



cockpit
IT Service Manager

Cockpit ITSM - Administration - Linux

Technical specification

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Introduction

This document is for technicians responsible for the on-going administration of components belonging to the Cockpit IT Service Manager application.

It describes the operating methods for the principle functions, as well the steps that need to be followed in order for the Cockpit IT Service Manager application to properly function.

It indicates the configuration files and logs and how to access them.

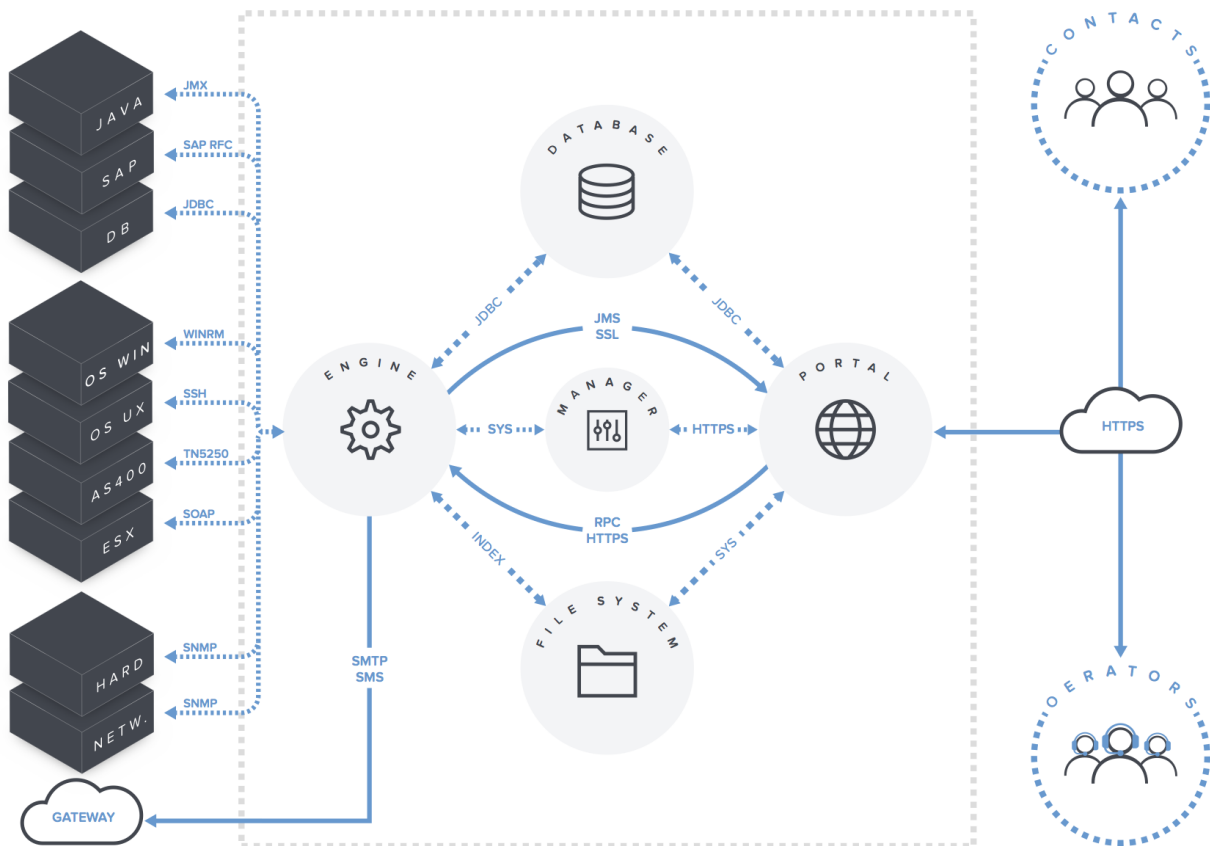
It explains the procedures that need to be followed in order to update the different components.

Architecture

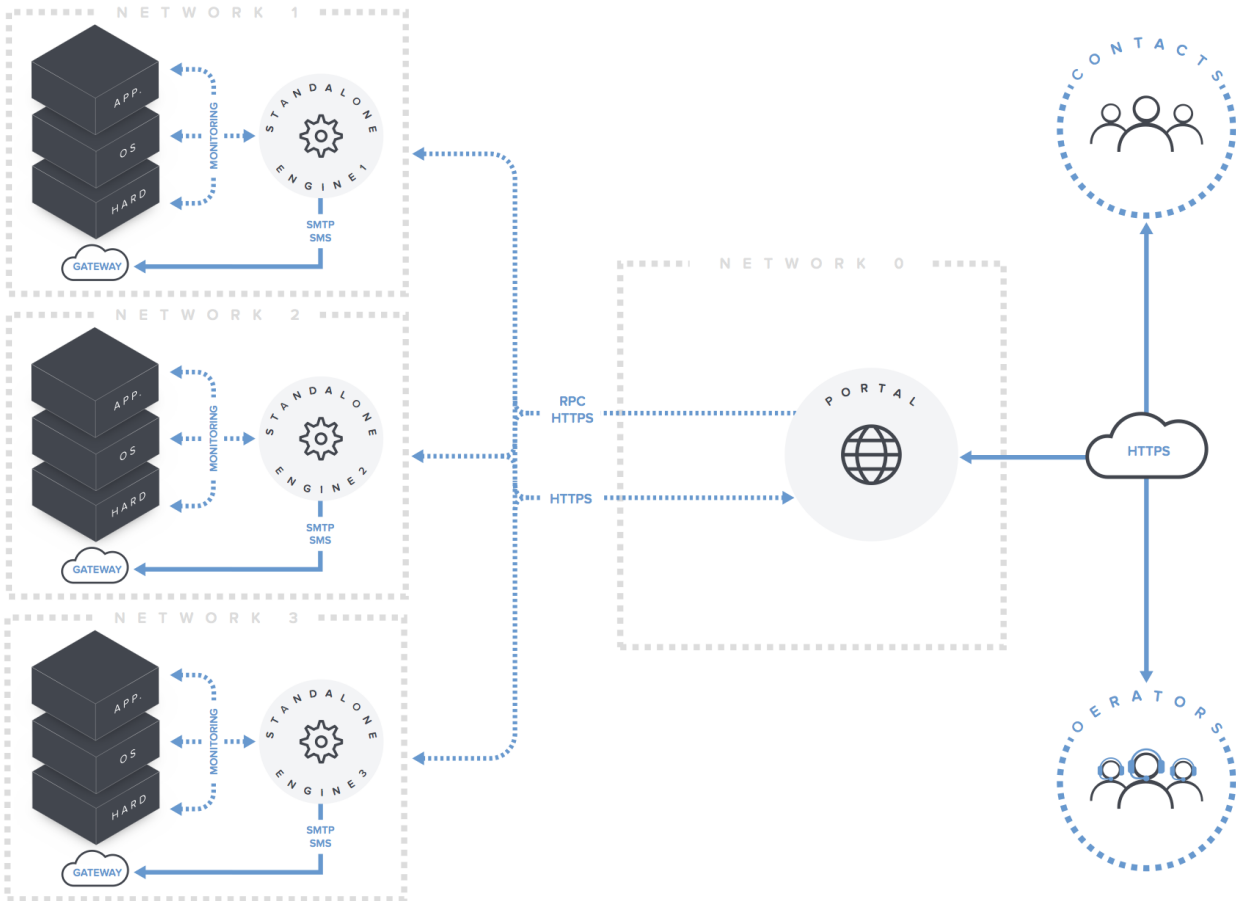
One Cockpit IT Service Manager instance is composed of several elements:

- A database
- One or more portals
- One or more engines

The following diagram describes the architecture of a simple Cockpit IT Service Manager instance.



The following diagram describes the architecture of Cockpit IT Service Manager with several engines spread across different networks.



Configuration

I. Installed software

Application	Software
Operating system	Ubuntu server (64 bits) Debian (64 bits)
Database	MariaDB 10 (64 bits)
Cockpit IT Service Manager - Portal	Version 3
Cockpit IT Service Manager - Engine	
Cockpit IT Service Manager - Manager	

II. File location

A. Database

File	Application	Localization
koaly.cnf or 99-cockpit.cnf	MariaDB database configuration	/etc/mysql/conf.d/ or /etc/mysql/mariadb.conf.d/
syslog	MariaDB database logs	/var/log/

B. Cockpit IT Service Manager

Directory	Application
/home/koaly/backup	Backups
/var/lib/mysql/	Data – MariaDB database
/home/koaly/exp/documents	Data – Files (documents, attachments, etc.)
/home/koaly/exp/engine	Cockpit IT Service Manager - Engine
/home/koaly/exp/portal	Cockpit IT Service Manager - Portal
/home/koaly/management-interface	Cockpit IT Service Manager - Manager
/home/koaly/update	Update files

III. Log level

The Cockpit support can ask to change the log level to analyze a problem. Edit the following files and apply the changes requested by the support team.

Engine log level configuration file:

/home/koaly/exp/engine/conf/log4j2.xml

Portal log level configuration file:

/home/koaly/exp/portal/conf/log4j2.xml

Important: When the problem is fixed, return to the previous log level configuration.

IV. Memory allocation

You can adapt the memory allocation for each component according to the total physical memory of the machine. To customize memory allocation, you will need to update the configuration of each component individually as described in the following table.

Component	File	Parameter	Default value
Database	/etc/mysql/conf.d/koaly.cnf or /etc/mysql/mariadb.conf.d/99-cockpit.cnf	innodb_buffer_pool_size	512M
Portal	/etc/init.d/koaly-exp-portal	MAX_HEAP	1536m
Engine	/etc/init.d/koaly-exp-engine	RT_MAX_HEAP	1536m

The following table contains recommended memory allocation for a standard deployment of database, portal and engine on a single machine.

Physical memory	Database	Portal	Engine
3 Gb	256M	1536m	768m
4 Gb	512M	1536m	1536m
8 Gb	2048M	4096m	2048m
16 Gb	4096M	9216m	3072m

V. Application launch

Application launch method		
Service	Description	Startup
koaly-exp-engine	Cockpit IT Service Manager - Engine	Automatic
koaly-exp-portal	Cockpit IT Service Manager - Portal	Automatic
<i>koaly-management-interface</i>	Cockpit IT Service Manager - Manager	Automatic
mysql	MariaDB database	Automatic

VI. Cockpit IT Service Manager - Batches

An internal scheduler regularly process batches. These batches are necessary for the application to correctly function.

Batches are processed by the portal.

In order to configure batches (runtime portal, status, time, etc.) you need to:

- Connect to the Cockpit IT Service Manager - Portal.
- Open “Administration / Settings / Tools / Batch scheduler”.

Stop/Start Cockpit IT Service Manager application

I. Sequencing

Stop:

1. Cockpit IT Service Manager - Engine
2. Cockpit IT Service Manager - Portal
3. Cockpit IT Service Manager - Manager
4. MariaDB database

Start:

1. MariaDB database
2. Cockpit IT Service Manager - Manager
3. Cockpit IT Service Manager - Portal
4. Cockpit IT Service Manager - Engine

Note: The Cockpit IT Service Manager - Manager interface is independent from the Cockpit IT Service Manager application. It can be started and stopped without impacting the Cockpit IT Service Manager application.

II. MariaDB database

A. Check the application status

Command:

```
sudo systemctl status mysql
```

Result if the application has started:

Active: active (running) since

Result if the application has stopped:

Active: inactive (dead) since

B. Stop the application

Command:

```
sudo systemctl stop mysql
```

C. Start the application

Command:

```
sudo systemctl start mysql
```

III. Cockpit IT Service Manager - Portal

Connect to Cockpit IT Service Manager - Manager on the target server (default: <https://server:8081>).

Open the portal management menu.

Open the portal's control panel.

Open the "Control" tab.

Check the application's status:

Check the current status.

Click on "Reload" in order to update the status.

Start the application:

Click on "Start".

Click on "Reload" in order to update the status.

Stop the application:

Click on "Stop".

Click on "Reload" in order to update the status.

IV. Cockpit IT Service Manager - Engine

Connect to Cockpit IT Service Manager - Manager on the target server (default: <https://server:8081>).

Open the engine management menu.

Open the engine control panel.

Open the "Control" tab.

Note: the engine management menu can be accessed from the Cockpit IT Service Manager - Portal (menu Administration / Technical parameters / Engines).

Check the application's status:

Check the current status.

Click on "Reload" in order to update the status.

Start the application:

Click on "Start".

Click on "Reload" in order to update the status.

Stop the application:

Click on "Stop".

Click on "Reload" in order to update the status.

V. Cockpit IT Service Manager - Manager

A. Check the application's status

Command:

```
sudo service koaly-management-interface status
```

B. Stop the application

Command:

```
sudo service koaly-management-interface stop
```

C. Start the application

Command:

```
sudo service koaly-management-interface start
```

Backups and restoring

I. Backups

A. Backup policy

A regular (at least once a day) backup of the server that hosts the application and a regular (at least once a day) export of the database is a good backup policy.

B. Files

1. Configuration files and libraries

Backup configuration files (koaly.ini, etc.) after every change.

2. Application

Backup Cockpit IT Service Manager application files(/home/koaly/exp) after every change.

3. Documents

Backup the directory (at least once a day)

- /home/koaly/exp/documents

C. Database

1. User

Create a specific SQL user to execute the database dumps.

Use the following commands to create the SQL user "backup" with the necessary rights.

```
GRANT SELECT, LOCK TABLES ON `koalyexp`. * TO `backup`@`localhost` IDENTIFIED BY `my_password` WITH GRANT OPTION;  
UPDATE mysql.user SET Reload_priv = 'Y' WHERE user = `backup`;  
FLUSH PRIVILEGES;
```

2. Command

To make a dump using the command line, you need to enter the following command.

```
mysqldump koalyexp -u utilisateur -p motdepasse -BFcQ --single-transaction > nom_fichier.sql
```

Command description:

Command: mysqldump

```
Options:
u: SQL user
p: SQL user password
B: shows "USE dbname" on the SQL dump file.
F: performs a log flush before running a backup.
c: generates complete INSERTS of data
q: allows faster saving of large tables
single-transaction: generates a single-transaction dump so that the dump is consistent
nom_fichier.sql: the SQL filename generated by the dump
```

D. Script

Use the following script to make a consistent database export, to compress it and to keep it 10 days.

Copy the text into a ".sh" file and adapt the settings.

Use the system scheduler to execute it at least once a day.

```
#!/usr/bin/env bash

# -----
# Script parameters
# -----
BKUPDIRECTORY="/home/koaly/backup/dumps"
RETENTION=10 #days
USER="my_user"
PASS="My_password"

# -----
# Perform backup
# -----
mysqldump --user=$USER --password=$PASS --flush-logs --complete-insert --quick --databases koalyexp
| gzip -c > "$BKUPDIRECTORY/KOALYEXP_$(date +%Y%m%d%H%M').sql.gz"

# -----
# Cleanup of old backups
# -----
find $BKUPDIRECTORY -iname "KOALYEXP_*.sql.gz" -mtime +$RETENTION -exec rm -f '{} ' \;
```

II. Recovery

A. Files

Recovering files (configuration, libraries, application, documents) is done by copying the files.

B. Database

It's possible to recover the SQL dump files.

Command:

```
mysql -u root -p
```

Enter the password

If necessary, delete the old Cockpit IT Service Manager database.

```
DROP DATABASE koalyexp;
```

Create a database.

```
CREATE DATABASE koalyexp;
```

Select the Cockpit IT Service Manager database.

```
USE koalyexp;
```

Recovering the dump.

```
source xxxx.sql;
```

Description of options:
u: SQL user
p: SQL user password
xxxx.sql: name of file to be restored

III. Tests

Regularly execute a restore test on an independent MariaDB database.

Regularly execute a file restore test in an independent directory.

Monitoring

I. Elements to check

A. Engine logs

Connect to the Cockpit IT Service Manager - Manager of the target server (default: <https://server:8081>).

Open the engine management menu.

Open the engine control panel.

Open the “Logs” tab.

Check the following file logs.

Engine log files	
Name	Description
engine.log	Messages
warn.log	Messages including “error” and “warning”
error.log	Messages including “error”
mail.log	Messages related to SMTP gateway
sms.log	Messages related to SMS gateway
engine_sync.log	Messages related to standalone synchronization

B. Portal logs

Connect to the Cockpit IT Service Manager - Manager of the target server (default: <https://server:8081>).

Open the portal management menu.

Open the portal control panel.

Open the “Logs” tab.

Check the following log files.

Portal log files	
Name	Description
koaly_exp.log	Messages
koaly_exp_warring.log	Messages including “error” and “warning”
koaly_exp_error.log	Messages including “error”
mail.log	Messages related to SMTP gateway
tickets_sync.log	Messages related to ticketing synchronization service

C. Batch logs

Connect to the Cockpit IT Service Manager - Portal.
Open the menu "Administration / Parameters / Tools /Batch logs".
Check that there are no "Error" messages in the log history.

II. Monitoring

A. Operating system

Monitor disk occupation, especially the disk which stores data.
Monitor physical memory usage
Monitor virtual memory usage (it must be null).

B. Standalone engines

Connect to the Cockpit IT Service Manager - Portal, open the "Home / Dashboard" menu.
All the engine status must be green.

In order to monitor the standalone engines, a check can be executed by the local engine.

Monitor a specific engine

Control Type: DB - SQL - Query - Return integer

SQL command:

```
SELECT COUNT(engine_id) FROM gen_engines WHERE (UNIX_TIMESTAMP() - UNIX_TIMESTAMP(engine_alert_heartbeat)) > 1800 AND engine_id = X;
```

Threshold: Alert if the result is greater than 0

Result: If the engine with ID "X" didn't send a heartbeat for more than 30 minutes, an alert is generated.

Monitor all engines

Control Type: DB - SQL - Query - Return string

SQL command:

```
SELECT CASE WHEN (SELECT COUNT(engine_id) FROM gen_engines WHERE (UNIX_TIMESTAMP() - UNIX_TIMESTAMP(engine_alert_heartbeat)) > 1800) = 0 THEN 'OK' ELSE (SELECT GROUP_CONCAT(engine_desc SEPARATOR ', ') FROM gen_engines WHERE (UNIX_TIMESTAMP() - UNIX_TIMESTAMP(engine_alert_heartbeat)) > 1800) END;
```

Threshold: Alerts if the result is different than "OK".

Result: If one or more engines didn't send a heartbeat for more than 30 minutes, an alert is generated with the engine list.

C. SMTP gateway

In order to monitor the SMTP gateway, you need to check the email log file.

Control type: Unix - Log file / Windows - Log file

File: XXXXX / engine / logs / mail.log

Terms: ERROR mail -. * SMTP. *

Result: If an error is found in the log, an alert is generated.

D. Inboxes

In order to monitor the inbox email collection (module "Ticketing" or module "Monitoring"), it is possible to add a database check.

Control Type: DB - SQL - Query - Return string

SQL command:

```
SELECT CASE WHEN (SELECT COUNT(*) FROM gen_job_logs WHERE event = 'ERROR' and (UNIX_TIME-  
STAMP() - UNIX_TIMESTAMP(date) < 3600)) < 10  
THEN 'OK' ELSE  
(SELECT GROUP_CONCAT(message SEPARATOR ', ') FROM gen_job_logs WHERE event = 'ERROR' and  
(UNIX_TIMESTAMP() - UNIX_TIMESTAMP(date) < 3600))  
END;
```

Threshold: Alert if the result is different than "OK".

Result: If more than 10 errors are found during the last 60 minutes, an alert is generated.

Updates

I. Update the Cockpit IT Service Manager - Manager

In order to update the Cockpit IT Service Manager - Manager, it needs to be uninstalled and re-installed.

1. Stop the Cockpit IT Service Manager - Manager service.

```
sudo service koaly-management-interface stop
```

1. Open the Cockpit IT Service Manager - Manager installation directory (default: `/home/koaly/management-interface`). Save the following files:

- `conf/service.xml`
- `conf/koaly.config`

2. Rename the directory `/home/koaly/management-interface` to `/home/koaly/management-interface_backup` (for roll-back, it can be deleted during a subsequent installation).

```
sudo mv /home/koaly/management-interface /home/koaly/management-interface_backup
```

3. Install the new version of Cockpit IT Service Manager - Manager.

```
sudo unzip ./koaly-management-interface-vXXX-setup.zip -d /home/koaly/management-interface
```

4. Open the Cockpit IT Service Manager - Manager installation directory (default: `/home/koaly/management-interface`). Copy old files into the new directory (replace existing files if necessary).

- `conf/service.xml`
- `conf/koaly.config`

5. Start the Cockpit IT Service Manager - Manager service.

```
sudo service koaly-management-interface start
```

6. Connect to the Cockpit IT Service Manager - Manager interface (default: <https://server:8081>)

II. Updating the Cockpit IT Service Manager instance

A. Pre-requisites

Before updating Cockpit IT Service Manager, you must shut down the following components in the specified order :

- All local (non-standalone) Cockpit IT Service Manager engines
- All Cockpit IT Service Manager portals

Please read the “Stop/Start Cockpit IT Service Manager application” chapter for shutdown instructions.

Note that the standalone engines are not required to be shut down.

B. Backup

Before updating the instance, it's recommended that you save the different components that make up the instance.

1. Backup the database.
2. Backup documents (default directory: /home/koaly/exp/documents).

For secure systems (cluster, replication) disable the synchronization system (if possible) so that you keep one of the environments in an older version. Synchronization can be re-activated once the update is validated.

C. Updating the database

1. Connect to the Cockpit IT Service Manager - Manager of the target server (default: https://server:8081).
2. Select the "Database" menu.
3. Click on the koaly-exp-db-update-X.Y.Z file (provided by Support) under the "Package upgrade" section.
4. Click on "Download".
5. Make sure the version shown in the "Latest version" field corresponds to the version to be installed.

There are two ways to update.

1. Updating using the Manager

Click on "Start migration process".

Migration logs will show up in a notification zone. They can be downloaded and sent to the editor in the event of an update error.

2. Generating an update script

Click on "Generate script".

The script generated can be manually applied to the database;

D. Updating the Cockpit IT Service Manager - Portal

1. Connect to the portal's Cockpit IT Service Manager - Manager (default: https://server:8081).
2. Open the portal management menu.
3. Open the portal control panel.
4. Open the "Update" tab. The current and new version names will be listed.
5. Load the koaly-exp-portal-service-update.zip file (provided by Support) and select "Download".
6. Make sure the version shown in the "Latest version" field corresponds to the version to be installed.
7. Click on the "Update" button.
8. The portal will be updated. The portal will automatically close and start up.
9. Check the portal logs.

10. Connect to the portal to ensure it is functioning correctly.

Note :The previous version is stored in the parent directory of the portal installation directory (default : /home/koaly/exp). The previous version directory format name is « portal_AAAAMMJJ ». We recommend to keep the previous version of the portal. The oldest versions must be removed.

E. Updating the Cockpit IT Service Manager - Engine (local mode)

1. To check that external libraries are showing up in the libraries directory (default: /home/koaly/update/koaly-exp-engine/ext/lib)
2. Connect to the Cockpit IT Service Manager - Manager associated with the engine (default: https://server:8081).
3. Open the engine manager menu.
4. Open the engine control panel.
5. Open the “Update” tab. The current and new version names will be listed.
6. Load the koaly-exp-engine-service-update.zip file (provided by Support) and select “Download”.
7. Make sure the version shown in the “Latest version” field corresponds to the version to be installed.
8. Click on the “Update” button.
9. The engine will be updated. The engine will automatically close and start up.
10. Check the engine logs.

Note :The previous version is stored in the parent directory of the engine installation directory (default : /home/koaly/exp). The previous version directory format name is « engine_AAAAMMJJ ». We recommend to keep the previous version of the engine. The oldest versions must be removed.

F. Updating the Cockpit IT Service Manager - Engine (standalone mode)






1. Automatic update



In most cases, standalone engines will be automatically updated. The engine will detect when a new version is available by connecting to the portal and will automatically update.

To check if a newer version is available via the portal:

1. Download the koaly-exp-engine-standalone-service-update.zip file.
2. On the portal, open the “Administration / Parameters / Engine / Update” menu and click on “upload”.

Engine update packages

Package installed on this portal		
Version:	No update package installed	
Individual packages for manual update		
File	Checksum (SHA-1)	
Update package for Linux:		
Update package for Windows:		
Version.txt:		
Latest version		
Download site:	https://download.koaly.com/exp/update/engine/	
Version:		

3. Select the koaly-exp-engine-standalone-service-update.zip file to put it online.
4. Once connected, the standalone engine will download the latest version and will automatically update.

Update process logs are found in the syslog and in the update/work/logs/update.log file.

2. Manual update

Some important updates cannot be done automatically. These are detailed in the information messages that accompany the updates.

Manual updates are sometimes necessary when automatic updates fail.

In order to manually update a standalone engine:

1. Download the koaly-exp-engine-v.X.X.X-setup.bin file.
2. Stop the Cockpit IT Service Manager - Engine service
`sudo service koaly-exp-engine stop`
3. Save the following directories:
 - configuration (default: /home/koaly/exp/engine/conf)
 - external libraries(default: /home/koaly/exp/engine/ext/lib)
4. Save the init script /etc/init.d/koaly-exp-engine if changes have been made.
5. Uninstall the engine.

```
sudo /usr/sbin/update-rc.d koaly-exp-engine remove
sudo rm /etc/init.d/koaly-exp-engine
sudo rm -rf /home/koaly/exp/engine
```

6. Run the koaly-exp-engine-v.X.X.X-setup.bin program.

```
sudo ./koaly-exp-engine-vX.X.X-setup
```

7. Recover directories and the saved file.
8. Check the RT_MAX_HEAP parameter in init script /etc/init.d/koaly-exp-engine (see installation guide for the recommended values) and restore the modified parameters of the saved version.
9. Start the Cockpit IT Service Manager - Engine service.

```
sudo service koaly-exp-engine start
```

III. Updating the license

1. Connect to the portal.
2. Open the menu “Administration / Technical parameters / Portal / Licenses”.
3. Click on the “Download” button and download the license file provided by Support.
4. A message will show if the license is valid or not.
5. If the license is valid, click on the “Save” button.
6. If the license is not valid, contact Support.

Document end