Using YARN Web UI and CLI

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CLOUDERA

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Access the YARN Web User Interface

Access the YARN Web User Interface to monitor clusters, queues, applications, services, and flow activities.

About this task

You can access the YARN Web User Interface from Cloudera Manager to monitor the cluster.

Procedure

1. In Cloudera Manager, select the YARN service.
2. Click the Web UI tab.
3. Select the ResourceManager Web UI.
   The ResourceManager Web UI opens in a new browser window.

   Note, that in a ResourceManager High Availability configuration, if you select the non-active ResourceManager the link directs to the web UI of the active ResourceManager.

View Cluster Overview

The Cluster Overview page shows cluster resource usage by applications and queues, information about finished and running applications, and usage of memory and vCores in the cluster.
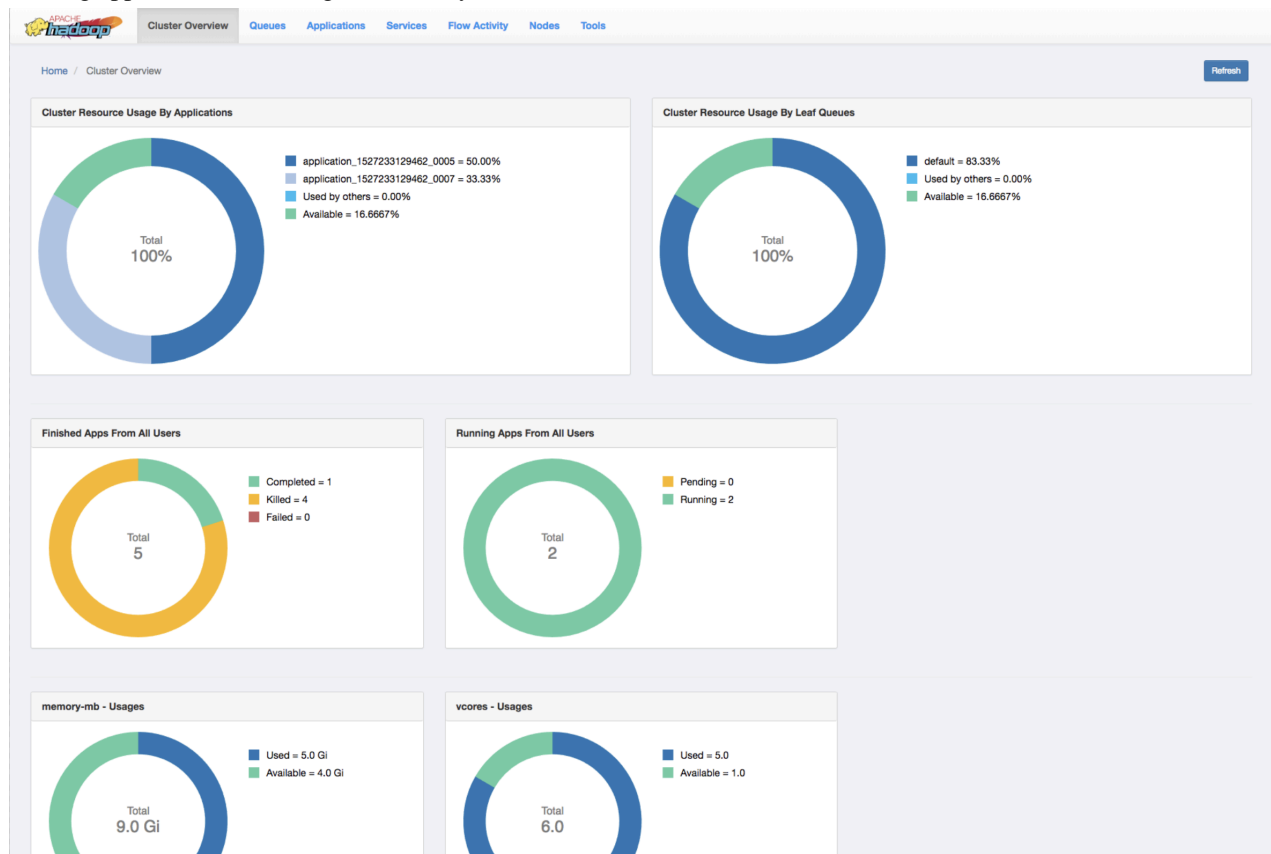
Cluster Resource Usage by Applications

> Displays the percentage of cluster resources in use by applications and the percentage available for usage.

Cluster Resource Usage by Leaf Queues

> Displays the percentage of cluster resources in use by leaf queues and the percentage available for usage.

Finished Apps From All Users

> Displays the number of completed, killed, and failed applications.

Monitor Running Apps

> Displays the number of pending and running applications.

memory-mb - Usages

> Displays the amount of used and available memory.

vcores - Usages

> Displays the number of used and available virtual cores.

Monitor Node Managers

> Displays the status of the Node Managers under the following categories:

> - Active
> - Unhealthy
> - Decommissioning
> - Decommissioned

View Nodes and Node Details

The Nodes page on the YARN Web User Interface enables you to view information about the cluster nodes on which the NodeManagers are running.

The Nodes page displays details under the following headers: Information, Node Status and Nodes Heatmap Chart.

Information

The Information tab displays the node details as shown in the following figure:

You can sort through any of the columns to view the details of the required nodes. You can also search to find the specific node labels from the entire list.

Node Manager Page

To view the Node Manager page of any node label, click the corresponding Node HTTP address. The Node Manager page displays details of a node as shown in the following figure:
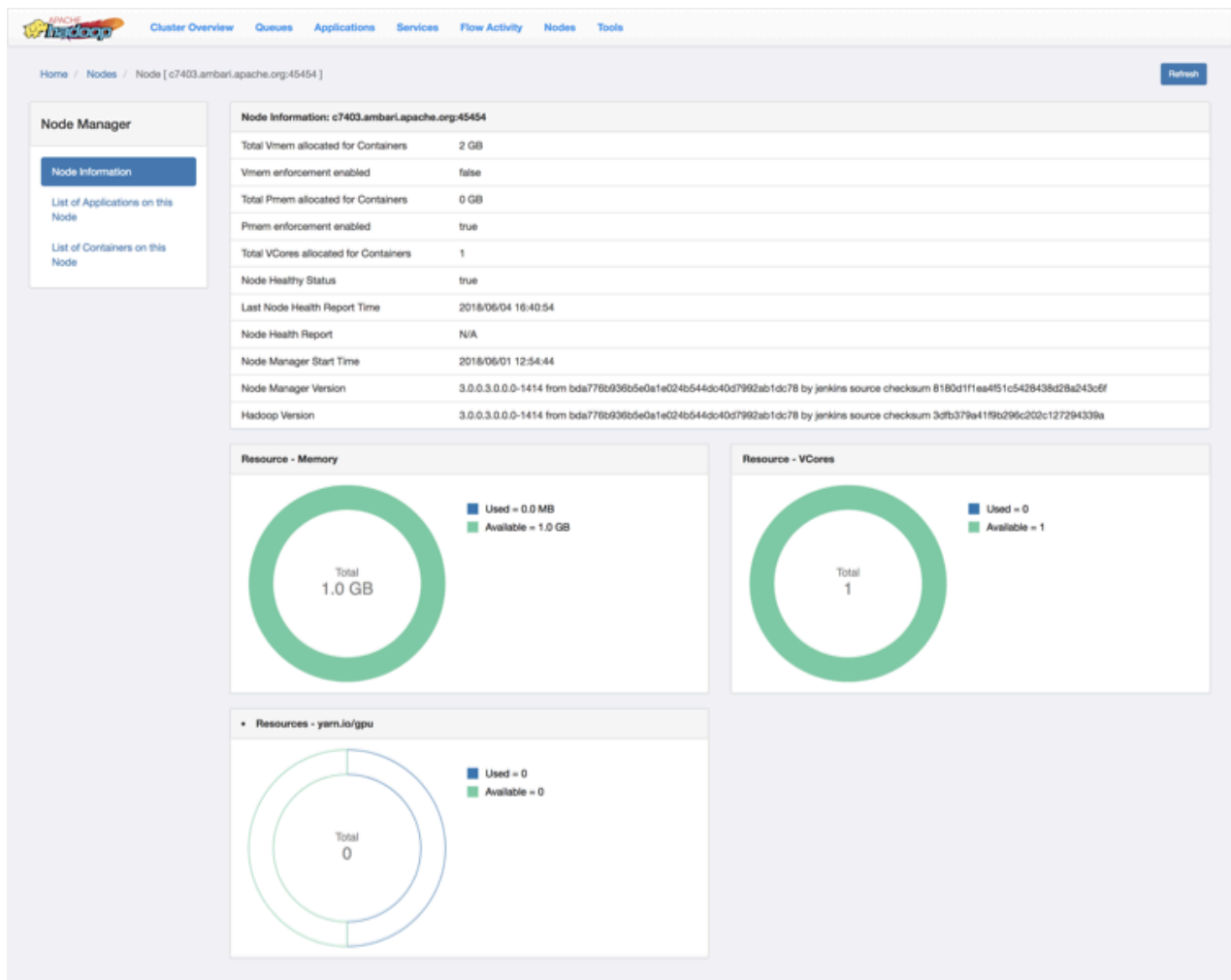
You can also view the resource usage in the following categories in a pie-chart representation:

1. Memory
2. VCores
3. yarn-io/GPU

Node Status

This tab displays the node managers in a pictorial representation. It displays details such as the number of active nodes, number of unhealthy nodes, decommissioning nodes, and the number of decommissioned node managers.

Nodes Heatmap Chart

This tab graphically displays nodes on the basis of their usage of memory. You can enter host or rack details in the search bar to filter nodes.

View Queues and Queue Details

The Queues page is scheduler dependent and displays details of YARN queues. You can either view queues from all the partitions or filter to view queues of a partition.

Capacity Scheduler
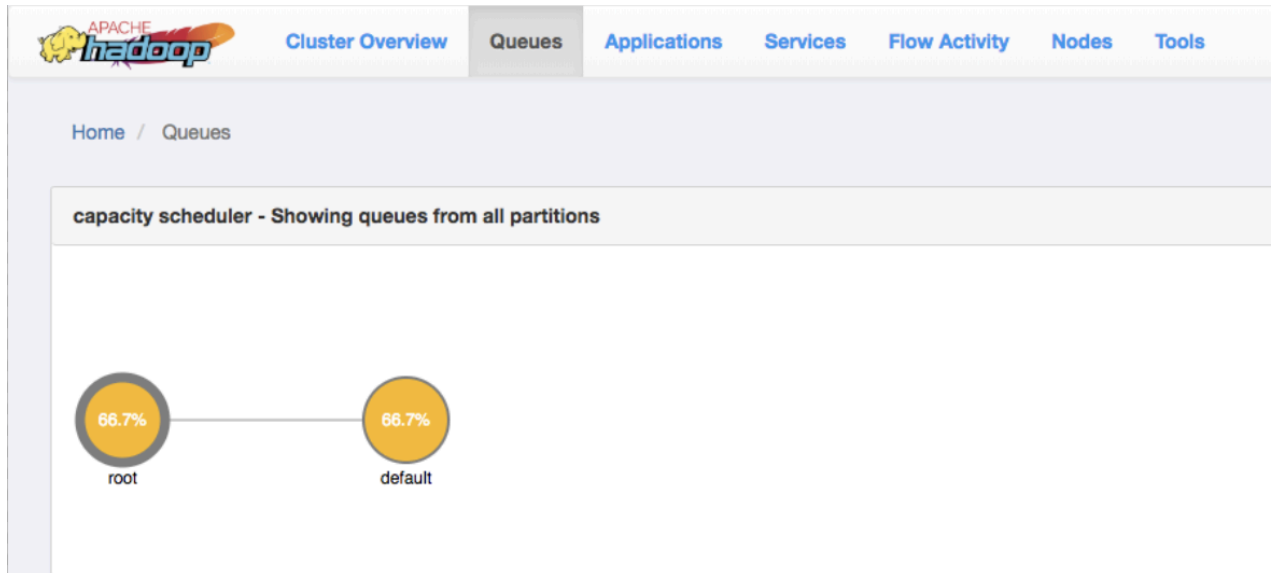
View Queue Details

In the capacity scheduler view, click the circle that represents a particular queue. The right column of the page gets updated with details of that queue.

The following example shows the details of a queue:
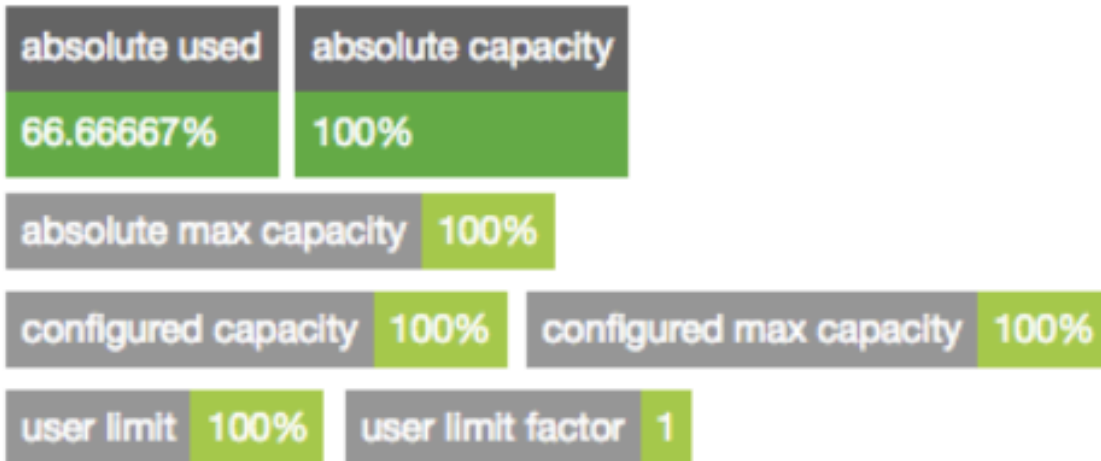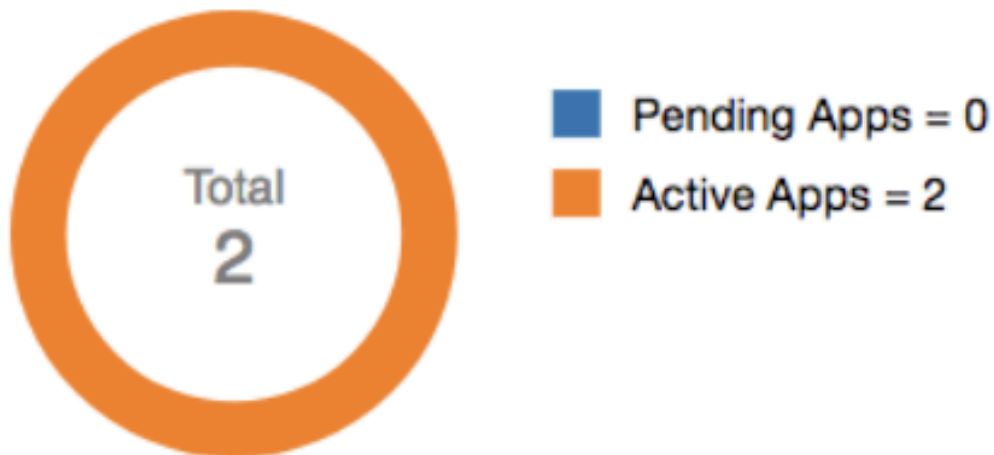
You can double-click the queue to view its details on a separate page. You can also view details of any application submitted to that queue by clicking its corresponding Application ID.

View All Applications

You can search for applications and view their details using the YARN Web User Interface.

The Applications page displays details of the YARN applications in a tabular form.

- Application ID: The identifier for the application.
- Application Type: Specifies the application type for Mapreduce, YARN, TEZ, or other applications.
- Application Name: Provides the name of the application
- User: The name of the user who is the owner of the application.
- State: The running state of the application.
- Queue: Specifies the name of the queue to which the application belongs.
- Progress: The progress of the application in a percentage display.
- Start Time: The time when an application run started.
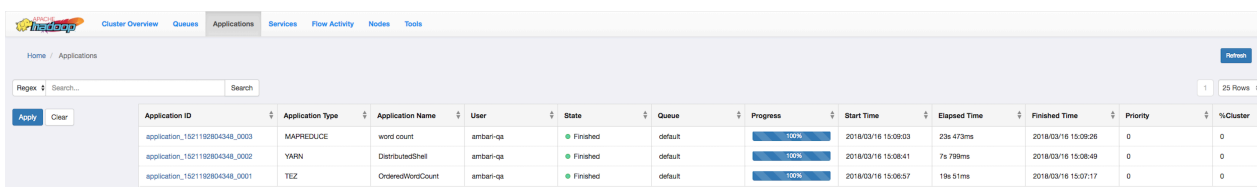- Elapsed Time: The time taken for the application run.
- Finished Time: The time of completion of the application run.
- Priority: The priority of running the application.
- %Cluster: The percentage of cluster resources used by the application run.

Search applications

The Applications page displays the list of YARN applications in a tabular form. You can apply search filters on this list to show only those applications that match the search criteria.

About this task
You can specify the search criteria either as regular expressions or SQL statements.

Procedure

1. On the Applications page, select either Regex or SQL from the drop-down list depending on the type of search you want to perform.
2. In the Search box, specify the search criteria.

Search Criteria	Description
Regex	Lists the applications whose details match the search criterion specified as a regular expression. For example, if you want to view application runs longer than an hour, mention the regular expression ^hso that the YARN UI shows only those applications that mention the Elapsed Time value in terms of hours, minutes, and seconds.
SQL	Lists the applications whose details match the search criterion specified as a SQL statement. For example, if you want to view all the applications submitted by the user yarn, specify "User"='yarn' as the search criterion.

3. Click Search to view details of the applications matching the search criteria.

Note:

- Apart from specifying search criteria to filter the list of applications, you can also select or clear the State and Queue check-boxes to view a specific set of applications depending on your requirements.
- You can sort the application entries in ascending or descending order by clicking the corresponding arrow next to any column header in the table.

View application details

Clicking a YARN application on the Applications page displays its details.

You can view the following details for the selected application:

- Application Attempts
- Resource Usage
- Diagnostics
- Logs

Application Attempts

You can view the attempts in Graph View and Grid View.

Graph View

A graph displays the start time and finish time of the attempt. You can also find the details of the attempt such as application attempt ID, started time, finished time, elapsed time, AM Container ID, and AM Node ID in the form of a table. You can access the Node UI using the AM Node Web UI. You can also view the log by clicking on the log link.

Grid View

A table displays the details of the application attempts. You can find the details of the attempt such as application attempt ID, started time, finished time, elapsed time, AM Container ID, and AM Node ID. You can access the Node UI using the AM Node Web UI. You can also view the log by clicking on the log link.

Resource Usage

This tab displays the resources used by the application attempts.

Diagnostics

Use this tab to view the diagnostics details of the application attempts. You can view any outstanding resource requests, and scheduling information.

Logs

Use this tab to view logs specific to containers. Select an attempt from the dropdown list and select the specific container to view the desired logs.

UI Tools

You can view the YARN configuration and YARN Daemon logs on the Tools page.

YARN Configuration

You can see the values of the properties defined in the following configuration files:

1. Core Configuration: Details of properties defined in the core-default.xml file.
2. YARN Configuration: Details of properties defined in the yarn-default.xml file.
3. MapReduce Configuration: Details of the properties defined in the mapred-default.xml file.

YARN Daemon Logs

You can view the list of log files. Click on a log file to view its contents in another tab of your browser.

Use the YARN CLI to View Logs for Applications

Use the YARN CLI to view logs for running application. Configure the log aggregation to aggregate and write out logs for all containers belonging to a single Application grouped by NodeManagers to single log files at a configured location in the file system.

You can access container log files using the YARN ResourceManager web UI, but more options are available when you use the yarn logs CLI command.

View all Log Files for an Application

Use the following command format to view all logs for an application:

```
yarn logs -applicationId <Application ID>
```

View a Specific Log Type for an Application

Use the following command format to view all logs of a particular type for an application:

```
yarn logs -applicationId <Application ID> -log_files <log_file_type>
```

For example, to view only the stderr error logs:

```
yarn logs -applicationId <Application ID> -log_files stderr
```

The -logFiles option also supports Java regular expressions, so the following format would return all types of log files:

```
yarn logs -applicationId <Application ID> -log_files .*
```

View ApplicationMaster Log Files

Use the following command format to view all ApplicationMaster container log files for an application:

```
yarn logs -applicationId <Application ID> -am ALL
```

Use the following command format to view only the first ApplicationMaster container log files:

```
yarn logs -applicationId <Application ID> -am 1
```

List Container IDs

Use the following command format to list all container IDs for an application:

```
yarn logs -applicationId <Application ID> -show_application_log_info
```

View Log Files for One Container

Once you have the container IDs, you can use the following command format to list the log files for a particular container:

```
yarn logs -applicationId <Application ID> -containerId <Container ID>
```

Show Container Log File Information

Use the following command format to list all of the container log file names (types) for an application:

```
yarn logs -applicationId <Application ID> -show_container_log_info
```

You can then use the -logFiles option to view a particular log type.

View a Portion of the Log Files for One Container

For large container log files, you can use the following command format to list only a portion of the log files for a particular container:

```
yarn logs -applicationId <Application ID> -containerId <Container ID> -size
<bytes>
```

To view the first 1000 bytes:

```
yarn logs -applicationId <Application ID> -containerId <Container ID> -size
1000
```

To view the last 1000 bytes:

```
yarn logs -applicationId <Application ID> -containerId <Container ID> -size
-1000
```

Download Logs for an Application

Use the following command format to download logs to a local folder:

```
yarn logs -applicationId <Application ID> -out <path_to_local_folder>
```

The container log files are organized in parent folders labeled with the applicable node ID.

Display Help for YARN Logs

To display Help for yarn logs, run the following command:

```
yarn logs -help
```