



Rundeck

by PagerDuty

EMEA OSS Community Meetup #5
23 Nov 2023



Rundeck
by PagerDuty

- This is **NOT** a Sales Pitch!!
- We have an agenda but this is intended to be **YOUR Community** and call - we're happy to go off-topic!
- **Please keep it interactive** - ask questions in the **Q&A** or make comments at any time, participate in the **poll** and **post meetup survey**!
- We are not recording the overall session but we **WILL record** the **individual presentations**

Today's Agenda

1pm - Introduction from Rundeck OSS Community Organisers

1:10pm - Franco Ricci - Chief of IT Application Development Division @ La Sapienza University of Rome

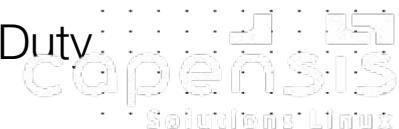
A Story of OSS in Academia

1:25pm - Mick McGuinness, Co-Founder & PM for DBmarlin @ Application Performance

Adding Runbook Automation to Database Observability

1:40pm - Justyn Roberts, Sr. Solutions Consultant @ PagerDuty

Automate Kubernetes with Rundeck





Martin Van Son

Host

Automation Specialist

mvanson@pagerduty.com

Franco Ricci

Speaker

Chief of IT Application
Development Division

La Sapienza University of
Rome

Mick McGuinness

Speaker

Co-Founder & PM for
DBmarlin

Application Performance

Justyn Roberts

Speaker

Solutions Consultant

jroberts@pagerduty.com
[@justynroberts](https://twitter.com/justynroberts)



Today's Speaker



Franco Ricci

Chief of IT Application Development
Division @ La Sapienza University of
Rome

A Story of OSS in Academia



SAPIENZA
UNIVERSITÀ DI ROMA

Roma, 23 novembre 2023

SAPIENZA AND OUR TEAM



- La Sapienza is one of the oldest Universities in Italy and one of the largest in Europe.
- 15 people working to develop, maintain and supporting
- 100.000 students
- We need simplicity of use, performance and availability
- A process automation software can't be missing...

Rundeck in SAPIENZA

The screenshot shows the Rundeck System Report interface. It includes sections for:

- STATS: UPTIME**: DATETIME: 2023-11-08T08:19:36Z, DURATION: 5d23h
- STATS: CPU**: LOADAVG: 0.39%, PROCESSORS: 12
- STATS: MEMORY**: ALLOCATED: 19%, FREE: 349.28 MiB, HEAPUSAGE: 67%, MAX: 5.33 GiB, TOTAL: 1.05 GiB, USED: 724.72 MiB
- STATS: SCHEDULER**: RATIO: 20%, RUNNING: 2, THREADPOOLSIZEx: 10
- STATS: THREADS**: ACTIVE: 56
- REPOSITORIES**: ACTIVE: true, REPOS: Official, private
- TIMESTAMP**: DATETIME: 2023-11-14T08:06:33Z
- RUNDECK**: APIVERSION: 40, BASE: /usr/local/rundeck, BUILD: 3.4.4-20210920, BUILDGIT: v3.4.4-0-gb00e92, NODE: opp01.cars.univrom1.it, SERVERUUID: 51884a88-d98c-4fef-8b57-de21a1b9c746, VERSION: 3.4.4-20210920
- EXECUTIONS**: ACTIVE: true, EXECUTIONMODE: ACTIVE
- OS**: ARCH: amd64, NAME: FreeBSD, VERSION: 13.0-STABLE
- JVM**: IMPLEMENTATIONVERSION: 25.302-b08, NAME: OpenJDK 64-Bit Server VM, VENDOR: OpenJDK BSD Porting Team, VERSION: 1.8.0_302

- Rundeck as single JAR file in a FreeBSD host
- Running inside a jail subsystem
- shell scripts
- java scripts
- python scripts

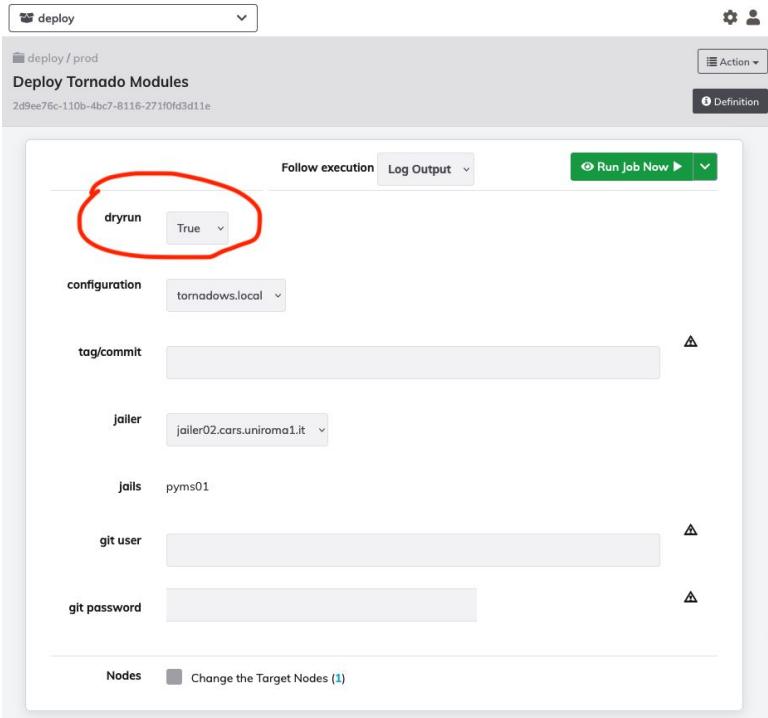
HOW WE USE RUNDECK

- Data transformations (kettle), deploy software releases, OS maintenance....
- How often do we use Rundeck?
 - **6** active projects
 - **98** jobs in the biggest project
 - **33** jobs scheduled every days, running from few seconds to some hours
- How many users interact with Rundeck?
 - run jobs on demand (developers, system admin)
 - checking activity and rerun jobs failed after have read logs

LIMITATIONS and NEXT STEPS

- Complex workflows cannot build
- It's difficult to write granular ACL for a large teams with a lot of roles
- Dashboard to monitor performance and metrics
- We are planning to switch to PagerDuty Process Automation
- We are thinking about developing a new Zabbix plugin to monitor performance and status of RunDeck using its API

SOFTWARE DEPLOYMENTS



- Get commit from a GIT repository
- copy files to target host and configure application
- restart application server
- jobs invoke python scripts using Fabric library
- check release installation date by log activity

deploy

Deploy Tornado Modules

Definition

STEPS

1. **deploy/prod/Update Tornado Local Conf**
Deploy new Tornado Modules version
password: \${option.password} environment: prod dryrun: \${option.dryrun} configuration: \${option.configuration} jailer: \${option.jailer} username: \${option.username}
2. **deploy/prod/Update Tornado Modules**
Update Tornado Modules local conf
password: \${option.password} dryrun: \${option.dryrun} commit: \${option.commit} jailer: \${option.jailer} username: \${option.username}
3. **tasks/Jails manage (Alcatraz)**
Restart jails
dryrun: \${option.dryrun} jails: \${option.jails} jailer: \${option.jailer} command: restart

If a step fails: Stop at the failed step.

Strategy:

- ◆ Node First Execute all steps on a node before proceeding to the next node.

OPTIONS dryrun: True , configuration: [tornadows.local.tag/commit](#), jailer: [jailer02.cars.uniroma1.it](#), jails: [pyms01](#), git user, git password

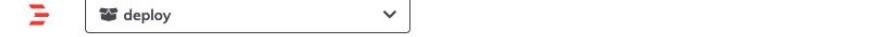
PLUGINS

NODES Include nodes matching: name: fabric-alcatraz ➔
Execute on up to 1 Node at a time.
If a node fails: Fail the step without running on any remaining nodes.
Sort nodes by name in ascending order.
Node selection: Target nodes are selected by default

UUID 2d9ee76c-110b-4bc7-8116-271f0fd3d11e

CREATED 694d18h ago

Close



Expand All Collapse All

▼ deploy

▼ prod

- ▶ Deploy CarsDesktop Deploy del git di CarsDesktop
- ▶ Deploy GEREMIA Deploy GEREMIA App - PRODUZIONE
- ▶ Deploy ISAIA Deploy ISAIA App
- ▶ Deploy OAS (legacy) Deploy PRODUZIONE di segreterie e didattica legacy
- ▶ Deploy SHENZHOU Deploy SHENZHOU App
- ▶ Deploy Swagger Deploy del git di swagger
- ▶ Deploy Tornado Update Tornado and restart jails
- ▶ Deploy Tornado Modules
- ▶ Deploy infostuddt Deploy del git di swagger
- ▶ Update Templates Documenti Update template_documenti
- ▶ Update Tornado Update tornado core
- ▶ Update Tornado Local Conf Update tornado local conf
- ▶ Update Tornado Modules Deploy tornado modules

Update Tornado Modules

Definition

STEPS

```
1. [x] /usr/local/bin/python3.9 /fabric2/execute.py -c /fabric2/tasks/deploy/deploy_tornadoModules.ini -n $option.dryrun -H $option.jailer -i git_user=$(..  
Update tornado modules
```

If a step fails: Stop at the failed step.
Strategy:
◆ Node First Execute all steps on a node before proceeding to the next node.

OPTIONS

```
jailer: jailer@cars.unioroma1.it, dryrun: True, tagCommit, git user, git password
```

PLUGINS

NODES

```
Include nodes matching: name: fabric-alcatraz ➔  
Execute on up to 1 Node at a time.  
If a node fails: Fail the step without running on any remaining nodes.  
Sort nodes by name in ascending order.  
Node selection: Target nodes are selected by default
```

UUID

```
ba1e5c73fea7-45c6-b5e7-c0244603c799
```

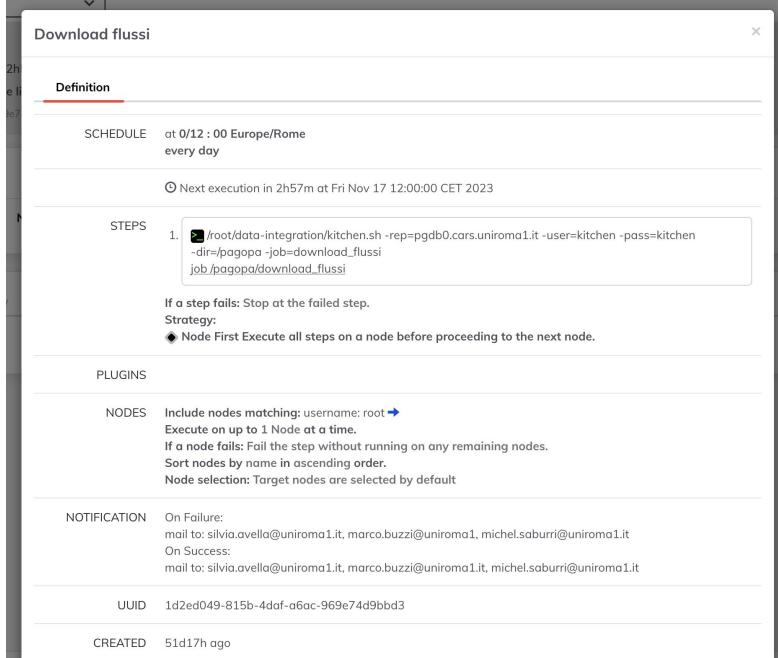
CREATED

```
694d18h ago
```

[Close](#)

Data Warehouse

- Long run tasks
- A lot of logs we need to check
- Kettle scripts

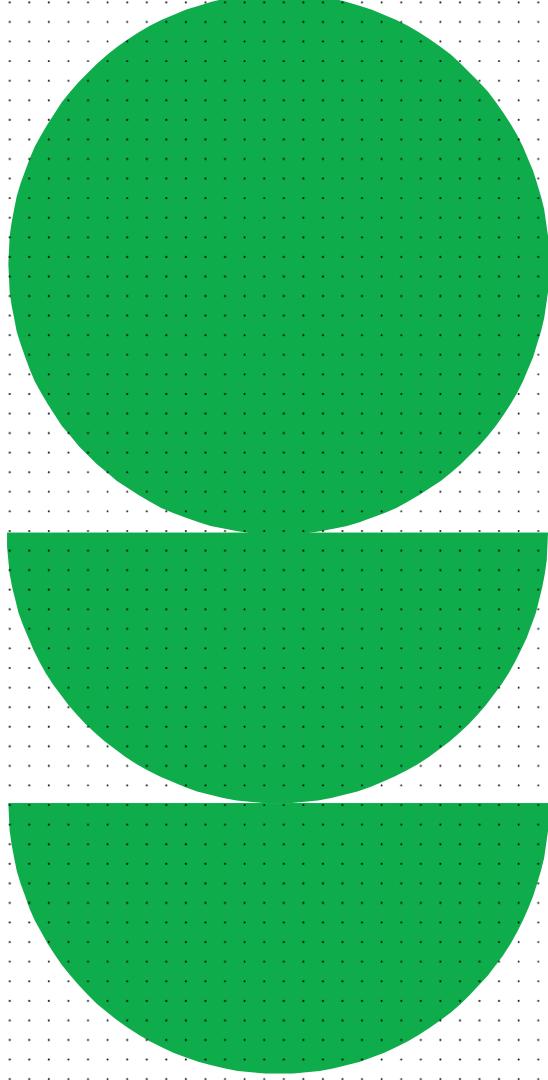


SOME REQUESTS

- Whitelist and blacklist of commands a node can execute
- Everyone is sure to not execute potentially destructive jobs!!
- Power without control is nothing!!!

PagerDuty

Thank you



Today's Speaker



Mick McGuinness

Co-Founder & Product Manager for DBmarlin @
Application Performance

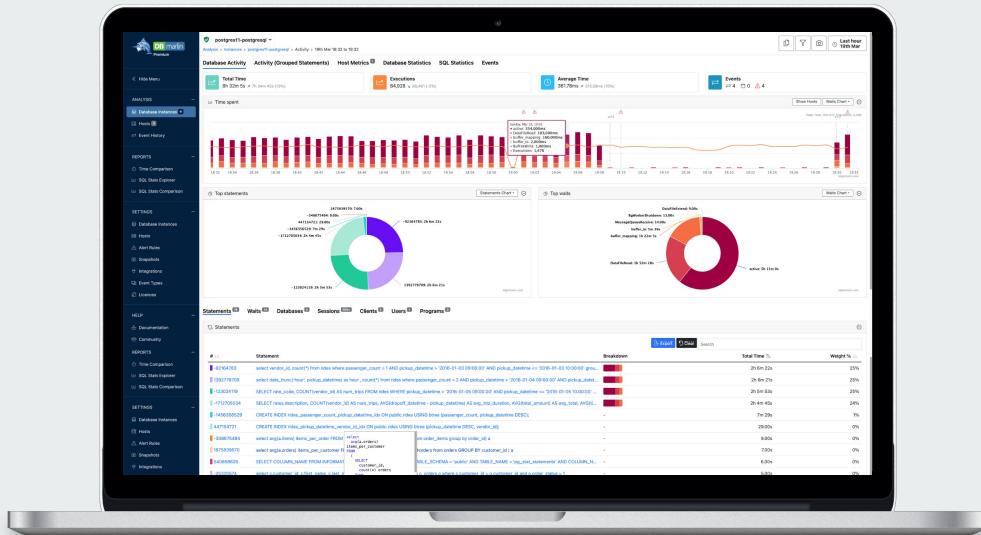
RUNDECK EMEA MEETUP



Rundeck

by PagerDuty

meetup



THU, NOV 23, 2023, 1:00 PM GMT

Agenda

1. Background on DBmarlin
2. Why we are looking to add RBA?
3. Why we chose RunDeck?
4. Some of the use cases we are exploring.

Mick McGuinness

PRODUCT MANAGER

Co-founder with 27 years IT experience of which the last 25 have been specialised in application and database performance.



What makes us different?



Helping many roles



Developers



DevOps



SRE Teams



DBAs



Perf test

Deep visibility & insights

1s granularity

Real-time and historical data

Deep drill down

Actionable insights

Wide coverage



Understands change

Schema Change

Parameter Change

Code Change

Infrastructure Change

...

Integrations



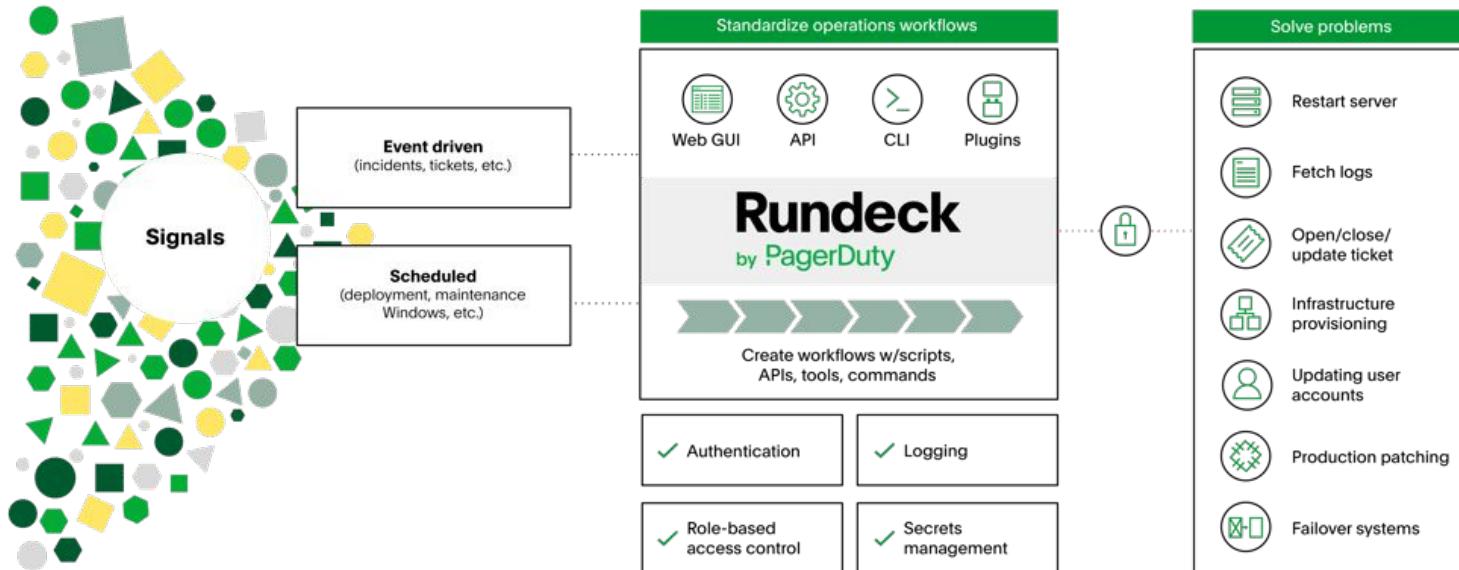
Other tools via API

Why add Run book automation to DBmarlin?

- 1. Automatic remediation**
 - a. Fix problem without human intervention
 - b. Give human operator quick access to a runbook
 - c. Gather additional diagnostics for troubleshooting
- 2. Automate tasks on the DBmarlin sever**
 - a. Scheduled reports / email digests
 - b. Self monitoring / administration
 - c. Analyze the impact of changes



Why choose RunDeck?



We get all of this included without having to write it ourselves.

Why choose RunDeck?

The screenshot shows the Rundeck Plugins page. At the top left is the Rundeck logo. The top navigation bar includes 'Products', 'Solutions', 'Customers', 'Resources', 'Contact', and a red 'See Demo' button. Below the navigation is a search bar with the placeholder 'Search Rundeck Plugins'. A message indicates '127 results found in 14ms'. On the left, there are two sections: 'SUPPORT' and 'TYPE'. 'SUPPORT' categories include 'Community' (54), 'Enterprise Exclusive' (21), and 'Rundeck Supported' (72). 'TYPE' categories include 'External' (13), 'Node Execution' (14), 'Notification' (21), 'Resource' (30), 'Step' (22), 'Storage' (5), 'User Interface' (4), 'Webhook Processor' (4), 'Workflow Node Step' (7), and 'Workflow Step' (24). The main area displays a grid of plugin cards. Some visible cards include 'Amazon RDS', 'Amazon ELB', 'AWS / ECS', 'Amazon Athena Workflow Step', 'Sumo Logic Workflow Steps', 'CyberArk Key Storage Plugin', 'Thycotic Key Storage Plugin', 'Ping Identity', and 'Okta Single Sign-on'. Each card shows the plugin name, icon, support status (Enterprise Exclusive or Rundeck Supported), and a brief description.

Lots of plugins which interact with things that our customers are already using.



RunDeck example use cases

- 1) Remediation use cases
- 2) DBmarlin use cases

* These are ideas we are exploring and not product commitments at this stage and purchasing decisions should not be made based on these.



Remediation use cases

Trigger	Action(s)
Alert - High CPU on DB server	Scale up VM
Alert - Low cache hit ratio	Resize buffer cache parameter
Alert - DB lock build up	Kill blocking session
Alert - DB reached max connections	Resize max connections if memory allows
Alert - DB fragmentation	Index rebuild
Alert - DB wasted space	vacuum tables
Alert - High DB wait times	Gather further diagnostics

DBmarlin use cases

Trigger	Action(s)
Scheduled	Daily digest email
Scheduled	PDF report
Manual trigger	Stop/Start/Status of DBmarlin processes
Manual trigger	Gather logs and config in support.zip
Scheduled	Check DBmarlin health
DBmarlin detected change	Run impact analysis report

Questions?



Today's Speaker



Justyn Roberts

Solutions Consultant
jroberts@pagerduty.com
[@justynroberts](https://twitter.com/justynroberts)

PagerDuty



Justyn
Roberts
Solutions
Consultant
jroberts@pagerduty.com
[@justynroberts](https://twitter.com/justynroberts)

Me.

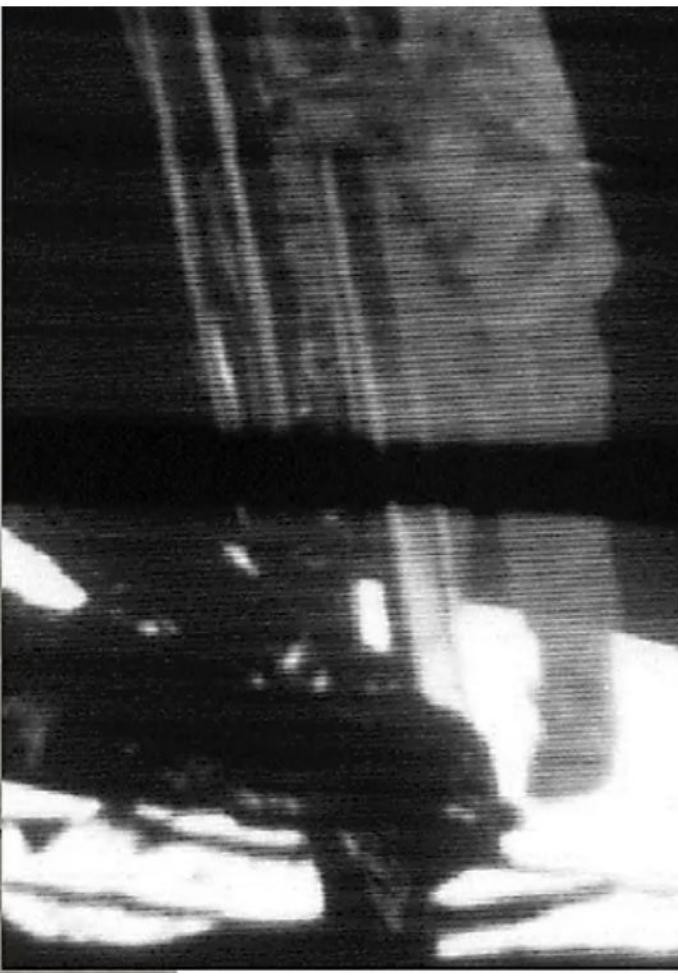
Nottingham, UK

Solutions Consulting (Demos,POVs,
Building stuff)

Monitoring/Observability/Mobile/DevOps
AI and Automation Fan

2 Years at Rundeck







“Because Rundeck isn't just about playbooks & cron”

Event Driven

Self Service

Who Watches the
watcher ?

Rundeck FOR kubernetes

Rundeck ON kubernetes

Get the plugin

- Community plugin. And works well.

<https://github.com/rundeck-plugins/kubernetes/releases/download/2.0.13/kubernetes-2.0.13.zip>

- Based on python + kubernetes module
- You will need Python :)
- pip install kubernetes

Whats in it ?

Node
Source

Step
Plugins

- Kubernetes / Debug / Ephemeral Container - Add an ephemeral container to a pod for debugging.
- Kubernetes / Deployment / Create - Create a Deployment
- Kubernetes / Deployment / Delete - Delete a Deployment
- Kubernetes / Deployment / Status - Get Status of the deployment
- Kubernetes / Deployment / Update - Update a Deployment
- Kubernetes / Deployment / Waitfor - Wait for Deployment
- Kubernetes / Generic / Create - Create a Deployment / Service / Ingress from YAML string
- Kubernetes / Generic / Delete - Delete a generic resource
- Kubernetes / Job / Create - Create a Job
- Kubernetes / Job / Delete - Delete a Job
- Kubernetes / Job / Re-Run - Re-Run a Job (it will be deleting and creating again)
- Kubernetes / Job / Waitfor - Wait for Job
- Kubernetes / Pod / Create - Create a Deployment
- Kubernetes / Pod / Delete - Delete a Pod
- Kubernetes / Pod / Describe - Describe a Specific Pod
- Kubernetes / Pod / Waitfor - Wait for Pod ready status
- Kubernetes / Pods / Execute Command - Run a command to a pod
- Kubernetes / Pods / Execute Script - Run a script to a pod
- Kubernetes / Pods / Logs - Get Logs from POD
- Kubernetes / Service / Create - Create a Service
- Kubernetes / Service / Delete - Delete a Service
- Kubernetes / Service / Update - Update a Service
- Kubernetes / StatefulSet / Waitfor - Wait for StatefulSet

But you don't HAVE to use the plugin;

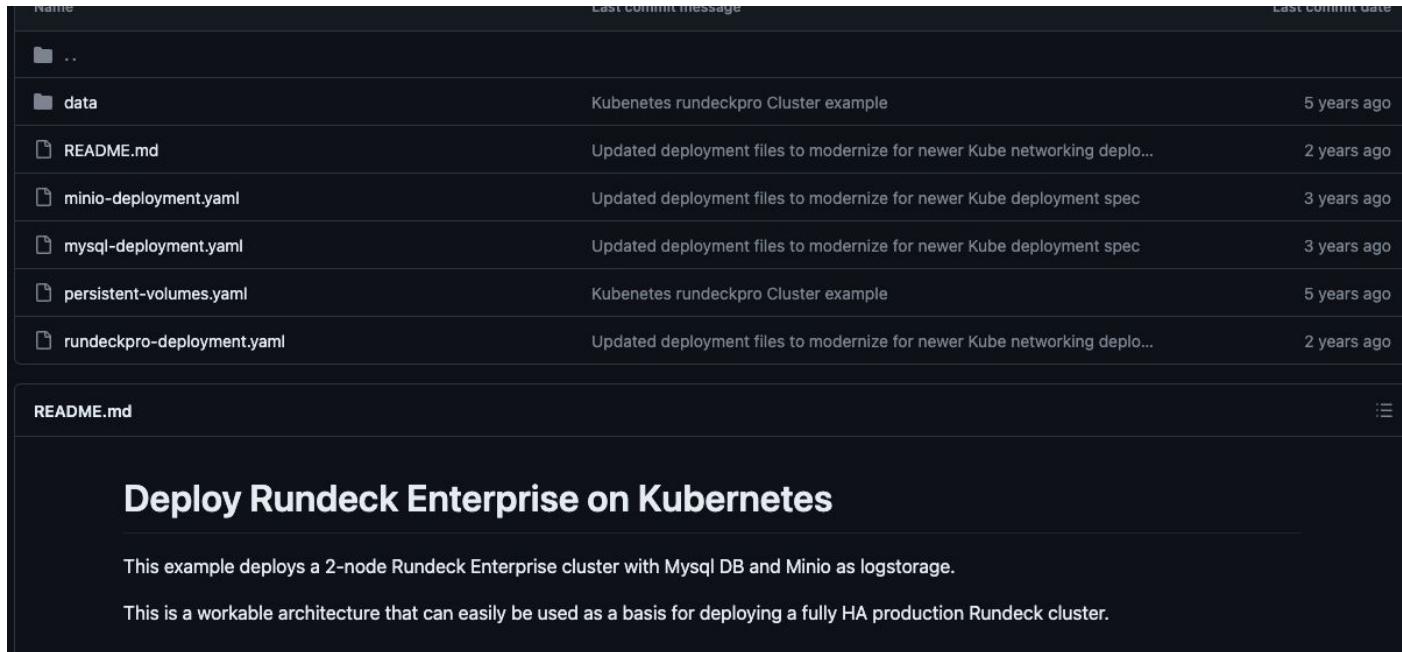


Most Flexible - Kubectl commands

Python Friendly - pip install kubernetes

Rundeck ON Kubernetes

<https://github.com/rundeck/docker-zoo/tree/master/kubernetes>



The screenshot shows a GitHub repository listing for the 'kubernetes' directory of the 'docker-zoo' project. The repository contains several YAML files and a README.md file. The files are listed in the following order:

Name	Last commit message	Last commit date
...		
data	Kubernetes rundeckpro Cluster example	5 years ago
README.md	Updated deployment files to modernize for newer Kube networking deplo...	2 years ago
minio-deployment.yaml	Updated deployment files to modernize for newer Kube deployment spec	3 years ago
mysql-deployment.yaml	Updated deployment files to modernize for newer Kube deployment spec	3 years ago
persistent-volumes.yaml	Kubernetes rundeckpro Cluster example	5 years ago
rundeckpro-deployment.yaml	Updated deployment files to modernize for newer Kube networking deplo...	2 years ago

Below the file list, there is a link to 'README.md'.

Deploy Rundeck Enterprise on Kubernetes

This example deploys a 2-node Rundeck Enterprise cluster with Mysql DB and Minio as logstorage.

This is a workable architecture that can easily be used as a basis for deploying a fully HA production Rundeck cluster.

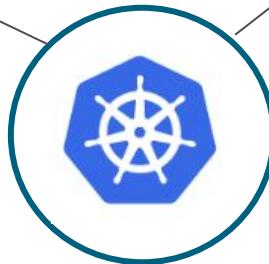
Rundeck ON Kubernetes - considerations

- Only one instance per DB - Its a OSS Limitation
- You will need persistent storage (eg Minio or S3)
- True clustering/scaling == PAOP/Enterprise

Kubernetes Process Automation Examples

Incident Response Diagnostics

- Getting Pod Status & description
- Getting Cluster Status
- Running Processes & Limits
- Get & Parse events
- Tail container logs
- Execute in-container commands
- Run Kubernetes Jobs
- Run Ephemeral containers, with additional tooling to capture debug state
- Check other status (eg cron jobs)
- Rollout history



Service Request Automation

- Kubernetes application deployments
- Job Trigger delegation with Guardrails
- Interaction with ITSM Tools
- Manage cloud services, AWS, Azure, GCP
- Wrap existing developer tools
- Trigger existing pipelines
- Trigger 3rd party APIs
- Increasing Resource limits for deployments
- Triggering deployments
- Triggering external components (eg Jenkins/Git/Azure Pipelines)
- Pod Deletion
- Scale deployment to zero, then back up to original
- Undo deployments
- Execute script inside container
- Execute K8s jobs

Source: <https://docs.rundeck.com/docs/manual/plugins/kubernetes-plugins-overview.html>

Examples

Automated Diagnostics in Containerised/Kubernetes environments.

09/01/2023, 11:14
Note added by PD Process Automation.
Kubernetes Admin Info Deployments

--
deployment.apps/travelduty-frontend
REVISION CHANGE-CAUSE
1 <none>

Pod Status...

--

NAME	READY	STATUS
travelduty-frontend-7f4bb8f4b6-jrjwh	1/1	Running
travelduty-frontend-7f4bb8f4b6-l5rs5	1/1	Running
travelduty-frontend-7f4bb8f4b6-vgjwk	1/1	Running
travelduty-frontend-7f4bb8f4b6-xqc6w	1/1	Running
travelduty-frontend-7f4bb8f4b6-xw58l	1/1	Running
travelduty-main-55fb69c5c6-8b7p2	0/1	CrashLoopBackOff
travelduty-main-55fb69c5c6-fhmvf	0/1	CrashLoopBackOff
travelduty-main-55fb69c5c6-h8ptv	0/1	CrashLoopBackOff
travelduty-main-55fb69c5c6-qldch	0/1	CrashLoopBackOff
travelduty-main-55fb69c5c6-rkm4c	0/1	CrashLoopBackOff
travelduty-main-55fb69c5c6-rkm4c	27d	CrashLoopBackOff

Diagnostics are automatically presented to responder to help with triage and core problem understanding

Note added by PD Process Automation.
AWS OK: Service is operating normally: [RESOLVED] Increased Error Rates

09/01/2023, 11:15
Note added by PD Process Automation.
AWS OK: Service is operating normally: [RESOLVED] Increased API Error Rates and Latencies

09/01/2023, 11:15
Note added by PD Process Automation.
Endpoint Test

Successful [200] for <http://www.cloudflare.com>

09/01/2023, 11:15
Note added by PD Process Automation.
Endpoint Test

Successful [200] for <https://www.stripe.com>

09/01/2023, 11:15
Note added by PD Process Automation.
Database Log

Last Errors in Log

09/01/2023, 11:14
Note added by PD Process Automation.
Core Platform Diagnostics System Information

Other adjacent/relevant diagnostics such as checking logs, status, service and cloud availability can help pinpoint a bad deployment

Systems Manager (SSM). Last Run: 06/12/2022, 13:27

Extended Diagnostics - Check 3rd Party
Check 3rd Party services for responses Last Run: 23/12/2022, 13:46

Extended Diagnostics - DiskSpace
to check remaining diskspace Last Run: 13/01/2023, 14:38

Extended Diagnostics - Kubernetes
Extended Kubernetes Diagnostics Last Run: 11/11/2022, 21:35

Extended Diagnostics - Manually Triggered (Made by Martin)
Triggered Diagnostics Last Run: 23/12/2022, 15:40

Memory use diagnostic
Check on the active memory on Server Last Run: 23/12/2022, 13:44

Rebuild/Rollback Environment
Restores the environment to its default images Last Run: 23/02/2023, 20:20

Restart Elasticsearch (Remove Shard - Server 1)
Restart Elasticsearch (Remove Shard - Server 1) Last Run: 09/09/2022, 13:25

Automated actions can be triggered to securely perform any task to get additional diagnostics OR trigger remediation pipeline

Until incident resolves... intelligently based on alert history. Show More

Initiated Automation Actions

SUCCESSFUL 11/01/2023, 15:38
Rebuild/Rollback Environment
Run by User 17s

View 1 Automation Action >

Latest Note 8 NOTES

Container Running ✓
Process ID : 9023ebfdab29af8b769287bae941825cabcd255cfdc
199b8264982c1403c773

Rundeck URL: <https://rdse.runbook.pagerduty.cloud/project/pdt-emea-project/runbook/automation/show/> Show More

The resolution can finally be confirmed as a post diagnostic. All from the App, WebUI or Chatops tool

Trigger from your own tools

- Jenkins
- PagerDuty
- Atlassian
- Jenkins
- ServiceNow

Pre Built Kubernetes and Cloud Automation Tasks

All Jobs 30

Jobs Dashboard Graph Show Favorites

AWS (6) EC2 (1) ECS (2) ELB (1) KUBERNETES (7) LAMBDA (1) LINUX (3) NGINX (3) PAGERDUTY (1) POSTGRESQL (2) RDS (1) REDIS (4) WINDOWS (1)

Expand All Collapse All

▶ API
▶ AWS
▼ Kubernetes
★ ▶ Describe Deployment Describe specific Deployment in a particular Namespace
★ ▶ Describe Replicaset Describe a Replicaset in a specified Namespace
★ ▶ Describe Specific Pod Describe an individual Pod in a specified namespace.
★ ▶ Execute Command in Pod Send a command to an individual pod in a specific namespace.
★ ▶ List Recent Events List recent events for resources within the Kubernetes cluster
★ ▶ Retrieve Logs from Kubernetes by Selector Label Retrieve the most recent logs for all pods filtered by label selector.
★ ▶ Tail Logs from Individual Kubernetes Pod Retrieves last 10 logs from an individual Pod in a specific Namespace.

▶ Linux
▶ Nginx
▶ PostgreSQL
▶ Redis
▶ Validate Integrations
▶ Windows

Prebuilt Automated Diagnostic tasks, to enhance incident diagnostics

PagerDuty

Service automation - Safely orchestrate container operations, to allow delegation and auditing of operational tasks - These "jobs" can be triggered by a human, via an ITSM tool or Scheduled.

Kubernetes

Service Automation - Helm Chart Deployment - Grafana Instance - [MVS]

Service Automation [Grafana/Helm/Kubernetes/Slack] ⚡ Less

- This job will take both a business unit and an additional note
- It will utilise Helm to deploy a Kubernetes namespace based on the business unit
- an instance of Grafana Admin password and URL will be retrieved and passed to a sample slack channel

Options:
Namespace:
`nottingham`
additionalInfo:
`Business Request -`

19% of average 1m 32s

View: Nodes ▾ Log Output »

0% 0/1 COMPLETE 0 FAILED

Node

Node	Status
EC2-Kubernetes	Running
> #! Create K8s Namespace IF it does not exist	Running
> ✅ Install Helm Chart	Waiting
> ✅ Get Admin Password	Waiting
> ✅ URL	Waiting
> ✅ Check Health - Get pods running	Waiting
> ✅ Command	Waiting

Enhanced Kubernetes Diagnostics via Ephemeral Containers

Kubernetes / Pods / Debug Ephemeral Container

Add an ephemeral container to a pod for debugging.

Pod Name	<code>\$(option.pod)</code>
Name of the running pod that the ephemeral container will get attached to.	
Namespace	default
Namespace where the job was created	
Name for Ephemeral Container	<code>\$(option.debug-container-name)</code>
Name for the ephemeral container that will be added to the running pod.	
Container Image	busybox
Image for the ephemeral container to be added to the running pod.	
Target Container	nginx
Name of a container within the running pod that the ephemeral container should target. Less	
The ephemeral container will run in the namespaces (IPC, PID, etc) of the Target Container. If not set then the ephemeral container uses the namespaces configured in the Pod spec.	
<input type="checkbox"/> Print Pod Spec	Optionally print the pod spec to the log output after the ephemeral container has been added.

This feature allows anyone to add tools to a temporary container for debugging or diagnostics.

It enables deployments to still run as minimal containers, and avoid bloating

1.   Kubernetes / Pods / Debug Ephemeral Container Add an ephemeral container to a pod for debugging.
Pod Name: `$(option.pod)`
Namespace: default
Name for Ephemeral Container: `$(option.debug-container-name)`
Container Image: busybox
Target Container: nginx
2.   Kubernetes / Pods / Execute Command Run a command to a pod
Pod Name: `$(option.pod)`
Container Name: `$(option.debug-container-name)`
Namespace: default
Shell: /bin/sh
Command: `ps`

 Add Ephemeral Container ≡

Succeeded 0.0.
 you
 17be9760

Options:
pod: `nginx-6c8b449b8f-j6s94`
debug-container-name: `debug1`

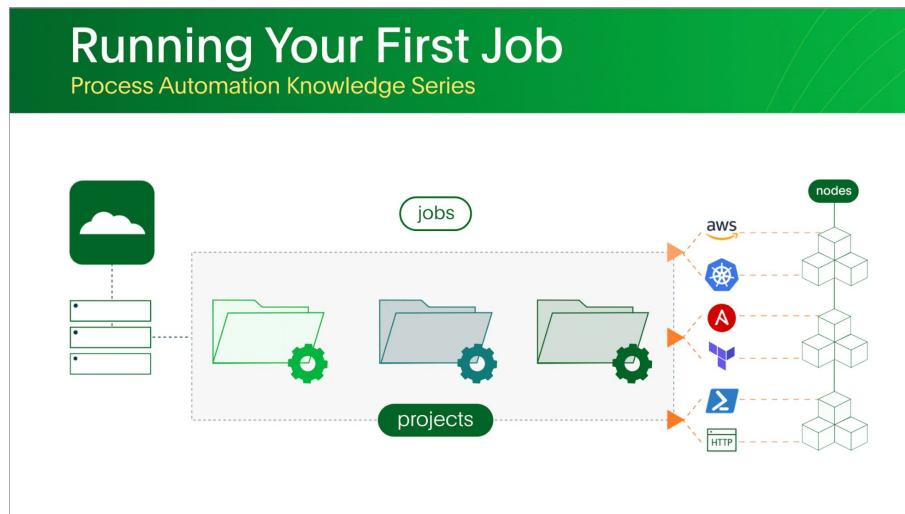
View: Log Output Nodes »

Settings	Follow	Ephemeral container debug1 successfully added to pod nginx-6c8b449b8f-j6s94			
PID	USER	TIME	COMMAND		
1.		0:00	nginx: master process nginx -g daemon off;		
2.	root	0:00	nginx: worker process		
2.	29 101	0:00	nginx: worker process		
2.	30 101	0:00	nginx: worker process		
2.	31 root	0:00	sh		

NEW PagerDuty University on-demand FREE course!

Create a new account or log in to <https://university.pagerduty.com/?q=automation>

- Introduction to PagerDuty Process Automation - 30 min
- Running Your First Job - 15 min





Rundeck

by PagerDuty

Thanks for your participation!
See you in the next meetup!



Join us:

PagerDuty
Community 

community.pageerduty.com
meetup.com/rundeck-europe/