.job.resource.mb	MapReduce2	MapReduce2 Default	mapred-site	170	768
<input checked="" type="checkbox"/> mapreduce.map.java.opts	MapReduce2	MapReduce2 Default	mapred-site	-Xmx130m	-Xmx400m
<input checked="" type="checkbox"/> mapreduce.task.io.sort.mb	MapReduce2	MapReduce2 Default	mapred-site	85	286

Cancel OK

Memory

Node

Memory allocated for all YARN containers on a node

0 MB 1024 MB 1877 MB

1024MB

Container

Minimum Container Size (Memory)

0 MB 512 MB 1024 MB

768MB

Maximum Container Size (Memory)

0 MB 512 MB 1024 MB

1024MB

YARN Features

Node Labels

Disabled

Pre-emption

Disabled

# Driven By Stack Definition: Themes

[/ resources](#) / [stacks](#) / [HDP](#) / [2.2](#) / [services](#) / [YARN](#) / [themes](#) / **theme.json**

Settings

Advanced

## Memory

### Node

Memory allocated for all YARN containers on a node



### Container

Minimum Container Size (Memory)



Maximum Container Size (Memory)



## YARN Features

Node Labels

☐ Disabled

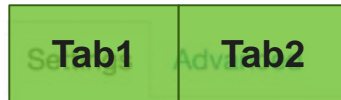
Pre-emption

☐ Disabled

Note: Since this is a new Stack capability. Framework and API likely to evolve over upcoming releases.



# Tabs



## Memory

### Node

Memory allocated for all YARN containers on a node



### Container

Minimum Container Size (Memory)



Maximum Container Size (Memory)



## YARN Features

Node Labels



Pre-emption



# Sections

Settings

Advanced

## Memory

### Node

Memory allocated for all YARN containers on a node



### Container

Minimum Container Size (Memory)



Maximum Container Size (Memory)



Section1

## YARN Features

Node Labels

Disabled

Pre-emption

Disabled

Section2

# SubSections

Settings

Advanced

## Memory

### Node

Memory allocated for all YARN containers on a node



**SubSection1**

### Container

Minimum Container Size (Memory)



**SubSection2**

Maximum Container Size (Memory)



## YARN Features

Node Labels

Disabled

Pre-emption

Disabled

**SubSection1**

# UI Controls and Placement

Settings

Advanced

Memory

Node

Memory allocated for all YARN containers on a node

UI Control + Placement

0 MB1024 MB1877 MB

Container

Minimum Container Size (Memory)

UI Control + Placement

0 MB512 MB1024 MB

Maximum Container Size (Memory)

UI Control + Placement

0 MB512 MB1024 MB

YARN Features

Node Labels

UI Control + Placement

Disabled

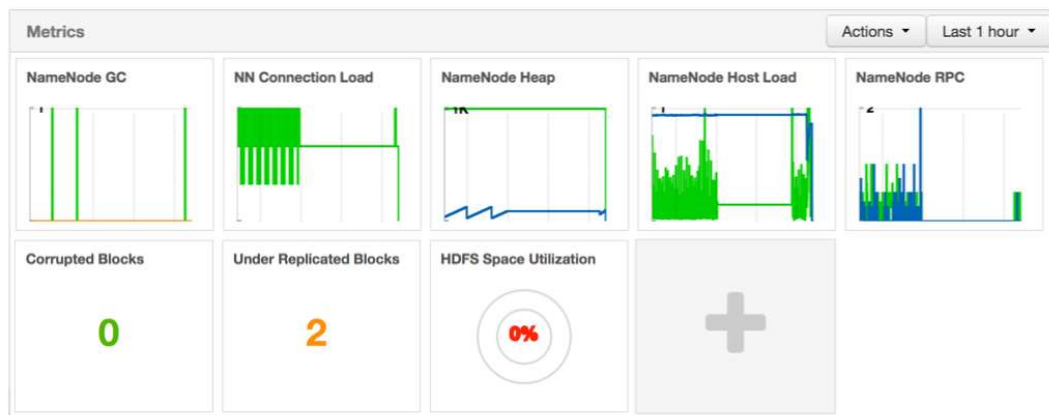
Pre-emption

UI Control + Placement

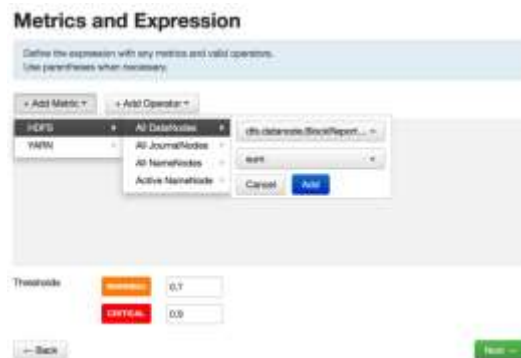
Disabled

# Customizable Dashboards

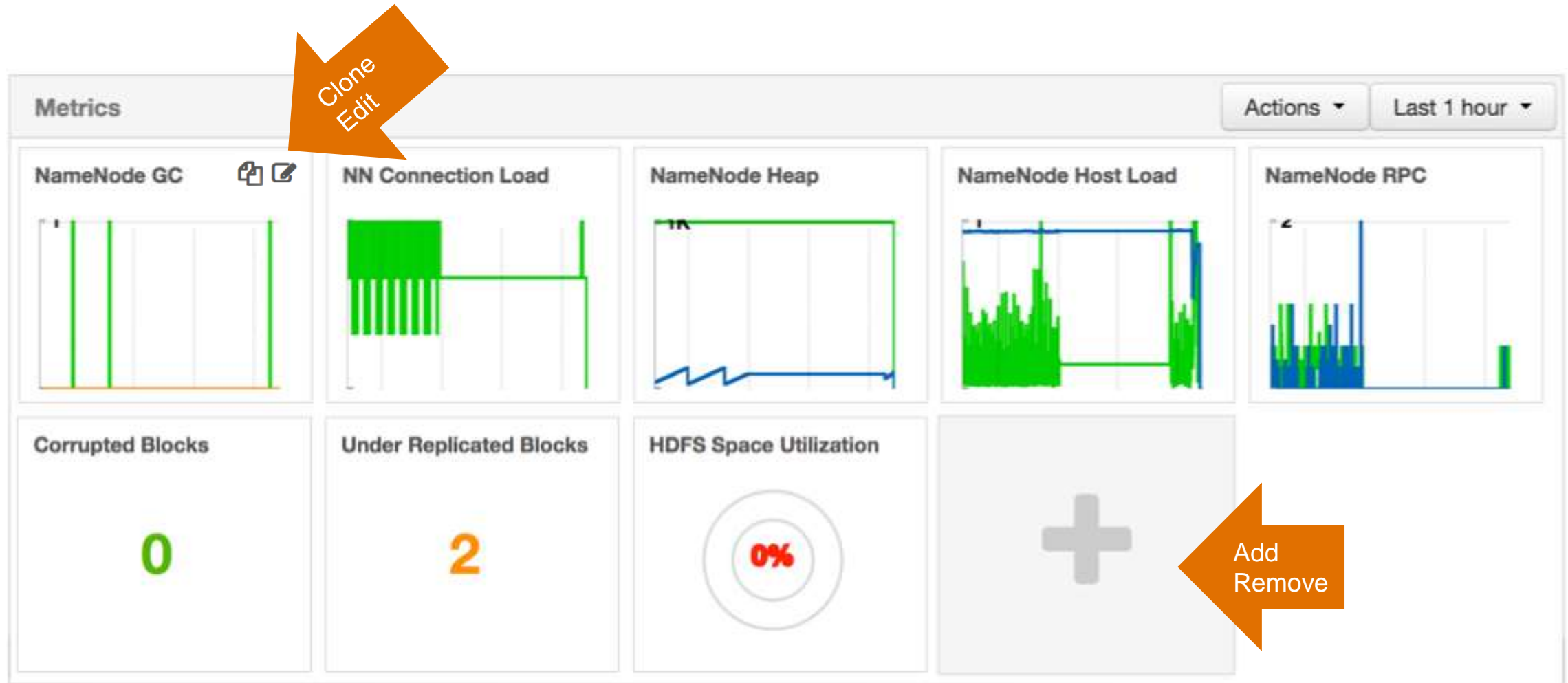
# Customizable Operations Dashboards



- **Ability to customize the metrics displayed on the Service Dashboards**
- **Add and remove widgets**
- **Create and Share new widgets**
- **Implemented for HDFS, YARN, HBase and Hive**
- **Driven by Stack definition**



# Customizable Dashboards (AMBARI-9792)





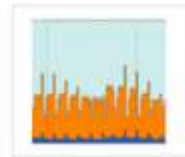
# Widget Library

## Widget Browser

HDFS YARN

+ Create Widget

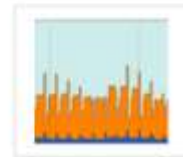
Create



### Memory Utilization

Memory Utilization Ratio

✓ Added



### CPU Utilization

CPU Utilization Ratio

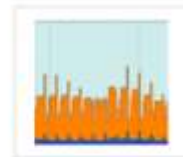
✓ Added



### Bad Local Disks

Number of unhealthy local disks across all NodeManagers

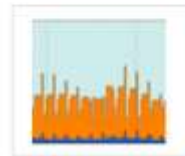
✓ Added



### Container Failures

Ratio of Container Failures

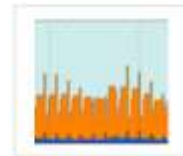
✓ Added



### App Failures

App Failures ratio

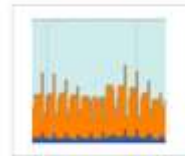
✓ Added



### Pending Apps

Applications in pending scheduling state for cluster

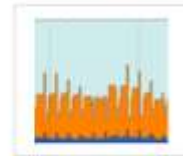
✓ Added



### Cluster(NodeManager) Mem...

Memory utilization on NodeManager hosts

✓ Added



### Cluster Disk

NodeManager widget for disk utilization

✓ Added

☐ Show only my widgets

Close

# Create Custom Widgets

## Create Widget

### CREATE WIDGET

Select Type

Metrics and Expression

Name and Description

## Select Type

What type of widget do you want to create?



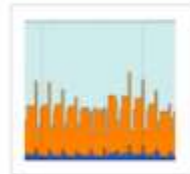
### Gauge

A view to display metrics that can be expressed in percentage.

36.2 d

### Number

A view to display metrics that can be expressed as a single number with optional unit field.



### Graph

A view to display metrics that can be expressed in line graph or area graph over a time range.

3/3

### Template

A view to display metric value along with a templated text.

Note: Only Ambari Admins or Operators can create widgets

# Select Metrics, Build Expressions

## Metrics and Expression

Define the expression with any metrics and valid operators.  
Use parentheses when necessary.

+ Add Metric ▾ + Add Operator ▾

HDFS ▾ All DataNodes ▾ dfs.datanode.BlockReport... ▾  
YARN ▾ All JournalNodes ▾  
All NameNodes ▾  
Active NameNode ▾

sum ▾

Cancel Add

Thresholds

**WARNING** 0.7

**CRITICAL** 0.9

← Back

Next →

## Metrics and Expression

Define the expression with any metrics and valid operators.  
Use parentheses when necessary.

+ Add Metric ▾ + Add Operator ▾

dfs.namenode.DeleteFileOps\_sum + dfs.namenode.FilesDeleted\_sum

Thresholds

**WARNING** 0.7

**CRITICAL** 0.9

← Back

Next →

# Save and Share (Optional)

## Create Widget

CREATE WIDGET

Select Type

Metrics and Expression

**Name and Description**

Preview:

Total Files

0.07K

### Name and Description

Name \*

Total Files

Author

admin

Sharing

☐ Share this widget in the widget library

Description

← Back

Cancel

Save

Preview

Share

# Shared Widgets


**Widgets can be shared or not shared**

**When shared, widget goes into Widget Library for ALL users (Operator and Read-only)**

**ALL Operators can edit or delete shared widgets (even if NOT the author)**

**Once shared, cannot be un-shared**

# New Service Heatmaps



The screenshot displays the Hortonworks service monitoring interface. On the left, a sidebar lists services: HDFS, MapReduce2, YARN (selected), and ZooKeeper. An 'Actions' button is at the bottom of the sidebar. The main content area has three tabs: Summary, Heatmaps (selected), and Configs. An orange arrow points to the Heatmaps tab. Below the tabs, a 'Select Metric...' dropdown menu is open, showing a list of metrics for 'NodeManager GC Time'. The metrics listed are: Total Allocatable CPU Utilized per NodeManager, Container Failures, NodeManager GC Time, NodeManager JVM Heap Memory Used, Allocated Containers, NodeManager RAM Utilized, NodeManager CPU Utilized, and Total Allocatable RAM Utilized per NodeManager.

Services:

- ✓ HDFS
- ✓ MapReduce2
- ✓ YARN
- ✓ ZooKeeper

Actions ▾

Summary Heatmaps Configs

Select Metric... ▾

**NodeManager GC Time**

- Total Allocatable CPU Utilized per NodeManager
- Container Failures
- NodeManager GC Time
- NodeManager JVM Heap Memory Used
- Allocated Containers
- NodeManager RAM Utilized
- NodeManager CPU Utilized
- Total Allocatable RAM Utilized per NodeManager

# Alerts



# Alert Changes

## Alerts Log (AMBARI-10249)

- **Alert state changes are written to `/var/log/ambari-server/ambari-alerts.log`**

```
2015-07-13 14:58:03,744 [OK] [ZOOKEEPER] [zookeeper_server_process] (ZooKeeper Server
Process) TCP OK - 0.000s response on port 2181
2015-07-13 14:58:03,768 [OK] [HDFS] [datanode_process_percent] (Percent DataNodes Available)
affected: [0], total: [1]
```

## Script-based Alert Notifications (AMBARI-9919)

- **Define a custom script-based notification dispatcher**
- **Executed on alert state changes**
- **Only available via API**

# New Ambari Alerts

**Ambari Agent Heartbeat (if Server has lost contact with Agent)**

**Ambari Server Alerts (if Server detects alert checks have not run)**

Actions ▾

Groups: All (42) ▾

Alert Definition Name ▴	Status ▴	Service ▴	Last Status Changed ▴	State ▴
<input type="text" value="Any"/>	<input type="text" value="All"/> ▾	<input type="text" value="Ambari"/> ▾	<input type="text" value="Any"/> ▾	<input type="text" value="All"/> ▾
<div> <div></div> <div>Ambari Agent Disk Usage</div> </div>	<div>OK</div>	Ambari	17 minutes ago	<div> <div></div> <div>Enabled</div> </div>
<div> <div></div> <div>Ambari Agent Heartbeat</div> </div>	<div>OK</div>	Ambari	16 minutes ago	<div> <div></div> <div>Enabled</div> </div>
<div> <div></div> <div>Ambari Server Alerts</div> </div>	<div>OK</div>	Ambari	13 minutes ago	<div> <div></div> <div>Enabled</div> </div>

3 of 42 definitions showing - [clear filters](#)

Show:  ▾

1 - 3 of 3

⏪

⏩

# Rack Awareness

# HDFS Topology Script + Host Mappings

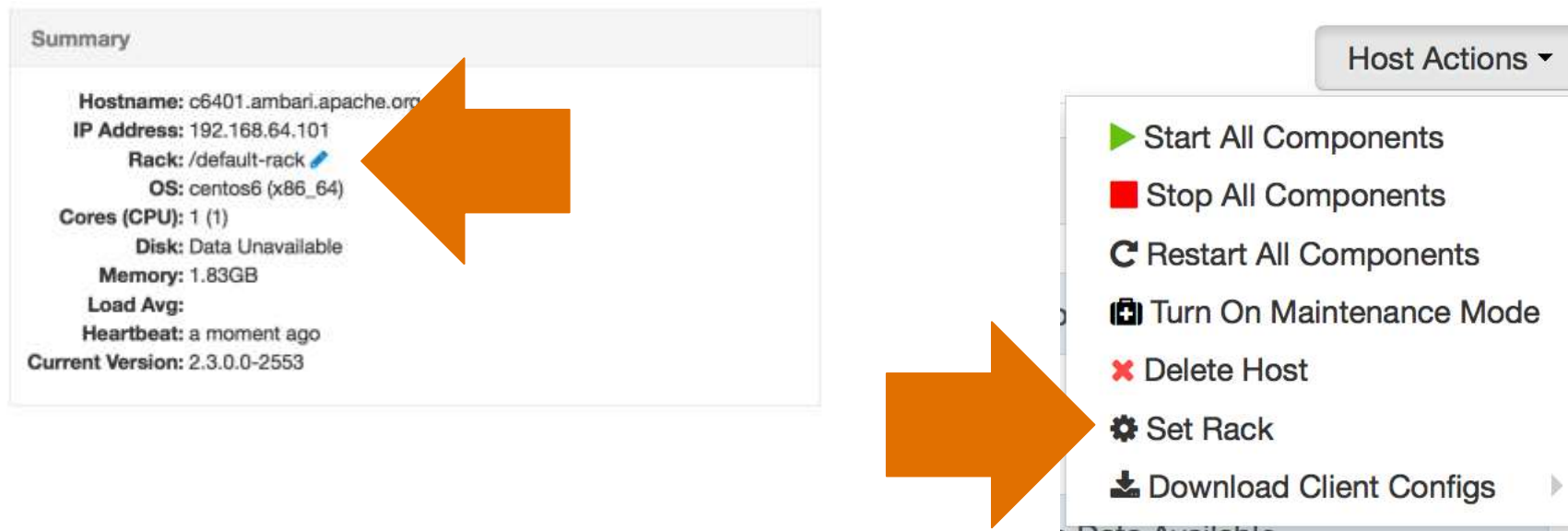
## Set Rack ID from Ambari

## Ambari generates + distributes topology script with mappings file

```
/etc/hadoop/conf/topology_script.py
```

```
/etc/hadoop/conf/topology_mappings.data
```

## Sets core-site “net.topology.script.file.name” property



The image shows a screenshot of the Ambari web interface. On the left, the 'Summary' tab for a host is visible, displaying the following information: Hostname: c6401.ambari.apache.org, IP Address: 192.168.64.101, Rack: /default-rack (with a pencil icon), OS: centos6 (x86\_64), Cores (CPU): 1 (1), Disk: Data Unavailable, Memory: 1.83GB, Load Avg: (empty), Heartbeat: a moment ago, and Current Version: 2.3.0.0-2553. A large orange arrow points from the 'Rack' field to the 'Host Actions' dropdown menu on the right. The 'Host Actions' menu is open, showing several options: Start All Components (green play icon), Stop All Components (red square icon), Restart All Components (circular arrow icon), Turn On Maintenance Mode (stop sign icon), Delete Host (red X icon), Set Rack (gear icon), and Download Client Configs (download icon). Another large orange arrow points from the 'Set Rack' option in the dropdown menu back to the 'Rack' field in the summary tab.

# Views

# Views Framework Improvements

## Auto configure (AMBARI-10306)

- Ability to associate view configuration with existing cluster
- Automatically derive configuration parameters via <cluster-config>

## Auto create (AMBARI-10424)

- Ability to specify <auto-instance> create if cluster meets minimal Stack and Service requirements

# Auto-Configure by Specifying the Cluster

HiveServer2 Host*	127.0.0.1
HiveServer2 Thrift port*	10000
WebHDFS FileSystem URI*	webhdfs://namenode:50070
YARN Application Timeline Server URL*	http://yam.ats.address:8188
YARN ResourceManager URL*	http://yam.resourcemanager.address:8088

**Previously, Ambari Admins had to specify a (potentially) large number of configuration parameters manually.**


☒ Local Ambari Managed Cluster

Cluster Name


**Now, Ambari Admins can select the cluster for the view to automatically derive the configurations.**

# Identifying Cluster Configuration Property

- **View Developer** can identify the cluster configuration property to use for the view configuration parameter.
- **Syntax is** `config-type/property-name`



```
<parameter>
  <name>yarn.timeline-server.url</name>
  <description>The URL to the YARN Application Timeline Server, used to provide Te
  <label>YARN Timeline Server URL</label>
  <placeholder>yarn.timeline-service.hostname:8188</placeholder>
  <cluster-config>yarn-site/yarn.timeline-service.webapp.address</cluster-config>
</parameter>
<parameter>
  <name>yarn.resourcemanager.url</name>
  <description>The URL to the YARN ResourceManager, used to provide YARN Applicati
  <label>YARN ResourceManager URL</label>
  <placeholder>yarn.resourcemanager.hostname:8088</placeholder>
  <cluster-config>yarn-site/yarn.resourcemanager.webapp.address</cluster-config>
</parameter>
```





# Auto-Create View Instance

- View Developer can specify that a view instance can be auto-created if the cluster meets HDP and Service requirements
- View configuration must also be satisfied (meaning: view can be auto-configured and/or all configurations have default values)



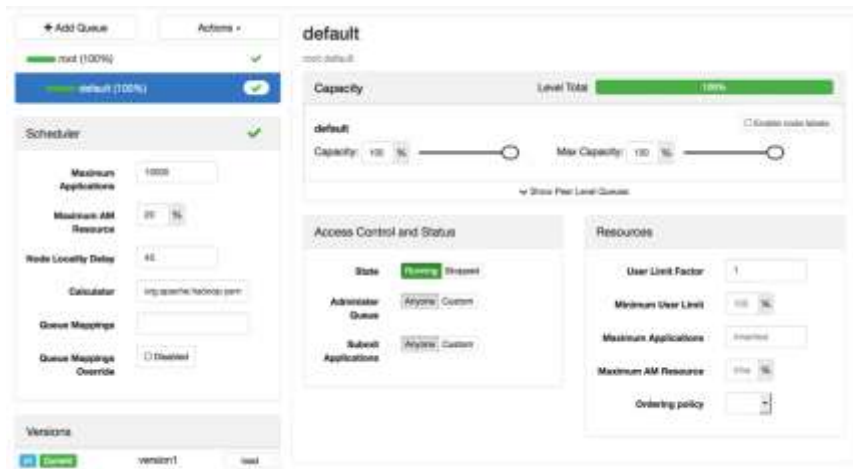
```
<auto-instance>
  <name>TEZ_CLUSTER_INSTANCE</name>
  <label>Tez View</label>
  <description>Monitor and debug all Tez jobs, submitter
  <stack-id>HDP-2.*</stack-id>
  <services>
    <service>TEZ</service>
  </services>
</auto-instance>
</view>
```

# New User Views

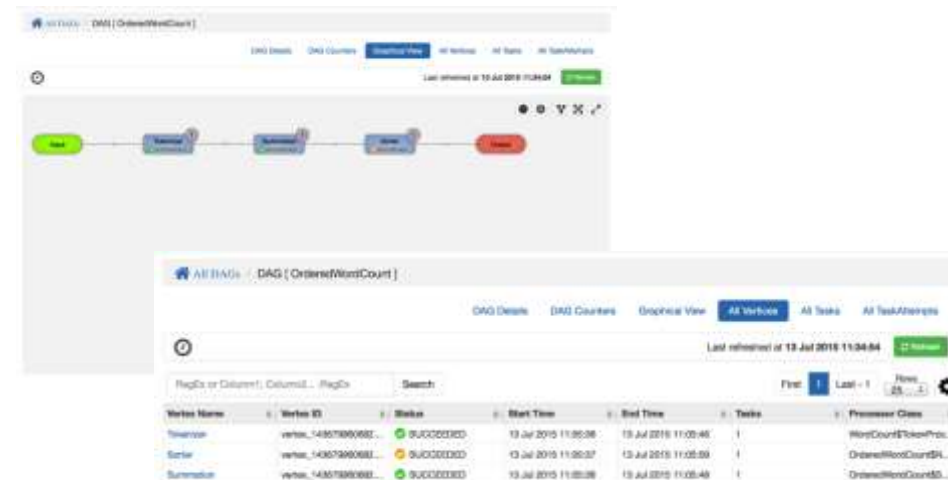
**New set of Views included by default:**

- **Tez**
- **Capacity Scheduler**
- **Hive**
- **Pig**
- **Files**

# New User Views

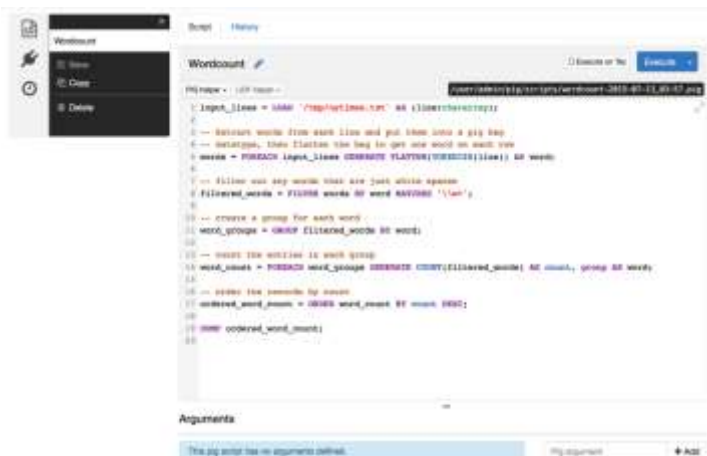


**Capacity Scheduler View**  
Browse + manage YARN queues



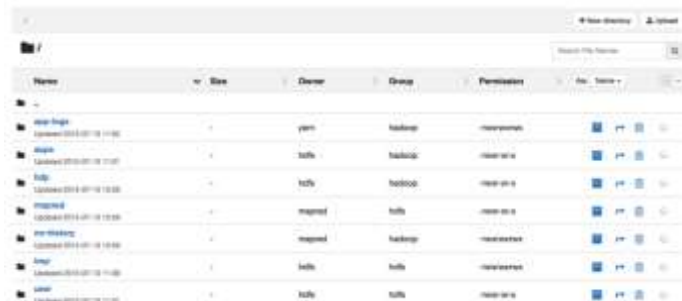
**Tez View**  
View information related to Tez jobs  
that are executing on the cluster.

# New User Views



## Pig View

Author and execute Pig Scripts.



## Files View

Browse HDFS file system.



## Hive View

Author, execute and debug Hive queries.

# Ambari Server “Standalone”

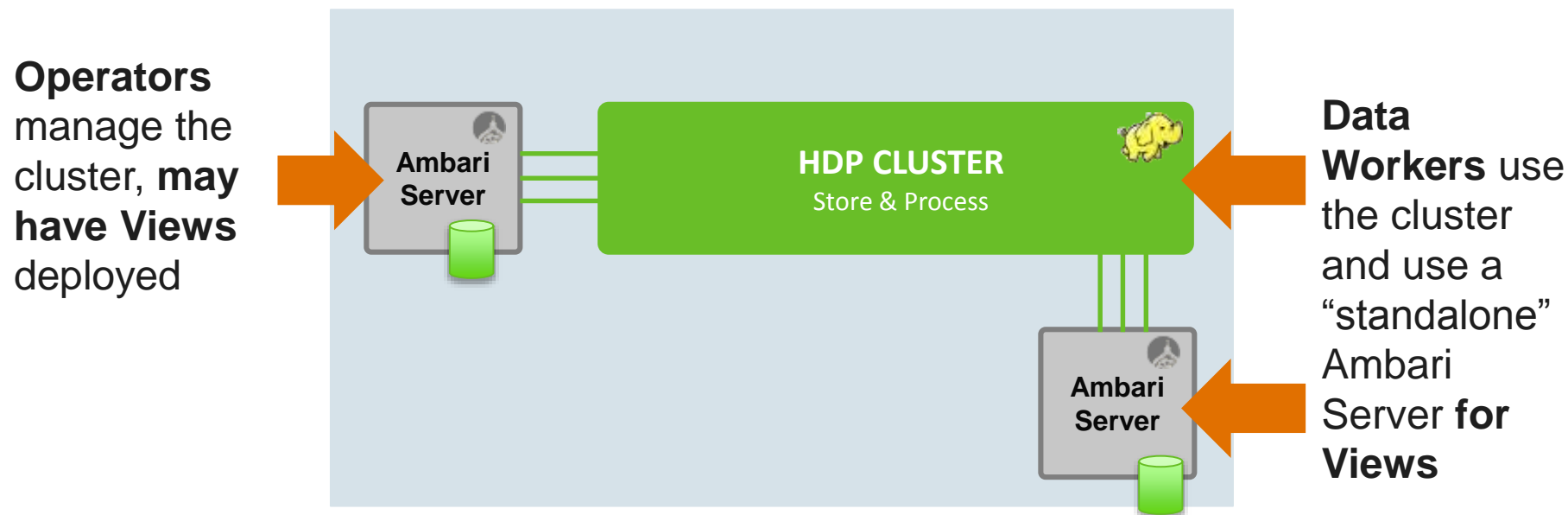
# Separate Ambari Servers

- **For Hadoop Operators:**

Deploy Views in an Ambari Server that is managing a Hadoop cluster

- **For Data Workers:**

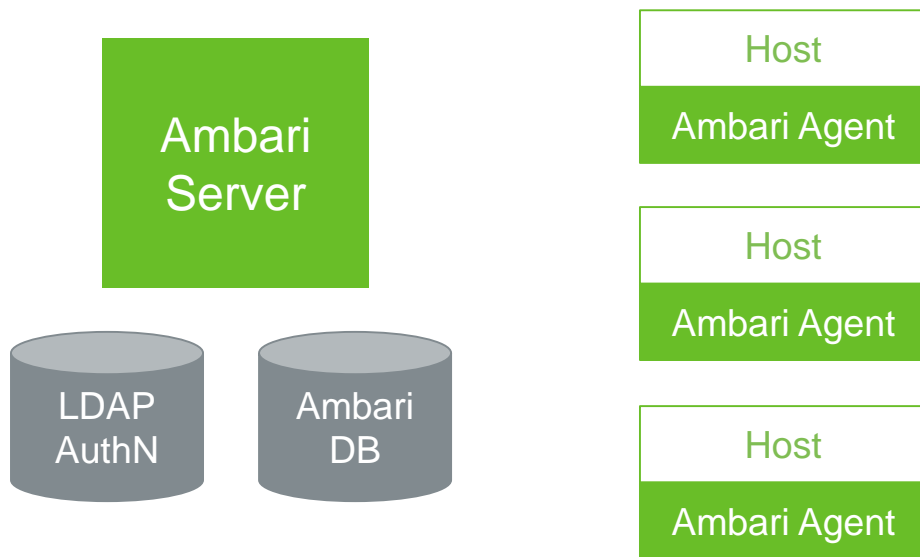
Run Views in a “standalone” Ambari Server



# Comparison

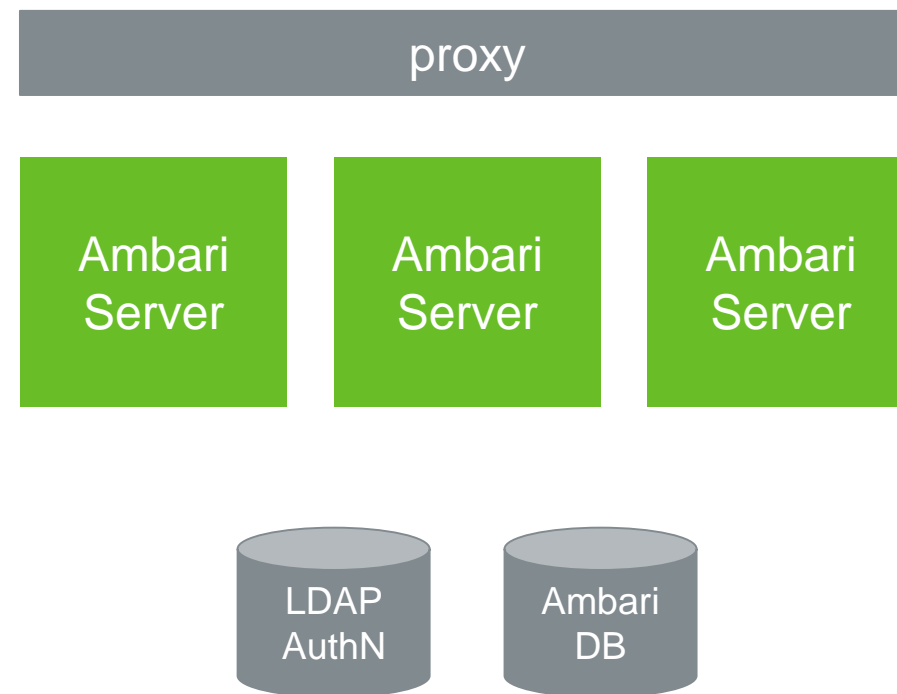
## Operational Ambari

One Ambari Server Instance  
Talking with Agents, Managing the cluster



## Standalone Ambari Server

One or More Ambari Server Instances  
No Agents, no requirement to operate the cluster



# Setup Comparison

	Operational Ambari Server	Standalone Ambari Server(s)
1	Install ambari-server package	Install ambari-server package
2	Run ambari-server setup (DB, JDK)	Run ambari-server setup (DB, JDK)
3	Configure external LDAP authentication	Configure external LDAP authentication
4	Install Cluster	
5	Deploy views	Deploy views
6	Create + configure view instances	Create + configure view instances
7		(Optional) Repeat for each Ambari Server instance
8		(Optional) Setup proxy for Ambari Server instances

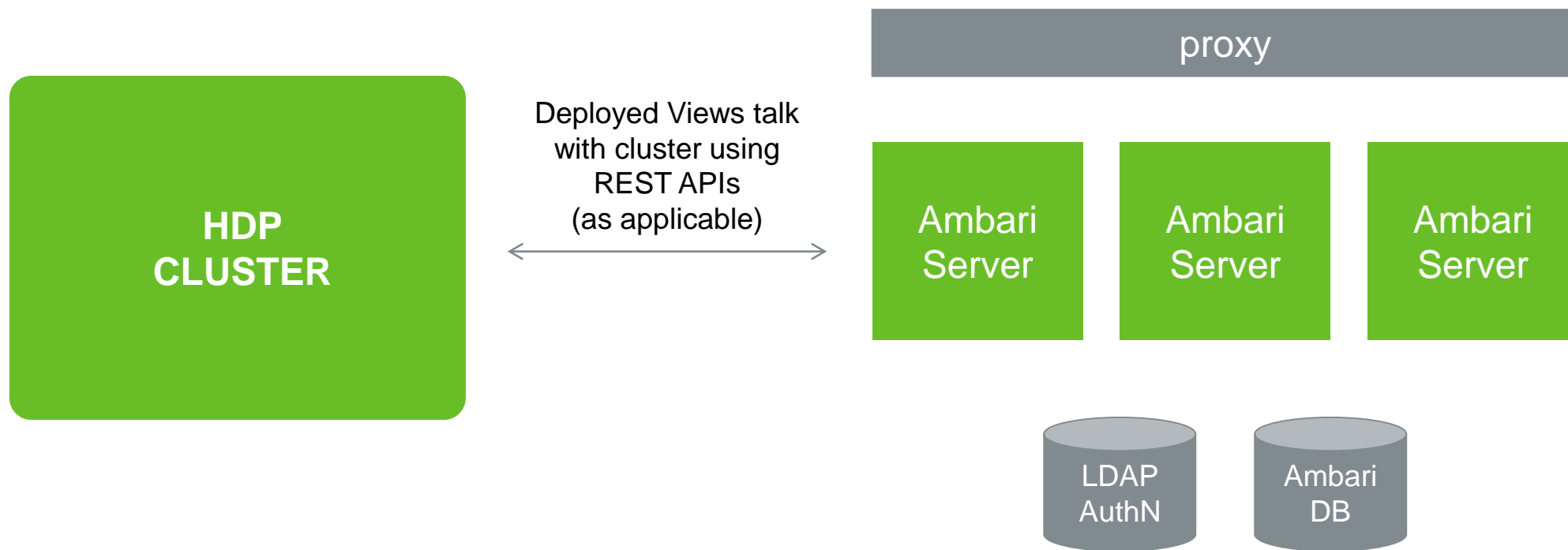


# Multiple Standalone Ambari Server Requirements

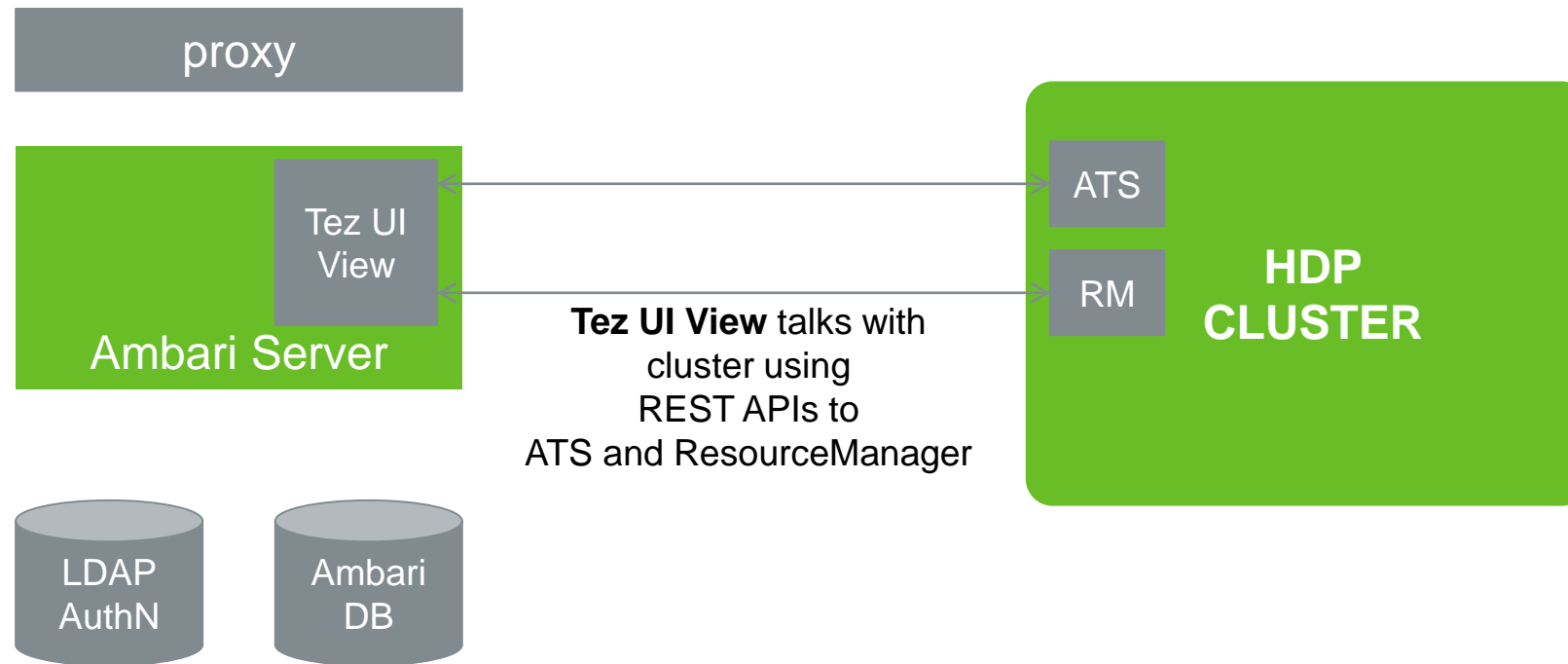
- **Ambari Server instances should be the same version.**
- **Ambari Server instances should point to the same Ambari DB.**
- **Ambari DB should be scaled and made highly-available independent of Ambari Server.**
- **In the case of a Kerberos-enabled cluster, Kerberos client utilities must be installed on the Ambari Server hosts and each Ambari Server instance should be setup for Kerberos.**
- **If using reverse proxy for multiple Ambari Server instances, setup proxy to honor session affinity.**

# Views <-> Cluster Communications

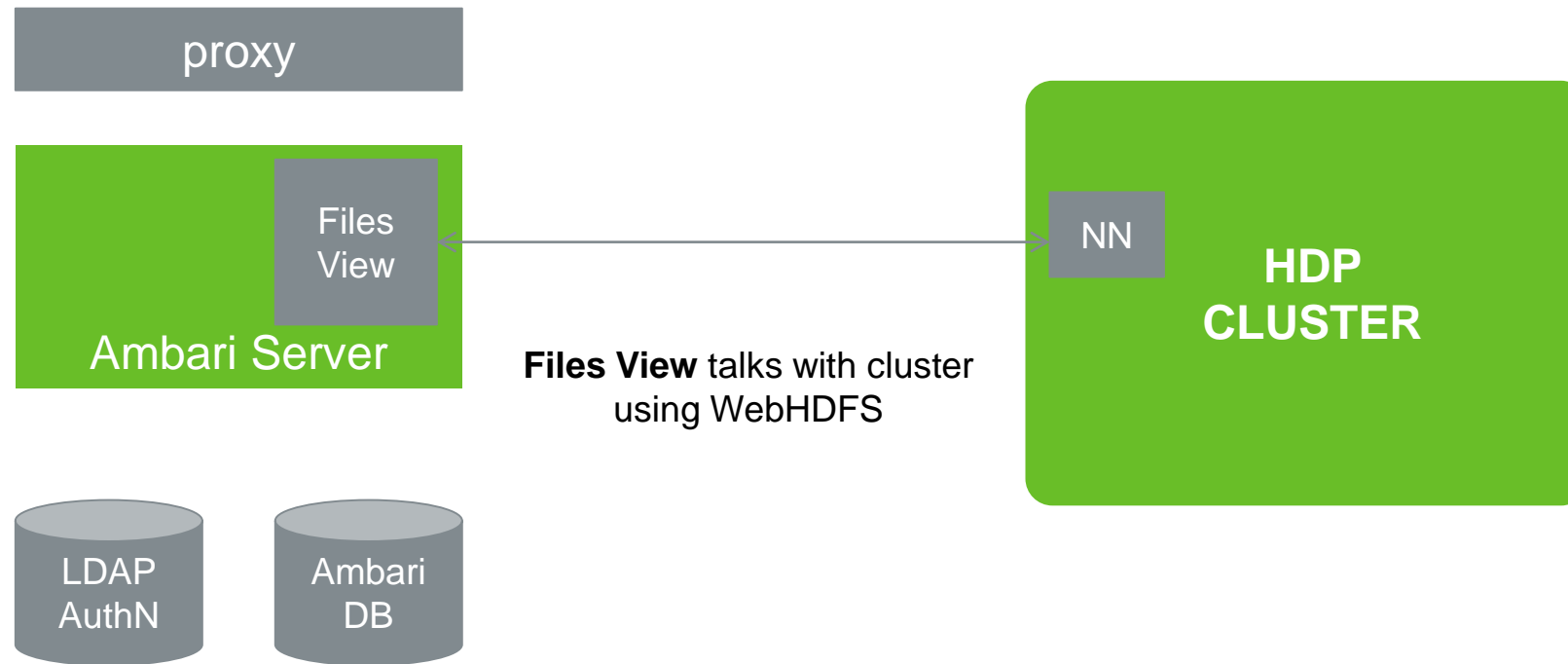
**Important: It is NOT a requirement to operate your cluster with Ambari to use Views with your cluster. Run Ambari “standalone”.**



# Tez UI View <-> Cluster Communication



# Files View <-> Cluster Communication



# Learn More

Resource	Location
Apache Ambari Project Page	<a href="http://ambari.apache.org">http://ambari.apache.org</a>
Ambari Project Wiki	<a href="https://cwiki.apache.org/confluence/display/AMBARI">https://cwiki.apache.org/confluence/display/AMBARI</a>
Ambari Project JIRA	<a href="https://issues.apache.org/jira/browse/AMBARI">https://issues.apache.org/jira/browse/AMBARI</a>
Stacks	<a href="https://cwiki.apache.org/confluence/pages/viewpage.action?pageId=38571133">https://cwiki.apache.org/confluence/pages/viewpage.action?pageId=38571133</a>
Blueprints	<a href="https://cwiki.apache.org/confluence/display/AMBARI/Blueprints">https://cwiki.apache.org/confluence/display/AMBARI/Blueprints</a>
Views	<a href="https://cwiki.apache.org/confluence/display/AMBARI/Views">https://cwiki.apache.org/confluence/display/AMBARI/Views</a>