Kovair DevOps Release Note V2.0
### Document Version History

<table>
<thead>
<tr>
<th>Release</th>
<th>Date</th>
<th>Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kovair DevOps (Initial Release)</td>
<td>26th - Sep - 2019</td>
<td>Initial release</td>
</tr>
<tr>
<td>Kovair DevOps Phase-2</td>
<td>2nd Dec-2019</td>
<td>ALM Specific plugin and UI change</td>
</tr>
<tr>
<td>Kovair DevOps Phase-2</td>
<td>10th Dec-2019</td>
<td>Filter in Dashboard page, Release cloning</td>
</tr>
<tr>
<td>Kovair DevOps Phase-2</td>
<td></td>
<td>Parallel Task.</td>
</tr>
<tr>
<td>Kovair Devops Phase-2</td>
<td>3rd Jan-2020</td>
<td>Release Calender, Release &amp; Pipeline Archival, Project &amp; Release Filters on Dashboard and Reportlist , Delayed Release Indicator on pipeline and release page. Add Task between any two task. Issue Fixes and CR Implementations</td>
</tr>
<tr>
<td>Kovair Devops Phase-2</td>
<td>11th Jan-2020</td>
<td>Start-End Release from pipeline list page. Email Notification on manual task receive License Expiry Alert.</td>
</tr>
<tr>
<td>Kovair Devops Phase-2</td>
<td>28th - Feb 2020</td>
<td>Multi DB Support Approval of manual task using mail. Trigger Pipeline from another pipeline. Some bug Fixes.</td>
</tr>
<tr>
<td>Kovair Devops Phase-3</td>
<td>27&lt;sup&gt;th&lt;/sup&gt; March 2020</td>
<td><strong>Group</strong> Support added for Access Control. Report Dashboard Custom Layout Added</td>
</tr>
<tr>
<td>----------------------</td>
<td>---------------------------</td>
<td>---------------------------------------------------------------------</td>
</tr>
<tr>
<td>Kovair Devops Phase-3</td>
<td>10&lt;sup&gt;th&lt;/sup&gt; April 2020</td>
<td><strong>SMTP</strong> option added along with exchange</td>
</tr>
<tr>
<td>Kovair Devops Phase-3</td>
<td>22&lt;sup&gt;nd&lt;/sup&gt; May 2020</td>
<td><strong>Task Notification</strong> added in task configuration window. Mail notification will be sent to the configured mails on task completion.</td>
</tr>
<tr>
<td>Kovair Devops Phase-3</td>
<td>2&lt;sup&gt;nd&lt;/sup&gt; June 2020</td>
<td><strong>Pipeline Preview</strong></td>
</tr>
<tr>
<td>Kovair Devops Phase-3</td>
<td>17&lt;sup&gt;th&lt;/sup&gt; July 2020</td>
<td><strong>Execution Host</strong></td>
</tr>
<tr>
<td>Kovair Devops Phase-4</td>
<td>24&lt;sup&gt;th&lt;/sup&gt; Dec 2020</td>
<td><strong>YAML option added</strong></td>
</tr>
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Objective

Kovair DevOps is an enterprise application specially built to streamline CI&CD for an Organization.

A CI/CD pipeline helps you automate steps in your software delivery process, such as initiating code builds, running automated tests, and deploying to a staging or production environment. Automated pipelines remove manual errors, provide standardized development feedback loops and enable fast product iterations. This document describes all the top-level features, configuration and setting description with the architecture details.

Overall Architecture

Following diagram shows a high-level architecture of the platform. It is purely built on Java with Maria Db as the repository.
Overall System Components

Following diagram show the primary components of DevOps platform. It includes the Repository, Core framework, Web interface, Rest API Interface and Agent Services.

Component Pre-Requisite

<table>
<thead>
<tr>
<th>Component</th>
<th>Pre-Requisite</th>
<th>Supported OS</th>
</tr>
</thead>
</table>
| DevOps Application         | ➢ Open JRE 1.8  
➢ Apache Tomcat 8.5 or above  
➢ Maria DB 10                     | 1. Windows 2012 64bit Server and above.  
2. Windows 10 64bit  
3. Linux CentOS 7.3 and above     |
| Execution Host Agent Service | ➢ Open JRE 1.8  
➢ Should run with Domain Admin user  
➢ Proper Application URL and credential should be provided on Configurtion.ini | 1. Windows 2012 64bit Server and above.  
2. Windows 10 64bit  
3. Linux CentOS 7.3 and above     |
Email Service

- Open JRE 1.8
- Should run with Domain Admin user
- Proper Application URL and credential should be provided on Configurtion.ini

| 1. | Windows 2012 64bit Server and above. |
| 2. | Windows 10 64bit |
| 3. | Linux CentOS 7.3 and above |

Module Hierarchy

For a given Project there could be one or more Releases associated with it. Platform considers each release has one pipeline associated with it. Thus, pipeline level data could be rolled-up for release status and therefore for Project.

For given Release there could be only one pipeline.
**Functional Details**

All functional details of the application and agent service are described below.

**Login Page:**

After successful installation and starting the application, user can access the login page URL.


*Default User Name and password: admin/admin*

Forgot password will send email one standalone URL to reset the password. Email setting should be preconfigured to access this functionality. After successful login user can see the pipeline list page.
# DB Support

Following databases are supported:

<table>
<thead>
<tr>
<th>Database Type</th>
<th>Database Version (Tested)</th>
<th>Prerequisite</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maria DB</td>
<td>10.3.16</td>
<td><strong>Dll name:</strong> sqljdbc_auth.dll</td>
</tr>
<tr>
<td></td>
<td></td>
<td>if system is 32 bit then,</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Location:</strong> basedirectory/SQLDependency/x86.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>if system is 64 bit then,</td>
</tr>
</tbody>
</table>
|                   |                           | **Location:** <Deployed Directory>
| Microsoft SQL     | 2012                      | oirDevopsApplication\KovairDevopsApplication\webapps\KovairDevOps\WEB-INF\classes\SQLDependency\x64. |
| Server            |                           | **Work:** Put the dll in <tomcat_installation_path>/bin and                   |
|                   |                           |     <Java_Jre_Path>/bin                                                      |

---

**Jar name:** sqljdbc42.jar  
**Location:** <Deployed Directory>

**Work:** Put the jar to the <tomcat_installation_path>/lib

---

**Note:** After updating all the files, Please restart the tomcat server.

---

Error may faced if above steps not followed:

1. **Error:** This driver is not configured for integrated authentication. **ClientConnectionId:** a2bc91a-4e89-461c-8d14-de65e5104151 (if dll is not placed properly)

2. **(Error In log)**Native Library sqljdbc_auth.dll already loaded in another classloader (if jar not placed properly)

```
|---------------------------------|                          |
| sqljdbc*.jar  --> tomcat*/lib   |
| sqljdbc_auth.dll --> tomcat*/bin |
```
Oracle 11g

<table>
<thead>
<tr>
<th>Oracle</th>
<th>11g</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Run the following command in administrative mode at application server</td>
</tr>
<tr>
<td></td>
<td>mvn install:install-file -Dfile=&quot;&lt;path of ojdbc6 jar&gt;\ojdbc6.jar&quot; -DgroupId=com.oracle -DartifactId=ojdbc6 -Dversion=11.2.0.3 -Dpackaging=jar</td>
</tr>
<tr>
<td></td>
<td>Example: mvn install:install-file -Dfile=&quot;E:\Saheli\tfs\DevOps\KovairDevOps.2.0\Utility\AppInstaller\KovairDevopsApplication\webapps\KovairDevOps\WEB-INF\classes\OracleDependency\ojdbc6.jar&quot; -DgroupId=com.oracle -DartifactId=ojdbc6 -Dversion=11.2.0.3 -Dpackaging=jar</td>
</tr>
</tbody>
</table>

Database Configuration

Please provide the following details to configure database:

**Maria DB:**
**DB Type:** Database Type: MariaDB

**Hostname:** Database Host Name. Ex: 192.168.11.252 or db-devops

**Port:** Database Port no. Ex: 3306

**Username:** Database login username.

**Password:** Database login password.

**Database Name:** Database name (Existing or New)

**SQL Server:**
**DB Type:** Database Type: MS SQL Server

**Hostname:** Database Host Name. Ex: 192.168.11.252 or db-devops

**Auth Type:** WINDOWS/SQL

**Username:** Database login username. (Required only if Auth Type is set to SQL)

**Password:** Database login password. (Required only if Auth Type is set to SQL)

**Database Name:** Database name (Existing or New)

---

**Oracle:**
**DB Type:** Database Type: MS SQL Server

**Hostname:** Database Host Name. Ex: oracle11g.in.kovair.com

**Port:** Database Port no. Ex: 1521

**Username:** Database login username. (Required only if Auth Type is set to SQL)

**Password:** Database login password. (Required only if Auth Type is set to SQL)

**Database Identifier:** Database unique identifier, Oracle SID, Service Name is the unique name that uniquely identifies your instance/database.

**Database Name:** Database name (Existing)

**Note:** In case the database is a new database ‘Create Database’ checkbox needs to be checked and database needs to be created by hitting ‘Create DB’ button prior to the ‘Save and Restart’.

Oracle DB Type does not support ‘Create Database’ while configuring. Database should be created manually prior to the configuration.
Pipeline Page

This page will show all the pipeline list with Last Run, Last executed on, Linked project, release and status details.

Menu Items

On Menu bar it consists 3 top level Items.

- **Pipelines**
  It will show the Pipeline list page and from this page one can create/execute new pipeline.

- **DevOps Analytics**
  For report and dashboard

- **Administration**
  User, Project, Release and Server settings are done from here.

Pipeline Preview

In Pipeline list page there is an icon ⌚. To view a pipeline representation user should click on this icon. User will be redirected to a page of pipeline preview.
User

- User can be created only with email.

- Multiple emails can be used separated by comma (no space).
- While creating the user select minimum one group.
- Users can belong to multiple groups.
- Default password is same as email. Upon login for the first-time user will be required to Set the password.
- From user list user details cannot be modified. Only groups can be added or removed.

- User can edit their details only from account settings.

Note: Email password reset link is not available for use. It will be implemented in future builds.
• User can be deleted by clicking delete option from action menu. Any activity (i.e createdBy, modifiedBy etc.) performed previously by a deleted user will remain as it is after its deletion. The user will not be available for further such activities but previous activities will show this name.

Group

• Groups are used for Access control throughout the applications. There are two major types of permission

<table>
<thead>
<tr>
<th>Permission Type</th>
<th>Details</th>
<th>Access Modes and description</th>
</tr>
</thead>
</table>
| Application Permission| Applicable to administration specific pages i.e. Project, User, Group, Release, Dashboard, Server, Plugin | • Full – Full access  
• View - Read only  
• Hide – Hides the module from administration menu. |
| Project Permission    | Applicable to all items belongs under project i.e. Release, Pipelines “All Project” underneath project permission if configured will apply to all the project in the application | • Full – Full access  
• Execute – Execution & View only.  
• View – View only. |

• Groups can be created with name and description. From group details page permission needs to be set.

• Details of Admin group cannot be modified.
• A user can be added into multiple groups.
• If user has conflicting permission, then highest permission will always win. Priority as following – FULL > Execute > View > Hide

Example such as below.

Consider a user who is added to Group 1 and Group 2.

<table>
<thead>
<tr>
<th>Permission in <strong>Group 1</strong></th>
<th>Permission in <strong>Group 2</strong></th>
<th>Final Permission</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project A – View</td>
<td>Project A – Full</td>
<td>Project A - Full</td>
</tr>
<tr>
<td>Project A – Execute</td>
<td>Project A – Full</td>
<td>Project A - Full</td>
</tr>
<tr>
<td>All Project – View</td>
<td>Project A – Not specified</td>
<td>Project A - View</td>
</tr>
<tr>
<td>All Project – Full</td>
<td>Project A – View</td>
<td>Project A - Full</td>
</tr>
</tbody>
</table>

• In Project List of Administration page will only consider Application Permission (Manage User, Group and Project). And will allow modification to any project if Permission is granted as FULL. It will not consider the project specific access.

• Modification access details for any user will take effect only after re-login. Consider a scenario: a user is currently logged in and administrator modifies its access from FULL to View. So, the user will still be having Full access until he logout and logs back in again.

• All Project Full access will supersede any other project level access.

If user is assigned to many groups and its access inheritance is not clear, then take a look at conflicting permission points above and determine from where he is getting the access.
Plugin
This page is responsible to upload/delete the tool plugin. Each Execution agents contains plugins for execution.

Projects
New Project is top level entity where each Releases are linked. User can provide the user access on project level. Project can be Edited, Deactivated and Deleted if not linked with any release.

Releases
Each Release connected with one Project.
User needs to provide Release Name, Description (Optional), Project, Planned Start Date and Planned End Date to create a release. Initially a Release Status is "Pending". When user clicks on "Start Release", “Actual Start Date” will be current UTC date-time.

A pipeline should be associated with a release to start a release. Only one pipeline can be associated with a release.

When user will click on “End Release”, “Actual End Date” will be current UTC date-time and the release will be in “Completed” state. Pipeline will be in read-only mode for a completed release.

Default Release can’t be used in a pipeline.

Release Calendar
This is a calendar view to manage all releases. Using this calendar user can get a clear picture of a release. User can track when a release was planned and when it is started. Release calendar contains month, day and week view. All releases can be seen from this calendar. To view completed release user need to click “Show Completed” checkbox. Orange color bar indicates completed releases and green color bar indicates all other releases. Archived releases will not be the part of release calendar.
By clicking any release following popup will show the basic details of the release.

Double click on day cell shows Day View.
Server
Any of two types of Mail Server can be added

Exchange

Feature:
1. Email monitoring –
   Prerequisites – Email Service needs to be installed/configured and running.
   Action Supported - Show pipeline list, Run Pipeline(Start/Stop), View pipeline status.
   Mail Monitoring – only those user whose email is subscribed will be eligible for invoking the actions supported.
2. Send Email notification – Manual task – Assign(During Run), User add, User forget, User reset
3. If the pipeline run is initiated through email and email notification will be sent to the subscribed user every time the pipeline status is changed i.e.- Queued --> Running --> Failed/Passed from the application side. This may not maintain the mail chain of the initiated run mail.

Note:
1. For email monitoring configured username(email) should not be used to send mail for actions.
SMTP

Feature:

1. Send Email notification – Manual task – Assign (During Run), User add, User forget, User reset

Note:

1. Test connection will send a mail to email id which is configured in the email. So to and from email id will be same.
2. Prior to saving the configuration, use Test connection to verify that your SMTP is working correctly or not. Monitor the mail by which SMTP is registered. If you can see the test mail sent by application you can be sure that your SMTP connection is working properly.
License

License are generated by a separate client tool based on the machine key. To generate License, one need to install the application and provide the Machine key for generation of License.

- **Machine Key** – This is a instance identifier should be sent to Kovair support for generating license.
- **License Key** – This license key should be sent by Kovair support. Upon receiving the license apply it as soon as possible.

![Apply New License](image)

Rules & Disclaimers

1. License Key must be applied within **3 days of generation** otherwise they will get stale and cannot be applied.
2. Once license expired, the existing logged in users will be able to run the application except executing a pipeline. But if the user has logged out then it will not be able to log in.
3. Applying license to the application where existing license is already activated and application is not expired - then it will overwrite the existing one completely. The application will show the newly license details
4. If count of application users is decreased when applying license to an existing running system, then the already enabled users will **not** be deactivated.
5. If user reduction is required, then it has to be done manually.
6. License expiry date cannot be a past date from the day of license setup.
7. Altering server datetime(backdate) may expire license. Altering server time zone will not have any effect on this.
Pipeline Configuration
Creation of pipeline will be available from the pipeline list page. One can create pipeline from scratch or can create from an existing one. The application provides the facility for both.

For New pipeline application will automatically add one stage with a system task. System task is Manual type task which says the pipeline will only execute manually.

Note: Parallel task will be added after last parallel task.

Any delete of Task Stage Pipeline is an irreversible action. So be careful before deleting the above items during pipeline configuration.

Add Task
Add task will allow user to configure the partial job with input and output parameters. User can select required plugin for the given categories.
Each plugin exposes with certain operation and for each operation user need to provide the required parameters to execute the task. User can set up precondition and post condition for each task. During execution application will execute the condition and if any condition failed **then entire pipeline execution will be failed.** A User Intimation message will show if the required plugin is not installed.

Execution host is responsible to define the Agent address where user need to execute the specific task. Each Agent service contain one **configuration.ini** file where user need to mention the application URL and credential.
Execution Host

Two types of execution host can be selected,

- **Static Host** - This hosts are automatically filled by the agent is installed and configured. Agent service should be started to populate the list.
- **Dynamic Host** - The value can come from input/output variable of earlier task or can be typed manually. **Please note**: if dynamic host contains blank value after evaluation, the task will be failed. If proceed if failed is checked then the pipeline will continue execution. The agent must be configured and running at dynamic host.

**Disclaimer**: if host (Static/dynamic) is invalid/not running/uninstalled/unreachable then the pipeline execution will be stuck at the task. While the task status will remain in progress or Queue for execution host.

**Proceed If Failed?** - This option give users a choice whether or not to skip the failed status of a task. If the option is checked the failed status of a task will be ignored by the agent and the execution will proceed to the next task otherwise the execution will failed as soon as any of the task failed to execute.

If the last task of the pipeline is set to proceed if failed, then it will have no effect until one or more task precedes it.

The task may be failed for three scenarios:
1. If pre-condition fails
2. If task fails to execute
3. If post-condition fails

The effect of **Proceed If Failed?** checkbox on the above failures are:

<table>
<thead>
<tr>
<th>Failure Type</th>
<th>Checked</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-Condition</td>
<td>If the precondition fails the present task will not be executed rather it will switch to the next task if ‘Proceed If Failed’ is checked.</td>
</tr>
<tr>
<td>Task Execution</td>
<td>In both cases if execution is success or failure the task will proceed for execution. execution outcome will reflect on overall task status.</td>
</tr>
<tr>
<td>Post-Condition</td>
<td>In both cases if condition is passed or failed the task will proceed for execution. execution outcome will reflect on overall task status.</td>
</tr>
</tbody>
</table>

**It is recommended that parallel task should be assigned with different Agent.**

**Email Notification :**

User can set users/groups to receive email notifications whenever a task is passed or failed.

**Key Features:**

- To receive email notification, email **server** settings is mandatory.
- Both SMTP and **Exchange** server can send task completion notifications.
- Email notification will be send strictly when a task is passed or failed and not for stopped status.
- Both users and groups selections will work at a time.
- Only those users/groups will be available in the list in which the pipeline being configured has access, admin user will not be the part.
- Sample mail body:
Users Configuration:

Individual user email can be set to receive email notification. The admin user is not included in this list. Each user configured will receive a mail whenever a task is passed or failed.

Group Configuration:

Individual groups can be set to receive email notification. All users which belongs to the configured group will receive email notification whenever a task is passed or failed.
**Note:**
The group list that appears in the group configuration can easily be verified by referring the project under which the pipeline has been created. Just open the project list in the application and search for the project under which pipeline is being created, one can find a list of groups against the project. All those groups will be available for configuration.

<table>
<thead>
<tr>
<th>Project Name</th>
<th>Creation Date</th>
<th>Modification Date</th>
<th>Release Count</th>
<th>Group(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demo Project</td>
<td>May 11, 2020</td>
<td>May 26, 2020</td>
<td>ACT: 1</td>
<td>Admin Group (VIEW ACCESS) (custom112)</td>
</tr>
</tbody>
</table>

And the users that belong to the above groups can be configured for mail.

*Both users and groups can be configured at a time.*

**Execute Pipeline**
Pipeline can be executed from pipeline configuration page as well as from the list page using action Menu. User can see the Live console during the pipeline execution from **Icon.**

**Resume Pipeline**
Pipeline can be resumed from pipeline configuration page as well as from the list page using action Menu. To resume the task from the configuration page just click on ** Icon.
The resume option will only be available when the last run of a particular pipeline is failed or stopped. The pipeline will be resumed from the first stopped or failed task in the pipeline. In case of parallel task, all the task in a given order will be resumed if any one of the task is failed or stopped in that order.

Trigger pipeline from another pipeline:

User can trigger pipeline from another pipeline using KovairDevops plugin. Just like other plugins this plugin also expose some method to be used in task. Currently only one method “ExecutePipeline” is supported. User can use this method of the KovairDevopsPlugin to execute pipeline of any Devops Instance.

Just fill in the proper details of the Devops instance and select a proper pipeline, save the task and pipeline and run it. Pipeline mentioned in the task will be execute in the given instance.

Asynchronous option let the user decide whether the pipeline wait for the triggered pipeline to complete or not. If set to ‘YES’ the main pipeline will wait until the triggered pipeline completes its execution otherwise it will switch to next task.

Start-End Release From Pipeline-list

By exploring the action menu of a particular pipeline user can start-end associated release by simply clicking the options ‘Start Release’/‘End Release’.
Run Status

After Start the pipeline one run record created with Queue Status and after Agent collect the first task and change the Status to **Running**. After Successful execution of all task the Status is **Success**. For any failure the Run status will **Failed**. From Pipeline List page user can see the last three run status with quick Graph. For more Runs user can click on “**Show More Runs Page**”. User need to Click on expand menu to see the Report. For “Run Duration” Graph system shows only last 10 completed pipelines.
## Delay Indicator

### Pipeline:

<table>
<thead>
<tr>
<th>Show warning?</th>
<th>Condition over actual start date and planned start date of Release</th>
<th>Condition over actual end date and planned end date of Release</th>
<th>Release Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>If Actual start date=Planned start date</td>
<td>If Actual end date=Planned end date</td>
<td>Completed</td>
</tr>
<tr>
<td>Yes</td>
<td>If Actual start date&gt;Planned start date</td>
<td>If Actual end date=Planned end date</td>
<td>Completed</td>
</tr>
<tr>
<td>Yes</td>
<td>Actual start date=Planned start date</td>
<td>Actual end date&gt;Planned end date</td>
<td>Completed</td>
</tr>
<tr>
<td>Yes</td>
<td>Actual start date&gt;Planned start date</td>
<td>Actual end date&gt;Planned end date</td>
<td>Completed</td>
</tr>
<tr>
<td>Yes</td>
<td>Actual start date&gt;Planned start date</td>
<td>Planned end date=Today’s date</td>
<td>In progress</td>
</tr>
<tr>
<td>Yes</td>
<td>Actual start date=Planned start date</td>
<td>Today’s date&gt;Planned end date</td>
<td>In Progress</td>
</tr>
<tr>
<td>Yes</td>
<td>Actual start date&gt;Planned start date</td>
<td>Today’s date&gt;Planned end date</td>
<td>In Progress</td>
</tr>
<tr>
<td>No</td>
<td>Actual start date=Planned start date</td>
<td>Planned end date=Today’s date</td>
<td>In progress</td>
</tr>
<tr>
<td>No</td>
<td>Today’s date=Planned start date</td>
<td>Today’s date=Planned end date</td>
<td>Planning</td>
</tr>
<tr>
<td>Yes</td>
<td>Today’s date&gt;Planned start date</td>
<td>Today’s date=Planned end date</td>
<td>Planning</td>
</tr>
<tr>
<td>Yes</td>
<td>Today’s date=Planned start date</td>
<td>Today’s date=Planned end date</td>
<td>Planning</td>
</tr>
<tr>
<td>Yes</td>
<td>Today’s date&gt;Planned start date</td>
<td>Today’s date=Planned end date</td>
<td>Planning</td>
</tr>
</tbody>
</table>
Release:

<table>
<thead>
<tr>
<th>Planned Start Date (Condition)</th>
<th>Show Warning?</th>
<th>Planned End Date Prompt (Condition)</th>
<th>Show Warning?</th>
<th>Release Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Today’s date = Planned start date</td>
<td>No</td>
<td>Today’s date = Planned end date</td>
<td>No</td>
<td>Planning</td>
</tr>
<tr>
<td>Today’s date &gt; Planned start date</td>
<td>Yes</td>
<td>Today’s date &gt; Planned end date</td>
<td>Yes</td>
<td>Planning</td>
</tr>
<tr>
<td>Actual Start date &gt; Planned Start date</td>
<td>Yes</td>
<td>Today’s date &gt; Planned End date</td>
<td>Yes</td>
<td>In Progress</td>
</tr>
<tr>
<td>Actual Start date = Planned Start date</td>
<td>No</td>
<td>Today’s date = Planned End date</td>
<td>No</td>
<td>In Progress</td>
</tr>
<tr>
<td>Actual Start date &gt; Planned Start date</td>
<td>Yes</td>
<td>Actual end date &gt; Planned End date</td>
<td>Yes</td>
<td>Completed</td>
</tr>
<tr>
<td>Actual Start date = Planned Start date</td>
<td>No</td>
<td>Actual end date = Planned End date</td>
<td>No</td>
<td>Completed</td>
</tr>
</tbody>
</table>

Pipeline & Release Archival:

Release Archival:

User can now archive unnecessary releases from the release list page.

To archive a release, follow the following steps:

- Navigate to release list page.
- Select a release to archive. Open the action menu by clicking on the icon  📋
- Click on Archive.  🕒
- The release will be archived. Please check the “Show Archived” checkbox to view archived releases.
- 🕒 icon indicates the release is archived.
YAML Support:

User can now download YAML from existing pipeline and use the same to create a new pipeline.

To download YAML of a pipeline, following are the steps:

- Navigate to pipeline list page.
- Select a pipeline to get YAML. Open the action menu by clicking on the icon.
- Click on “Get YAML Script”.
- A file containing YAML with yaml extension will get downloaded.

To create pipeline using YAML click on existing pipeline or click on create new Pipeline button. Then click on the YAML icon shown below.

A new page will open with a default YAML definition as below. User can create pipeline definition manually or import previously downloaded YAML of another or same pipeline. If any error occurred
while executing the YAML for existing pipeline then it will be reverted back to previous pipeline definition.

Following are the options on YAML definition page:

- **Import YAML File**: User can import YAML file using previously downloaded YAML file.
- **Reset**: Clicking on reset button will reset the YAML back to initial template.
- **Save**: Clicking on the save button will execute the YAML entered in the text box.
- **Back**: Back button will redirect the user to the pipeline definition page.

Points to remember while creating or updating the pipeline as below:

1. **For new pipeline without import**:
   Allow changing project name and release name if valid in YAML (i.e. can override the Release and Project Name that is previously selected in UI)

2. **For new pipeline with import**:
   Change in project name and release name will be discarded and previously selected project name and release name in the previous UI will be considered.

**NOTE**: Task id in the input parameter of YAML import must be validated by user manually as it may be valid for exported pipeline and not for importing pipeline. Some inputs like pipeline status and pipeline id are managed internally and user provided values will be discarded.
3. **For editing existing pipeline:**

Changes of project name and release name in YAML is silently discarded and will not throw validation to user like "Project Name does not matches with existing project name of the pipeline", "release name does not matches with existing pipeline release name".

Any Pipeline linked with the release will also get archived along with the release. Archived releases can only be cloned and deleted.

### Pipeline Archival:

User can now archive unnecessary pipelines from the pipeline list page.

To archive a pipeline follow the following steps:

- Navigate to pipeline list page.
- Select a pipeline to archive. Open the action menu by clicking on the icon 📊
- Click on Archive.
- The pipeline and the associated release will be archived. Please check the "Show Archived" checkbox to view archived pipelines.
- 🔶 icon indicates the pipeline is archived.

Users can only view change history and delete the archived pipelines. Pipeline will also archive the associated release.
Manual Task

Manual task is an important feature that can be associated with pipeline. Manual task can be assigned to a specific user. It will help pipeline to take manual approval to continue the further task. During pipeline execution if any manual task approval is required then the pipeline will be in paused state until task is complete for further execution.

Email Notification: If ‘Send Email Notification’ is checked for the manual task an email will be send to the user’s email id for approval.

A preview of such mail is:
Hello sdebnath,

It seems that you have a task pending for your approval. Please review the task and pass or fail accordingly. Ignore if already done.

**Task Subject:**
Please approve saheli

NOTE: This is a system generated mail.

To approve this task, please reply with the appropriate command as the subject of the mail with 'Accept' or 'Reject' text. Example: Manual Task Notification For Pipeline #75 | Task #11 - **Accept**
*The bold text is to be appended to pass the manual task. This will take effect only when the email service is running.

Thanks,
Kovair DevOps Support.

User can pass or fail the task by simply replying to the mail as follows:

Reply this email and append Accept/Reject in the email subject to Pass/Fail the task. Example: Manual Task Notification For TaskId: #27 - **Accept**
*The bold text is to be appended to pass the manual task.

From application user can click on ![My Task(s)](image) to see the assigned task for the specific user and can Passed / Failed the task. User can also provide the comment for the Manual task.
Completed task is visible in Completed section.

Report & Dashboard:
All reports are predefined format and can view on tabular view. User can Export the data as .CSV file.

Dashboard are based on report output in graphical format.

2 layout Dashboard
3 Layout Dashboard
➢ User with “FULL” access can create multiple dashboard. Dashboards will be added as tab.
➢ Initially there will be only “Default” tab. User can add new tab(s) and rename the existing tab.
➢ User can add/edit/delete gadget into the dashboard penal using drag-drop.
➢ Dashboards can be 2 paneled or 3 paneled.

User with “VIEW” access can only see the “Default” dashboard which contains 3 reports (Overall Pipeline Summary, Overall Run Summary and Overall Execution Duration Summary). No addition/modifications are allowed.
3 Paneled Report Add/Edit/Delete Section
 Filters:
Reports & Dashboards can be filtered based on projects and releases. User need to select the projects and releases from the dropdown provided on the these page. Based on the selected items the data will be shown.

Key feature of filters:

- Project filter will contain only those projects which have non archived release associated with it.
- Release filter will contain only those releases which have non archived pipelines associated with it.
- Release filter will be reset on changing project selection.
Reports
Following are the reports that are part of this release, explained below.

Completed Release count

**Description**: Comparison between total release count and completed release count. (Completed Release count means, releases have actual end date). If there is no completed Release count present then the blue bar will not be shown.

**Tabular Report – Graphical Report**

<table>
<thead>
<tr>
<th>Completed Release Count</th>
<th>All Release Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>14</td>
</tr>
</tbody>
</table>

Average Release duration over time

**Description**: Average release duration based on Year-Month.

**Tabular Report – Graphical Report**

<table>
<thead>
<tr>
<th>Year-Month</th>
<th>Average Release Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>2019-9</td>
<td>30</td>
</tr>
<tr>
<td>2019-10</td>
<td>4.875</td>
</tr>
<tr>
<td>2019-11</td>
<td>15</td>
</tr>
</tbody>
</table>
Release Completion

**Description** Release completion (Planned vs actual).

**Tabular Report – Graphical Report**

<table>
<thead>
<tr>
<th>Title</th>
<th>Planned End Date</th>
<th>Actual End Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Default Release</td>
<td>11/21/2019</td>
<td>11/6/2019</td>
</tr>
<tr>
<td>Release 001</td>
<td>10/22/2019</td>
<td>11/3/2019</td>
</tr>
<tr>
<td>Release 002</td>
<td>10/22/2019</td>
<td>10/26/2019</td>
</tr>
<tr>
<td>Release 003</td>
<td>10/22/2019</td>
<td>10/26/2019</td>
</tr>
<tr>
<td>Release 004</td>
<td>11/2/2019</td>
<td>10/22/2019</td>
</tr>
<tr>
<td>Release 008</td>
<td>11/2/2019</td>
<td>10/21/2019</td>
</tr>
<tr>
<td>Release 009</td>
<td>12/2/2019</td>
<td>12/6/2019</td>
</tr>
<tr>
<td>Release 010</td>
<td>12/12/2019</td>
<td>10/22/2019</td>
</tr>
<tr>
<td>Release 011</td>
<td>2/12/2020</td>
<td>10/22/2019</td>
</tr>
<tr>
<td>Release 012</td>
<td>10/26/2019</td>
<td>10/22/2019</td>
</tr>
</tbody>
</table>
The Releases that are NOT completed (Actual end date is not present) those releases are ignored

Release Efficiency

**Description** Release Efficiency (Count of Manual Tasks Vs Automation Tasks). Consider only executed pipeline.

**Tabular Report – Graphical Report**

<table>
<thead>
<tr>
<th>Release Title</th>
<th>Pipeline</th>
<th>Automated Task Count</th>
<th>Manual Task Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Default Release</td>
<td>Pipeline 001</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Release 010</td>
<td>Pipeline 002</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Release 011</td>
<td>Pipeline 003</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Release 012</td>
<td>Pipeline 004</td>
<td>3</td>
<td>0</td>
</tr>
</tbody>
</table>
Number of Release per Month

**Description** This report gives an idea of how many releases are present per month. **Releases count depends, when it’s been created (creation date).**

**Tabular Report – Graphical Report**

<table>
<thead>
<tr>
<th>Month-Year</th>
<th>Release Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sep-19</td>
<td>3</td>
</tr>
<tr>
<td>Oct-19</td>
<td>9</td>
</tr>
<tr>
<td>Nov-19</td>
<td>1</td>
</tr>
</tbody>
</table>
Top 10 longest Release

**Description** 10 longest releases based on actual start date and actual end date. To view the data of this graph, the release duration must be greater than 1 days.

**Tabular Report – Graphical Report**

<table>
<thead>
<tr>
<th>Title</th>
<th>Release Duration (in Days)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Release 008</td>
<td>30</td>
</tr>
<tr>
<td>Default Release</td>
<td>16</td>
</tr>
<tr>
<td>Release 009</td>
<td>15</td>
</tr>
<tr>
<td>Release 001</td>
<td>13</td>
</tr>
<tr>
<td>Release 002</td>
<td>5</td>
</tr>
<tr>
<td>Release 003</td>
<td>5</td>
</tr>
<tr>
<td>Release 004</td>
<td>0</td>
</tr>
<tr>
<td>Release 010</td>
<td>0</td>
</tr>
<tr>
<td>Release 011</td>
<td>0</td>
</tr>
<tr>
<td>Release 012</td>
<td>0</td>
</tr>
</tbody>
</table>

Top 10 longest Pipeline

**Description** Top 10 Longest pipeline. Longest pipeline of duration after considering only last Run (in days). To view the data of the graph, Pipeline associated last run duration must be greater than 1 days

**Tabular Report – Graphical Report**
Average Task Duration by Project

**Description** Average task duration by project, considering only last Run (in minutes). To view the data of the graph, average tasks duration belong to a project must be greater than 1 minute.

**Tabular Report – Graphical Report**

<table>
<thead>
<tr>
<th>Title</th>
<th>Avg Task Duration (in Minutes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Default Project</td>
<td>2.6</td>
</tr>
<tr>
<td>Arpan Projects</td>
<td>0</td>
</tr>
</tbody>
</table>
Top 10 Longest Phase

**Description** Top 10 longest phases(stages). Longest phases of duration after considering only last Run (in seconds). To view the data of the graph, Stage associated tasks of last run average time duration must be greater than 1 second.

**Tabular Report – Graphical Report**

<table>
<thead>
<tr>
<th>Title</th>
<th>Phase Duration (in seconds)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pipeline 002-Stage 1</td>
<td>840</td>
</tr>
<tr>
<td>dtyety-Stage 1</td>
<td>45</td>
</tr>
<tr>
<td>Pipeline 004-Stage 1</td>
<td>4</td>
</tr>
<tr>
<td>sfvwfgwr-Stage 1</td>
<td>1</td>
</tr>
<tr>
<td>bjhj-Stage 1</td>
<td>1</td>
</tr>
<tr>
<td>sfvwfgwr-Stage 2</td>
<td>0</td>
</tr>
</tbody>
</table>
Release Progress on Timeline

**Description** Data for all releases progress on timeline

**Tabular Report – Graphical Report**

<table>
<thead>
<tr>
<th>Title</th>
<th>Actual Start Date</th>
<th>Actual End Date</th>
<th>Planned Start Date</th>
<th>Planned End Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Release 010</td>
<td>10/22/2019</td>
<td>10/22/2019</td>
<td>7/7/2019</td>
<td>12/12/2019</td>
</tr>
</tbody>
</table>
Disclaimer

Filter in Dashboard page

- By default fetches all the project data irrespective of Select All or unchecked Select All filter, only if configured database not contains any legacy data
- If legacy data present in the database, then Select All and UnSelect All filtered data may differ.

Additional Services

Agent Service:

Agent service is responsible for Execute Configured task in pipeline. One Service can connect multiple tool via deployed plugins in agent path. At a single point of time one agent can connect one Application server. Configuration.ini should be configured correctly to start the service.

Configuration.ini

```
BaseUrl=http://192.168.11.159:8080/KovairDevops
Username=admin
Password=Kn+T/57wKso41IPF61u1Q==
```

Email Service:

Email Service is connected to Application for various operation. Once the user subscribed the email. User can send proper action as Email subject to dedicated Application email address.

Supported action via Email:
<table>
<thead>
<tr>
<th>#</th>
<th>Subject Text</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>List Pipeline</td>
<td>All active pipelines owned by you will be send to you.</td>
</tr>
<tr>
<td>2.</td>
<td>Start [Pipeline_Id]</td>
<td>Pipeline id provided by you will be executed automatically.</td>
</tr>
<tr>
<td>3.</td>
<td>Stop [Pipeline_Run_Id]</td>
<td>Pipeline run provided by you will be stopped automatically.</td>
</tr>
<tr>
<td>4.</td>
<td>Status [Pipeline_Run_Id]</td>
<td>Current pipeline run status will be send to you.</td>
</tr>
<tr>
<td>5.</td>
<td>Last Status [Pipeline_Id]</td>
<td>Last pipeline run status will be send to you.</td>
</tr>
<tr>
<td>6.</td>
<td>Check Health</td>
<td>Checks if the server is active or not.</td>
</tr>
</tbody>
</table>

Kovair Email service should be installed and configured correctly to use this functionality. As well as Email service configuration should be **Enabled** in application server.

**Logs**
- Application Logs are available in `<Tomcat Path> / AppLog`
- Agent service Logs are available in the agent host

**Disclaimer/ Additional Notes:**
- Menu → Server → Mail Server → Server Type: **GMAIL not yet implemented**
- **Multilanguage** is **NOT** supported throughout the application.
- New /Updated Plugin should be installed manually in Agent Path.
- All plugins are tested in **Windows** Only.
- If user tries to access a shared application URL with some filters applied then user will be redirected to that main URL automatically after user logs in with filters removed. But if already logged in to the application and then tries to enter the URL then the filters will work properly.
- URL encryption is not supported yet so if user changes the filter in URL with some invalid data then the filter will not work.
- If any task created parallely fails, the pipeline execution will wait until all task parallel to the failed task completes execution. Overall Status will be failed.
- Special characters that are supported for condition are `-- !@#$%^&(){}{}"/'<>\`
- If Database connection is lost due to network interruption the database connectivity will be lost. The tomcat needs to be restarted.
- During Manual Task execution if pipeline get stopped manually, then also manual task can be viewed from manual task section with stopped status.
- Any condition change during edit task operation will overwrite the previous configured conditions.
- Spaces are not supported in quick search.
- **CurrentTaskId** is a restricted string, try not to use this. During Condition settings make sure **CurrentTaskId** text should not be remain in condition section during add task. Otherwise condition will not work.
- Change in configuration of task under a pipeline, all the tasks followed by changed task, configuration need to be changed manually. (Only applicable for pre and post condition)
- When task is cloned user need to refresh the pre-post conditions and the reference parameters.
- Currently user needs to manually verify the task references if the task is deleted. References include the task parameters getting used in output/input/conditions of other task.
- In case user removes the selected output parameters of some task then the post condition of that task will be removed automatically and user need to re-configure it again, if the removed parameters are used as a reference to some tasks then the user have to manually update such post conditions.
- If a new task is added/deleted from a pipeline which is in a resumable stage, the new task will not execute on resume as it was not a part of the last run. In that case user need to re-run the pipeline.
- Changes done in input parameters will only be considered while resuming pipeline. No other changes (changes in Pre/Post condition, output parameters) will be considered until the pipeline is re-run.
- ALM type tool template hold the password type data.
- The option to take reference from other parameters not includes lookup type field of alm plugin and are not supported in pre and post condition also.
- Generic error will show for jira plugin execution. Execution type can be authentication, or field name field value related anything.
- Parallel task will be added after last parallel task.
- The lookup type fields (get data from api calls) of alm type plugin are exposed as singline text field at pre and post condition side. Other plugin lookup which doesn’t perform any api call exposed as lookup.
- If the SMTP configuration give BadCredentials error even if your credentials are correct try increasing the smtp timeout value in application.properties file.
- Task id in the input parameter of YAML import must be validated by user manually as it may be valid for exported pipeline and not for importing pipeline.
- YAML validations are added for ProjectName, ReleaseName, Stage Name, Task Name and Tool Security Mandatory Parameters. Tool parameter values and all other inputs should be validated by user manually.