EPAM Cloud Infrastructure

Orchestrator ver. 2.1.12

What's New

March 2014

CI2WN-S10-13

Version 1.0

Content

1. Overview

EPAM Orchestration Framework version 2.1.12 was released on March 22nd, 2014.
In this release, we introduced a number of significant changes, improvements and new features, mainly related, but not limited, to EPAM Private Cloud services and Amazon federalization.

Please, note that the SDK version was changed to 4.1.12. The new SDK version is available by the following link.

We would like to attract your special attention to the following point:

From now on, the projects with the 'ON HOLD' UPSA status are billed the same way as 'ACTIVE' projects are.

2. New Features

When working on *EPAM Cloud Orchestration v.2.1.12* we paid special attention to improving the existing solutions so that they offer you the new facilities, simplify your work and give you the better control over the processes within your EPAM Private Cloud infrastructure.
We also introduced a set of new services, and made a significant step in integration with UPSA by introducing the Cloud Roles that allow the project managers to change the Cloud user permissions without interfering with the standard PMC roles.

Cloud Roles

Each of the project roles specified in UPSA has default access to several Maestro CLI user groups with a set of default permissions (see User Permissions page). Therefore, the user permissions within EPAM Private Cloud were always strictly dependent on the user project role which is not always convenient.

Regarding this fact, and basing on the users feedback and expectations, EPAM Private Cloud and UPSA teams implemented a solution that would allow project managers/project coordinators to set up EPAM Private Cloud user permissions without creating requests to Cloud Support and having to change the user project roles.

Now, the PMC Roles list includes two additional Cloud Roles: Cloud Admin and Cloud User:
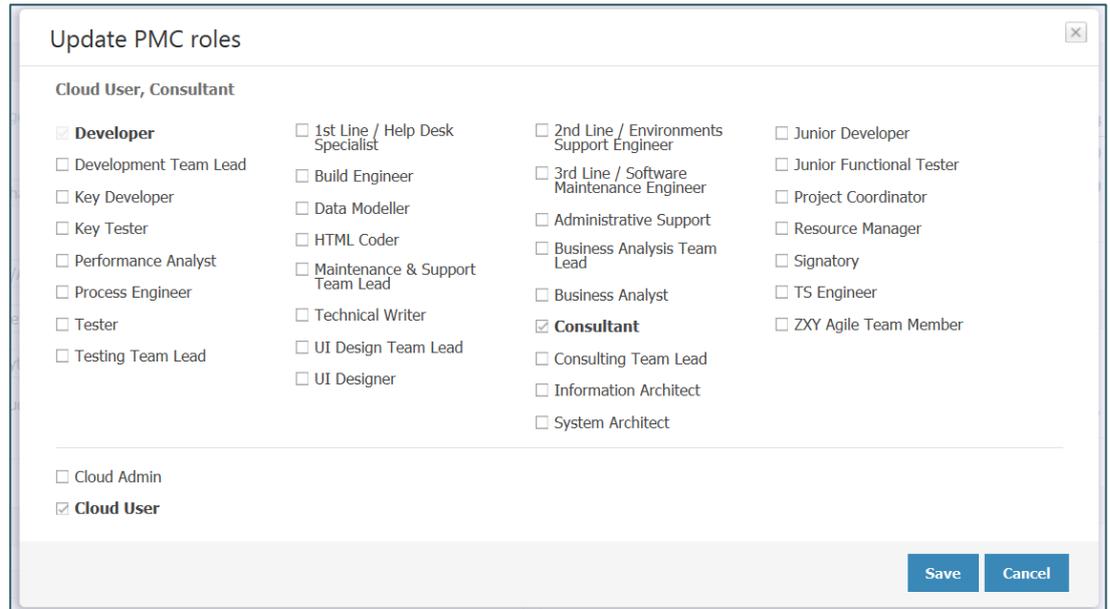
Figure 1 - Secondary roles in 'Update PMC Roles' wizard

These groups impose the following rules on the user's permissions in EPAM Private Cloud:

- The Cloud User group, when checked, gives the user PMC-role based permission.
- The Cloud Admin group, when checked, gives the user max project permissions level. It overrides the Cloud User group check.
- When both groups are unchecked, the user has no access to perform Cloud manipulations.

Cloud Analytics Improvements

EPAM Cloud Orchestration v.2.1.12 introduces the new facilities of Cloud Analytics tool. The most significant are:

- Deep Dive tool
- Dynamic Help
- EPAM Private Cloud Services environment monitoring

All these features are accessible in one mouse click.

Deep Dive Tool

In most cases, the KPI trend graphs do not give the exact numbers. They have an exponential Y-axis to provide clearer visualization in case there is a wide scattering of the values. The main purpose of these graphs is to show whether there is a stable growing trend, or a fluctuation around an average value, etc.

Starting from this release, you can get the detailed visualized information on the KPI values changes. You can display the Deep Dive graph by clicking on the trend graph on the Monitoring or Radar page:
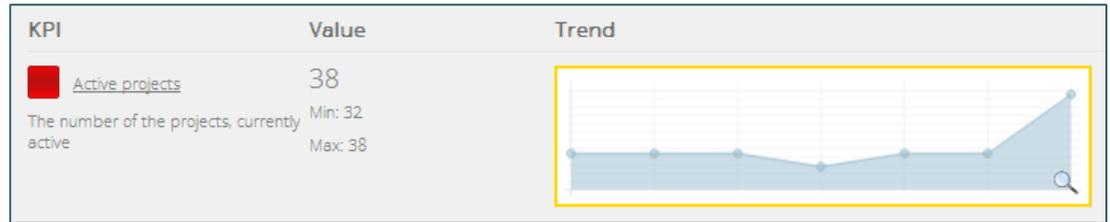
Figure 2 - Reaching the Deep Dive analytics

The Deep Dive graph provides you with the detailed information on KPI values changes, allowing you to monitor the values in the selected points of time, and to compare them to other KPI or to the same KPI values in other regions:
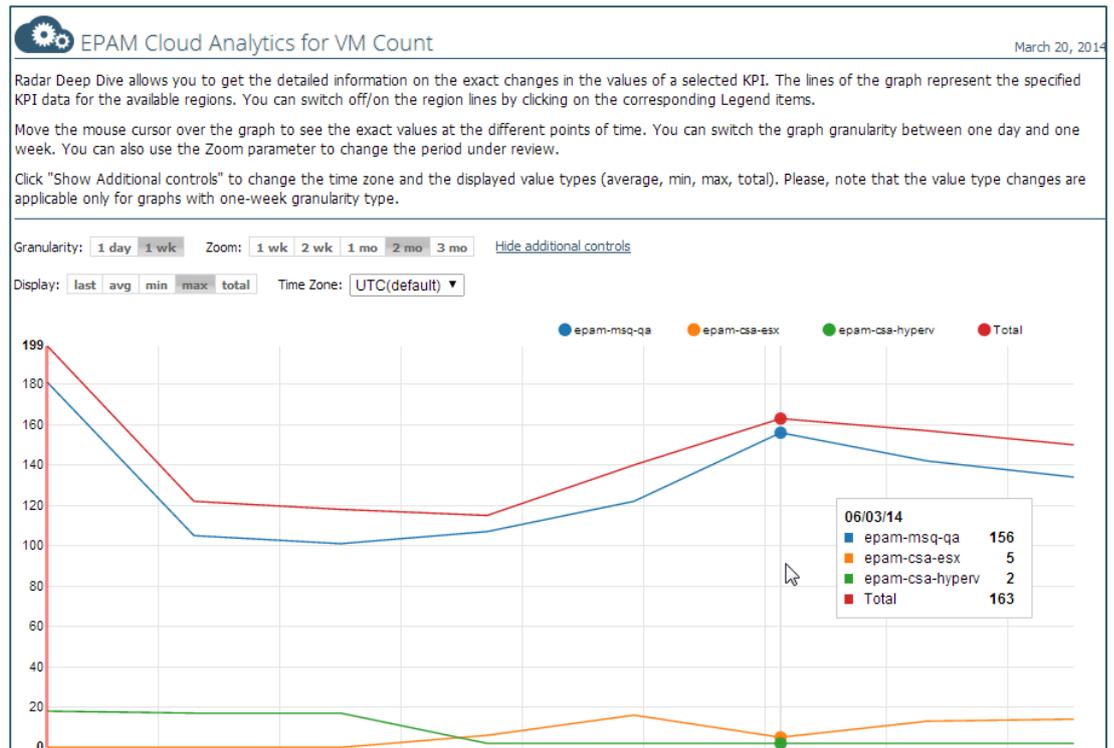

Figure 3 - VM Count Deep Dive for VM Count KPI (weekly max values for 2 months)

Deep Dive allows you to see the graphical KPI statistics for a week, two weeks or a month, and to switch the graph granularity between one day and one week.

The additional settings allow not only to see the average values, but minimum, maximum and totals of the examined KPI at the selected time period.

Dynamic Help

From now on, you can always get the detailed description of the KPI covered by Project, Region and Cloud-level analytics. All you need to see the help is to click on the KPI name in the Detailed view:
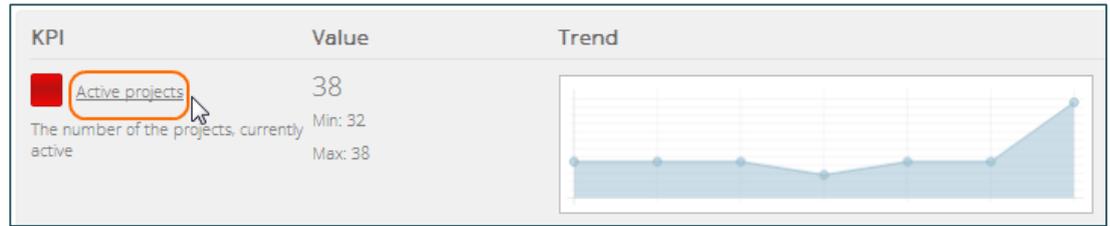
EPAM SYSTEMS

Figure 4 - Dynamic Help Call

EPAM Private Cloud Services environment monitoring

Each virtualization region is technically based on a number of hosts, each supporting some EPAM Private Cloud service. Project-level analytics allows to get the information about the hosts that support the selected project.

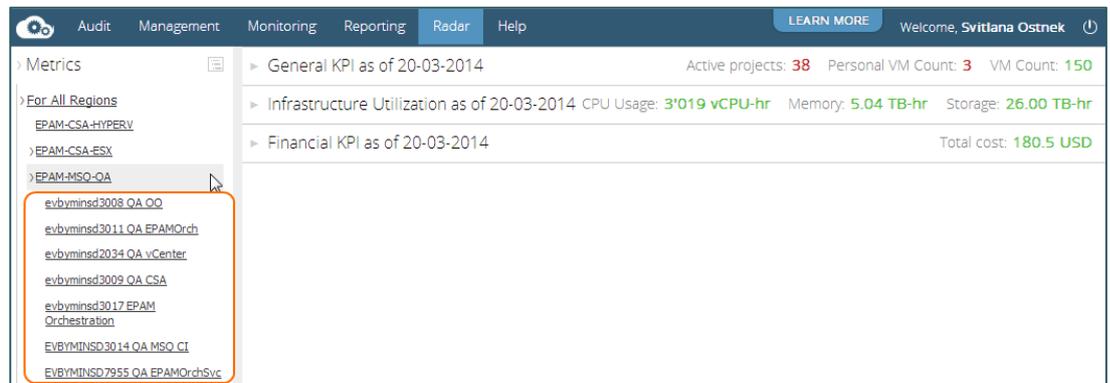For each region, there is a list of available hosts:

Figure 5 - Hosts list for a region

You can get Zabbix statistics for a host by selecting it from the list. The metrics covered by Zabbix depend on the Zabbix template used. You can customize the set of monitored metrics by adding a custom template to Zabbix server. This should be done manually: you need to upload the template file to the server using the admin credentials.

New Services

Starting from *EPAM Orchestration Framework* ver. 2.1.4, we tend to introduce new services with each release, and we keep to the tradition in v.2.1.12.

A **service** is a software solution that allows you to install and manipulate a component, necessary for your project, with a simple set of Maestro CLI commands. Most services are started with the **or2-manage-services** command with the corresponding **--service** flag specifying the service to start.

Please, see the following documentation to find out the details on the previously released services:

- Cloud Analytics guide: Chef Server and Zabbix Monitoring Services
- Cloudify Guide: Cloudify Service
- Auto Configuration: Box Solutions: Auto Configuration Service

Chef Server as a Service for Projects

In current release, we provide you with the possibility to run Chef Server as a service on your project.

This can be done by running the **or2-set-chef** command with the following parameters:

```
or2-set-chef --mode [default, epc, user] --project <projectId> --
region <regionId>
```

This command allows the user to switch between **default**, **epc** and **user** ACS modes:

- **Default mode** – the default mode for all projects in the EPAM Private Cloud. In this case, a common Chef server is used for all production environment machines.
- **EPC mode** – use project-specific Chef server, created by EPAM Orchestrator for the specified project.
- **User mode** – use project-specific Chef server, created and properly configured by the user. When switching to this mode, the user should provide Chef server's instance ID (or instance IP) and manually upload validation.pem file to the Orchestrator's file storage. The user should also provide the path to validation.pem file during the command invocation.

Setting the current Chef server on project will not apply any actions on the virtual machines. Re-configuration of the software on instances is not allowed.

To apply auto-configuration changes, you need to re-register existing VMs on the new Chef server.

It is also advised to remember that the creation of the project Chef server is not an instant operation and will take some time (up to one hour). These are the main conceptual limitations of the described functionality.

> **NB:** 1. The service is released in Beta mode, and some performance issues are possible.
> 2. The service is not available for AWS-* regions.

Please, see the Maestro CLI Reference Guide for more details on the mentioned command.

Log Aggregation Service

EPAM Cloud Orchestrator supports GrayLog setup and usage via "graylog-server" chefrole installing with the following configuration. Therefore, the process of a graylog server creation and launching is quite effortful and needs several commands with numerous and large arguments to be invoked.

In *EPAM Orchestration Release v.2.1.12*, we introduce a GrayLog-based Log Aggregator service which can be run and manipulated with a set of simple Maestro CLI commands.

Please, see the Maestro CLI Reference Guide for more details on the commands described below.

Starting the Service

You can run the Log servicer can with the **or2-manage-services (or2ms)** command with the **–s log –a** parameters:

```
or2ms –p demopro –r demoreg –s log –a
```

This command runs a maestro stack that creates and sets up a VM with a GrayLog server on it.

> **NB:** The GrayLog server setup is a complicated process and can take up to an hour.

The server DNS name can also be retrieved by **or2audit** command launched for the service Maestro Stack. Use this name to access the server via HTTP connection:
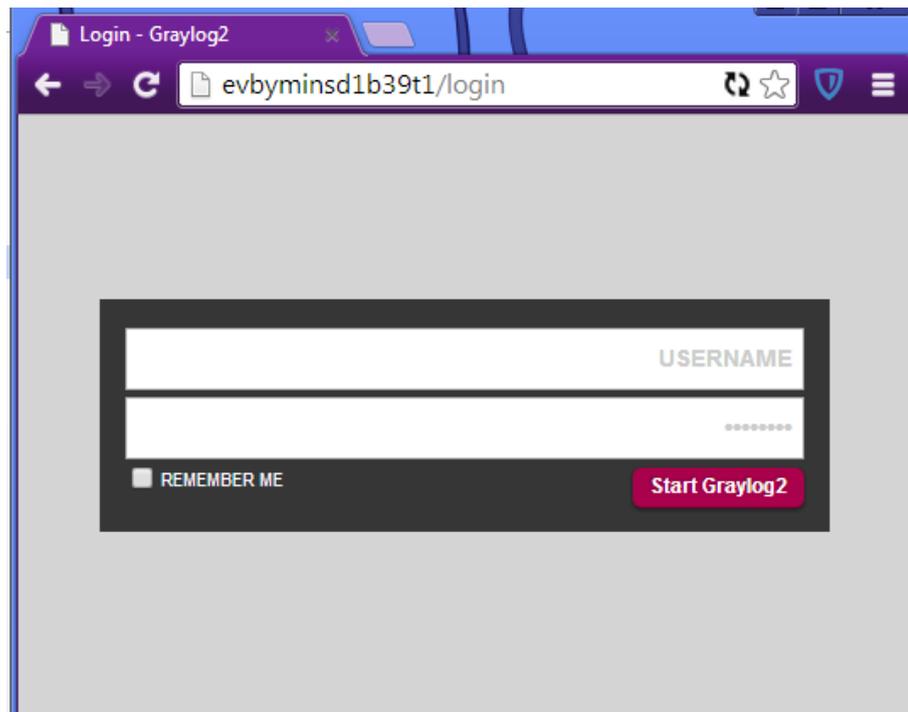

Figure 6 - GrayLog login screen

The default **user/password** for logging in are **user/graylog**.

When the monitoring list has at least one instance, you can get the server DNL with the **or2-describe-logging (or2dlog)** command.

Adding an Instance To the Logging List

To make the GrayLog server collect the data on an instance, you should add this instance to the logging list. This can be done with the **or2-start-logging** (**or2log**) command:

```
or2log –p demopro –r demoreg –i instanceID
```

By default, the GrayLog server gets the logs info from the event log files on Windows instances and SysLog files on Linux. To specify a custom log file, use the **--log** parameter with the **or2log** command. In this case, the data from both default and custom files will be collected.

Checking the Logging List

To see the list of the instances, covered by Log service at your project, use the **or2-describe-logging (or2dlog)** command:

```
or2dlog –p demopro –r demoreg –i instanceID
```

Removing an Instance From the Logging List

To stop collecting logs from an instance, use the **or2-stop-logging (or2stoplog)** command:

```
or2stoplog –p demopro –r demoreg –i instanceID
```

When you remove an instance from the logging list, all the data that has been previously gathered, remain on the server, but the new log data stops coming.

Deactivating the Service

To deactivate the Log Aggregation Service, call the **or2-manage-services (or2ms)** command with the **–s log –d** parameters:

```
or2ms –p demopro –r demoreg –s log –d
```

This command stops and deletes the GrayLog server instance with all the data stored there.

EO and AWS Stacks Manipulation Update

In this release, we optimized AWS and Maestro Stacks manipulation commands. Now, Maestro Stacks and AWS stacks are to be treated separately, and the following changes in CLI commands are introduced:

Old commands:
- **or2-run-stack (or2rstack)** – not available;
- **or2-describe-stacks (or2dstack)** – not available;
- **or2-delete-stack (or2delstack)** – not available;
- **or2-describe-stack-resources** – not available;
- **or2-describe-stack-events** – not available;

AWS stack commands (available with old commands syntax):

- **or2-run-aws-stack (or2rawss);**
- **or2-describe-aws-stacks (or2dawss);**
- **or2-delete-aws-stack (or2delawss);**
- **or2-describe-aws-stack-resources (or2dawssr) [new functionality!];**
- **or2-describe-aws-stack-events (or2dawsse) [new functionality!];**

Maestro stack commands (available with old commands syntax):

- **or2-run-maestro-stack (or2rmstack);**
- **or2-describe-maestro-stacks (or2dmstack) [new functionality!].**

AWS Billing Updates

EPAM Cloud Orchestration v.2.1.12 introduces a number of updates that influence AWS billing. From now on, the following features are available:

- **Hourly and resource reports** for AWS zones are introduced:

```
or2report    --type    hourly   --project<project>    --region
<aws_region> --year <year> --month <month> --day <day>


or2report    --type    resource   --project<project>    --region
<aws_region> --year <year> --month <month> --day <day>
```

NB: EPAM Orchestrator retrieves the AWS reports from Amazon, where the billing statistics is updated four times a day. Therefore, hourly reports for the current day may be outdated for up to several hours a bit outdated.

- **Reports by tag** are introduced for AWS zones:

```
or2report    --type    <type>    --project<project>    --region
<aws_region> --year <year> --month <month> --tag <tag>
```

3. Documentation and Knowledge Sharing

The new release is accompanied with a set of the new documents and documentation updates:

1. Cloud Analytics document was created
2. Cloudify Service document was created
3. Maestro CLI Reference Guide was updated (stacks-related commands changes, Log service commands added)
4. Maestro Stacks Guide guide was updated (stack commands changes)
5. AWS Region Utilization Guide was updated (AWS-stacks commands changes)

We are also happy to introduce a new **Cloud knowledge base improvement**.

EPAM Cloud Orchestration team works not only on developing and supporting our product, they also take their time to share their knowledge and experience. Recently, we decided to start our Cloud Blog on EPAM Systems web-site, where we share our cloud-related articles. We also publish these articles in the Blog section on EPAM Cloud Orchestration web-site, which supplements our knowledge base with real-life stories, experience and useful tips.You can also find a lot of interesting and useful articles in our BlogPost blog.

There is also a Habrahabr blog where you can find Cloud articles in Russian.

Figure 7 - Cloud Blog on EPAM web-site

4. Fixes and Improvements

We are constantly struggling to reach the better performance and usability of our product. Therefore, we pay careful attention not only to creating new features and abilities, but also to improving the existing ones.

In this release, we paid special attention to improving our Auto Configuration Service, CLI performance, introduced a number of new commands and updated the reporting and monitoring services.

The full list of changes and brief description of fixed issues bugs can be found in the '*Release Notes*' document accompanying this paper.

Version History

Version	Date	Summary
1.0	March 22, 2014	Initial version is published
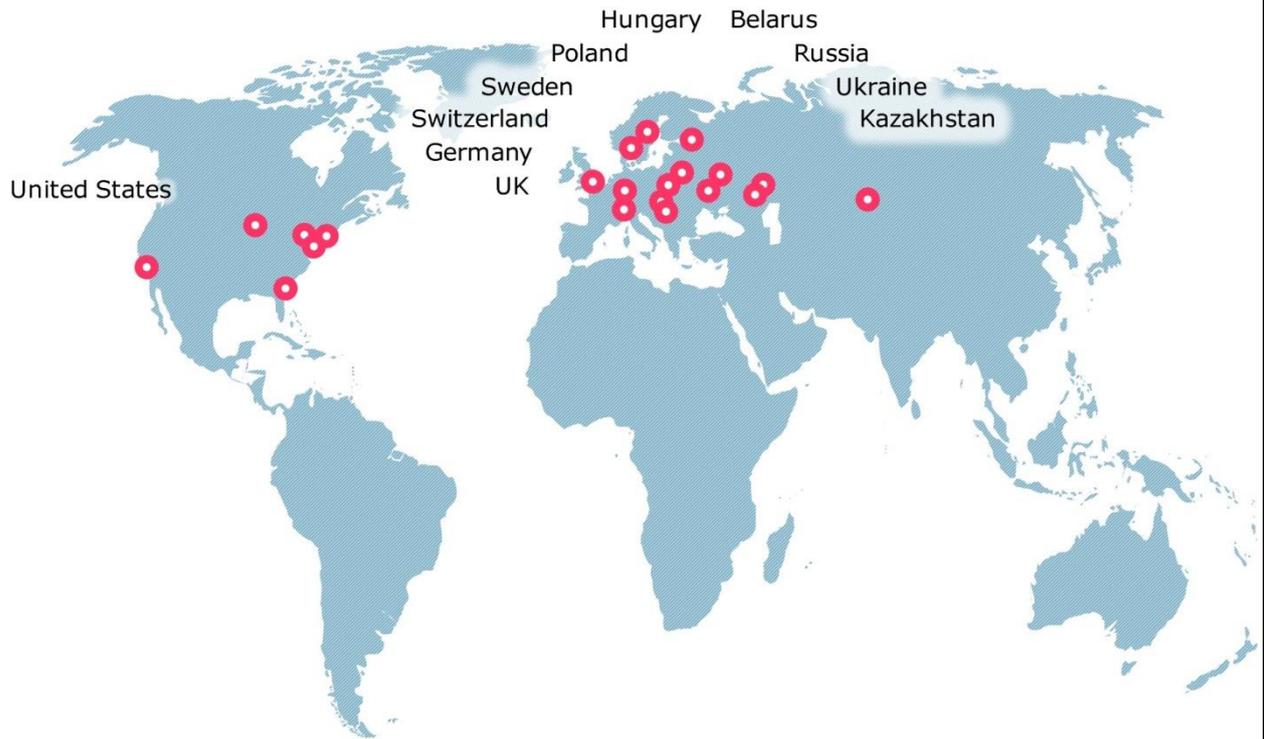
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