



Apache Myriad UI

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Overview

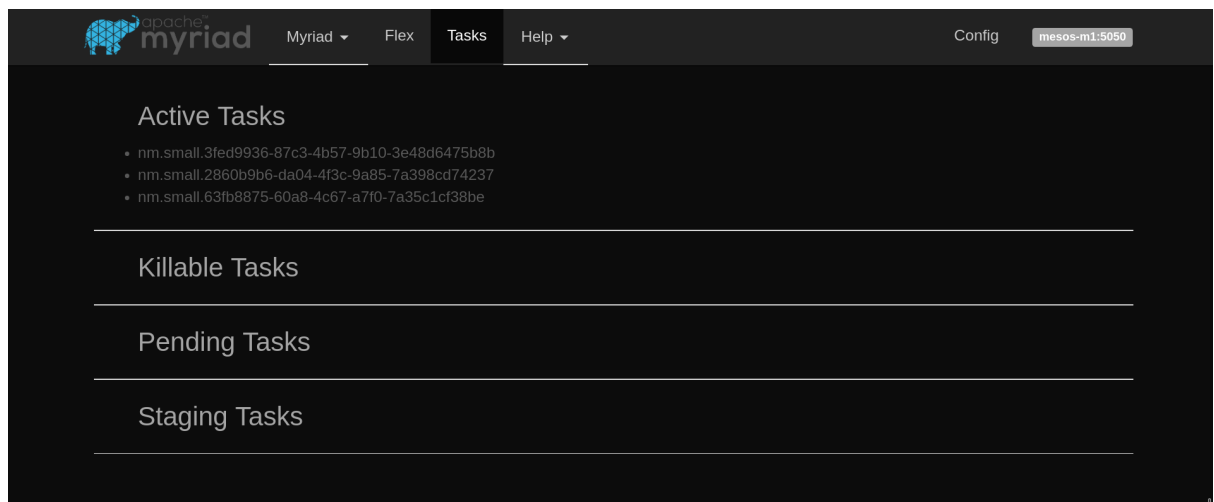
In the context of umbrella JIRA ticket:

<https://issues.apache.org/jira/browse/MYRIAD-279> (Reworking a new UI design)

We are planning to modify the Myriad UI with a lot of new ideas, dashboards, metrics, alerts and so on. This document put together all the new ideas and will be development design document.

Myriad UI Screenshots

Myriad Tasks



Myriad Flex

The screenshot shows the Apache Myriad Flex interface. At the top, there is a navigation bar with the Apache Myriad logo, a 'Myriad' dropdown menu, and tabs for 'Flex', 'Tasks', and 'Help'. On the right, there is a 'Config' button and a status indicator 'mesos-m1:5050'. The main content area is divided into two sections: 'Flex Up' and 'Flex Down'. Each section has a 'Profile' dropdown menu set to 'zero {"cpu": "0", "mem": "0"}' and an 'Instances' input field set to '1'. Below the input fields are buttons labeled 'Flex Up' and 'Flex Down' respectively. The 'Flex Up' section also includes a hint: 'Enter the number of instances to flex up.'

Myriad Flex Up

This screenshot shows the same Apache Myriad Flex interface as the previous one, but with a 'Flex Up Confirmation' dialog box open. The dialog box has a title bar with a close button and contains the text 'Flex up 2 instance(s) Profile: small ?'. At the bottom of the dialog are 'Cancel' and 'Flex Up' buttons. In the background, the 'Flex Up' section's 'Profile' dropdown menu is now set to 'small {"cpu": "1", "mem": "512"}', and the 'Flex Up' button is highlighted. The 'Flex Down' section remains unchanged.

Myriad Menu -> Shutdown Framework



Myriad ▾FlexTasksHelp ▾

Configmesos-m1:5050

Shutdown Framework

Flex Up

Profile

zero {"cpu":"0","mem":"0"} ▾

Instances

1

Enter the number of instances to flex up.

Flex Up

Flex Down

Profile

zero {"cpu":"0","mem":"0"} ▾

Instances

1

Enter the number of instances to flex down.

Flex Down

Myriad Help



Myriad ▾FlexTasksHelp ▾

Configmesos-m1:5050

Menu Options
About Myriad

Flex Up

Profile

zero {"cpu":"0","mem":"0"} ▾

Instances

1

Enter the number of instances to flex up.

Flex Up

Flex Down

Profile

zero {"cpu":"0","mem":"0"} ▾

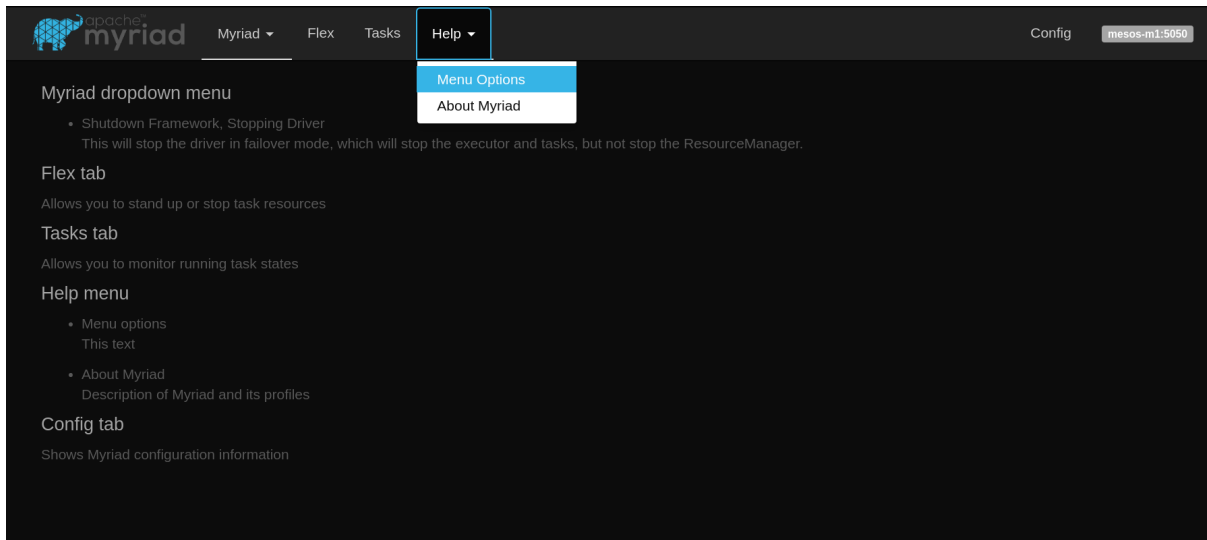
Instances

1

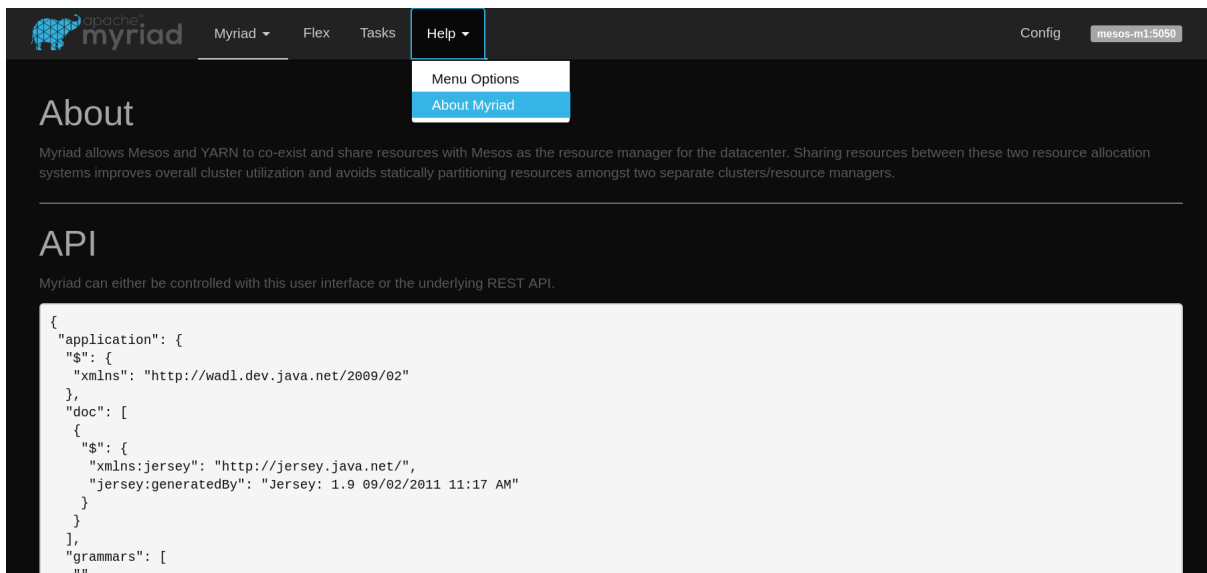
Enter the number of instances to flex down.

Flex Down

Myriad Help -> Options



Myriad Help -> About



New Myriad UI Proposal

The following are a set of screenshots, a soft of prototype for the next generation Myriad UI.

[Dashboard](#)[Clusters](#)[Applications](#)[Storage](#)[Create New Cluster](#)[Dashboard](#)[Clusters](#)[Applications](#)[Storage](#)

Create New Cluster

Apache YARN Version

Hadoop 2.7.0

Hadoop 2.7.0

Hadoop 3.0.0

Hadoop 3.0.3

YARN Resource Manager

2 GB

2vCPU

Label1

☒ Enable HA

YARN Node Manager

2 GB

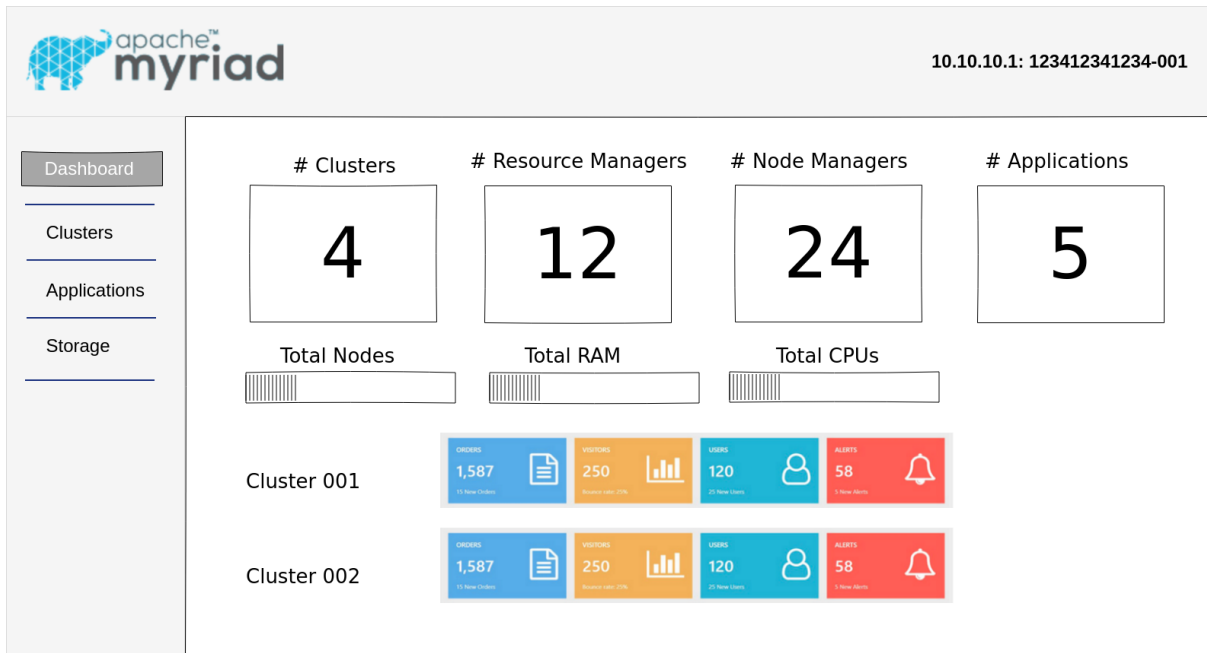
2vCPU

HDFS Node

Hadoop Name Node

hdfs://

☒ Standalone Testing[Verify](#)[Execute](#)



Technology for the New Myriad UI

We are checking the used of [Patternfly](#) The open interface project. This project is ASL 2.0 so we can use it without license issues in Apache Myriad.

Hadoop YARN API References

[Hadoop YARN 2.7.0 Introduction to the web services REST API's](#)

[Hadoop YARN 2.7.0 ResourceManager REST API's](#)

[Hadoop YARN 2.7.0 NodeManager REST API's](#)

[Metrics YARN Context](#)

[How to monitor Hadoop metrics](#)

Hadoop YARN Metrics

From Apache Ambari 2.6.22 from Hortonworks (HDP 2.6.5 -> Apache Hadoop 2.7.3) ([reference](#))

YARN Applications

Metrics to see status of Applications on the YARN Cluster.

Metrics	Description
Applications By Running Time	Number of apps by running time in 4 categories by default (< 1 hour, 1 ~ 5 hours, 5 ~ 24 hours, > 24 hours).
Apps Running vs Pending	The number of running apps vs the number of pending apps in the cluster.
Apps Submitted vs Completed	The number of submitted apps vs the number of completed apps in the cluster.
Avg AM Launch Delay	The average time taken from allocating an AM container to launching an AM container.
Avg AM Register Delay	The average time taken from RM launches an AM container to AM registers back with RM.

YARN NodeManagers

Metrics to see status of YARN NodeManagers on the YARN cluster.

Row	Metrics	Description
NUM CONTAINERS	Containers Running	Current number of running containers.
	Containers Failed	Accumulated number of failed containers.
	Containers Killed	Accumulated number of killed containers.
	Containers Completed	Accumulated number of completed containers.
MEMORY UTILIZATION	Memory Available	Available memory for allocating containers on this node.
	Used Memory	Used memory by containers on this node.
DISK UTILIZATION	Disk Utilization for Good Log Dirs	Disk utilization percentage across all good log directories.
	Disk Utilization for Good Local Dirs	Disk utilization percentage across all good local directories.
	Bad Log Dirs	Number of bad log directories.
	Bad Local Dirs	Number of bad local directories.

AVE CONTAINER LAUNCH DELAY	Ave Container Launch Delay	Average time taken for a NM to launch a container.
RPC METRICS	RPC Avg Processing Time	Average time for processing a RPC call.
	RPC Avg Queue Time	Average time for queuing a PRC call.
	RPC Call Queue Length	The length of the RPC call queue.
	RPC Slow Calls	Number of slow RPC calls.
JVM METRICS	Heap Mem Usage	Current heap memory usage.
	NonHeap Mem Usage	Current non-heap memory usage.
	GC Count	Accumulated GC count over time.
	GC Time	Accumulated GC time over time.
LOG4J METRICS	LOG ERROR	Number of ERROR logs.
	LOG FATAL	Number of FATAL logs.

YARN Queues

Metrics to see status of Queues on the YARN cluster.

Row	Metrics	Description
NUM APPS	Apps Runnnning	Current number of running applications.
	Apps Pending	Current number of pending applications.
	Apps Completed	Accumulated number of completed applications over time.
	Apps Failed	Accumulated number of failed applications over time.
	Apps Killed	Accumulated number of killed applications over time.
	Apps Submitted	Accumulated number of submitted applications over time.

NUM CONTAINERS	Containers Running	Current number of running containers.
	Containers Pending	Current number of pending containers.
	Containers Reserved	Current number of Reserved containers.
	Total Containers Allocated	Accumulated number of containers allocated over time.
	Total Node Local Containers Allocated	Accumulated number of node-local containers allocated over time.
	Total Rack Local Containers Allocated	Accumulated number of rack-local containers allocated over time.
	Total OffSwitch Containers Allocated	Accumulated number of off-switch containers allocated over time.

MEMORY UTILIZATION	Allocated Memory	Current amount of memory allocated for containers.
	Pending Memory	Current amount of memory asked by applications for allocating containers.
	Available Memory	Current amount of memory available for allocating containers.
	Reserved Memory	Current amount of memory reserved for containers.
	Memory Used by AM	Current amount of memory used by AM containers.
CONTAINER ALLOCATION DELAY	Ave AM Container Allocation Delay	Average time taken to allocate an AM container since the AM container is requested.

YARN ResourceManager

Metrics to see status of ResourceManagers on the YARN cluster.

Row	Metrics	Description
RPC STATS	RPC Avg Processing / Queue Time	Average time for processing/queuing a RPC call.
	RPC Call Queue Length	The length of the RPC call queue.
	RPC Slow calls	Number of slow RPC calls.
MEMORY USAGE	Heap Mem Usage	Current heap memory usage.
	NonHeap Mem Usage	Current non-heap memory usage.
GC STATS	GC count	Accumulated GC count over time.
	GcTime	Accumulated GC time over time.
LOG ERRORS	Log Error / Fatal	Number of ERROR/FATAL logs.
AUTHORIZATION & AUTHENTICATION FAILURES	RPC Authorization Failures	Number of authorization failures.
	RPC Authentication Failures	Number of authentication failures.

YARN TimelineServer

[Reference Timeline Server](#)

Metrics to see the overall status for TimelineServer.

Row	Metrics	Description
DATA READS	Timeline Entity Data Reads	Accumulated number of read operations.
	Timeline Entity Data Read time	Average time for reading a timeline entity.
DATA WRITES	Timeline Entity Data Write	Accumulated number of write operations.
	Timeline Entity Data Write Time	Average time for writing a timeline entity.
JVM METRICS	GC Count	Accumulated GC count over time.
	GC Time	Accumulated GC time over time.
	Heap Usage	Current heap memory usage.
	NonHeap Usage	Current non-heap memory usage.

YARN MR JobHistory Server

MapReduce has two REST APIs:

1. [MapReduce Application Master REST API](#)
2. [MapReduce History Server REST API](#)

Metrics to see status of the Job History Server.

Row	Metrics	Description
JVM METRICS	GC Count	Accumulated GC count over time.
	GC Time	Accumulated GC time over time.
	Heap Mem Usage	Current heap memory usage.
	NonHeap Mem Usage	Current non-heap memory usage.