Continuous Delivery Director Integrations

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Integrations

Integrate with other continuous delivery tools through configurable plug-ins

You can integrate Continuous Delivery Director with other continuous delivery tools through configurable plug-ins. Plug-ins give you the flexibility to orchestrate your end-to-end continuous delivery process in a single release workflow.

Integration through plug-ins lets you extend Continuous Delivery Director functionality and can provide the following capabilities:

- **Import Application Models from Deployment Tools**
  Plug-ins can import application models from Automic@ Continuous Delivery Automation for use in Continuous Delivery Director.
- **Instrument Continuous Delivery Tasks**
  Plug-in tasks let you instrument important actions in your continuous delivery pipeline from remote components in the context of Continuous Delivery Director releases.
- **Import Release Work Items from Agile Tracking Tools**
  Plug-ins can integrate with tracking tools to annotate releases with related work items.

You can also develop custom plug-ins for integrations that are not provided in a packaged plug-in.

This section describes how to work with packaged plug-ins and develop custom plug-ins.

Download Options for Integrations

Continuous Delivery Director makes your release pipeline work better by letting you integrate industry-leading software and platforms with Continuous Delivery Director. You can download integrations in several ways:

- From the plug-ins page on cddirector.io
- Clicking the download icon in integration-related documentation topics:

  Figure 1: download icon

- For Linux users, entering wget commands such as

```
wget -O cdd-endevor-plugin.war https://cspdl.broadcom.com/shared/
static/88usmlbbk142rlvpkdqwkv8wbpkhnsyo.war?LCK=ent.box.com
```

You can also validate the integrity of your downloads using the MD5 hash checksums shown in integration-related documentation topics, such as

```
0187bc8ff38f71247bad696deeb0ca8e
```

For testing-related integrations, such as the Maven Testing plug-in, you can:

- Download Docker images from the Customer Support Portal
- If you do not want to use docker pull, you can download TAR files from the Customer Support Portal

Instructional Video

The following video shows how to use plug-ins to extend the capabilities of Continuous Delivery Director so it can communicate with other products:

Manage Plug-ins

Integrate plug-ins with Continuous Delivery Director to enable essential integrations with remote components.

This document describes how to install plug-ins and integrate them with your Continuous Delivery Director installation. For information about the functionality provided by each plug-in, see the online documentation.

Continuous Delivery Director provides the following plug-ins that are packaged and installable out-of-the-box:

[A] [B] [C] [D] [E] [F] [G] [H] [J] [K] [M] [N] [P] [R] [S] [T] [V]

A

- Atlassian Bitbucket
- Atlassian JIRA
- Apache Tomcat
- Automic® Continuous Delivery Automation
- AWS CodeDeploy
- AWS Elastic Beanstalk
- Azure DevOps Server (formerly Microsoft Team Foundation Server)

B

- BlazeMeter®

C

- Cucumber for Java
- Cucumber for Ruby

D

- Docker
- DX App Experience Analytics
- DX App Synthetic Monitor Plug-in

E

- Email
- Endevor SCM

F

- Flowdock

G

- GitHub
- GitLab
- Gradle Testing

H

- Helm Plug-in

J

- Jenkins
- JetBrains TeamCity
- JFrog Artifactory

K

- Kubernetes

M

- Maven Testing
- Micro Focus ALM
- Microsoft Teams

N

- Nolio Release Automation

P

- Playwright

R

- Rally® (formerly CA Agile Central)
- Red Hat Ansible
- Red Hat Ansible Tower
- Red Hat OpenShift
- REST
- Robot Framework
- Runscope

S

- ServiceNow
- Slack
- SonarQube

T

- TestCafe
- Twistlock

V

- Veracode

The following steps represent the high-level plug-in management workflow:

1. Install plug-ins.
2. Register plug-ins.
3. Use endpoints to connect to remote component systems.

4. Import data from remote components, such as content or application model.
5. Use automatic tasks that are provided by the plug-ins to execute operations on the remote components.
6. (Optional) Synchronize plug-ins to apply the latest changes to the plug-in.
7. (Optional) Remove plug-ins.

TIP

Steps 2, 3, 4 (application model), 6, and 7 require a product Administrator role. Steps 4 (content) and 5 require a product Designer role.

Install Plug-ins

TIP

Plug-in installation is not required for SaaS users unless you need to install a custom plug-in that you have developed. Packaged plug-ins are preinstalled with the SaaS instance.

NOTE

You can run packaged plug-ins on your own on-premise network.

From the support site https://casupport.broadcom.com, download the packaged plug-in, then deploy this plug-in on a Tomcat 8 web container.

All packaged plug-ins require Tomcat 8.

Install plug-ins on the same server as Continuous Delivery Director or on remote servers. Consider the anticipated load on the plug-ins before deciding to distribute, such as:

- The amount, frequency, and potential concurrency of task execution
- The size, frequency, and potential concurrency of imports (both application models and content)
- The number of connected endpoints per plug-in

A remote plug-in server for packaged plug-in installation requires Tomcat 8 and Java 1.8 to be running on the remote server.

In general, Continuous Delivery Director **custom** plug-ins can be developed using any programming language (Java, Python, PhP, and so on) and can be hosted by any web container (Tomcat, JBoss, IBM Liberty, and so on). All Continuous Delivery Director **packaged** plug-ins require Apache Tomcat 8.

Install a single instance of each required plug-in. One plug-in instance can support multiple endpoint connections.

Follow these steps:

Note: These steps might vary for custom plug-ins based on your implementation method. For example, if the plug-in package is a .war file, you might want to deploy to a different servlet container or on the CDD Server Tomcat instance.

1. Download the .war files for the packaged plug-ins.
2. Stop the Apache Tomcat service on the plug-in server.
3. Copy the plug-in .war file into the webapps folder of the Tomcat installation directory.

   TIP

   Plug-ins that you are installing on the same server as the CDD Server component can be installed at the same time as the CDD Server.
4. Start the Apache Tomcat service.
   The plug-ins are installed.

Register Plug-ins

Register remote and custom plug-ins to make their capabilities available from Continuous Delivery Director. Packaged plug-ins that are installed on the Continuous Delivery Director Server are registered automatically.

> **TIP**
>
> As a SaaS user, when you log in for the first time, all existing plug-ins are automatically registered for you. Plug-in registration is only required for SaaS users when new plug-ins are added to the SaaS instance after your initial login. Monitor release notes to be notified of new plug-ins, which you register using this procedure.

Packaged plug-ins are installed as .war files in an Apache Tomcat server. The .war file includes a manifest.json file. The plug-in manifest specifies the plug-in capabilities and the URL for each of the plug-in services. To register a plug-in, you enter the path to the manifest file in the UI.

While custom plug-in implementation methods can vary, all plug-ins require a manifest.json file. The manifest path might differ if you implement a custom plug-in differently than the packaged plug-ins, but the concept is the same.

> **TIP**
>
> You can also register plug-ins using the REST API. For more information, see REST API Reference.

Follow these steps:

1. In Continuous Delivery Director, select **Administration**, and **Plug-Ins**.
2. Click **Register Plug-In**.
3. Specify the URL of the plug-in manifest. The plug-in manifest is the location of the JSON file.
   On-Premise Examples:
   – **Automic@ Continuous Delivery Automation plug-in manifest URL**
     http://<host>:<port>/cdd-ara-plugin/manifest.json
   – **CA REST plug-in manifest URL**
     http://<host>:<port>/cdd-rest-plugin/manifest.json
   These examples can represent locally or remotely installed plug-ins.

   > **NOTE**
   >
   > If you configure the product to use HTTPS communication, you must update existing plug-in registrations that previously used HTTP. For more information, see Secure Communications.
   >
   > **Example:**
   >
   > - https://myhost:443/cdd-slack-plugin/manifest.json
4. Click **Register**.
   The plug-in is discovered and registered and shows in the **Plug-Ins** page.

   > **NOTE**
   >
   > Register Plug-ins

Add Endpoints

To connect an endpoint with an instance of a remote component, add an endpoint for a registered plug-in. Each plug-in uses a single endpoint type (Endpoint Template) and can connect to multiple endpoint instances of that type. For example, you can connect a ServiceNow plug-in to multiple ServiceNow servers, if needed.

The information that is required for each endpoint connection varies by the plug-in. For more information, see the documentation for each plug-in.

Follow these steps:

1. Go to **Administration**, **Endpoints**, and click **Add Endpoint**.
2. Specify the **Name**, **Description**, and select the **Endpoint Type**.

Each plug-in has an endpoint type. When you register a plug-in, its endpoint type becomes available to add in this dialog.

3. Specify the information that is required for the endpoint type you selected, and click **Add**.
   The endpoint is added.

   NOTE

   Manage Endpoints

Import Plug-in Data

Plug-ins can support the import of the following data from their remote component:

- Application models
- Content Items

Import application models during the administration phase before you create releases. You can then add applications and environments from the remote component to your releases, phases, and tasks.

Import content items during the release design phase to associate specific work items with a release.

NOTE

- Manage Applications and Environments
- Design and Create Releases

Use Plug-in Tasks

Tasks let you instrument functionality in the remote component. You add tasks to phases and provide the appropriate input values to execute the provided functionality in your release. For example, the Check Test Case Results task that is provided by the Rally plug-in queries the results of a test case in Rally.

You add tasks to releases during the design phase and execute them when you run the release. For more information about the required inputs for each task, see the detailed documentation for each packaged plug-in.

NOTE

- Design and Create Releases
- Plug-ins

Synchronize Plug-ins

When you upgrade to a higher, or downgrade to a lower, plug-in version, synchronize the plug-in. This synchronization captures the latest plug-in manifest. We also recommend that you synchronize the plug-in when you update remote components or plug-in versions. For example, to synchronize with the latest Automic@ Continuous Delivery Automation application model changes, synchronize the Automic@ Continuous Delivery Automation plug-in.

Follow these steps:

1. Select **Administration**, and **Plug-Ins**.
2. Mouse over the name of the plug-in, select the information icon, and select **Sync Plugin**.Continuous Delivery Director updates the plug-in registration with the new plug-in capabilities based on the new plug-in manifest. For example, the import application model capability is added, or a task is updated and shows under the plug-in name.

Remove Plug-ins

You can remove a plug-in from your workspace at any time. When you remove a plug-in:

- All related endpoints are permanently deleted
- The task configuration in all related tasks is permanently deleted
- The task type in all related tasks reverts to Manual

Follow these steps:

1. From the **Administration** menu, select **Plug-ins**.
2. Select the relevant plugin, click the actions icon, then **Delete Plug-in**.
3. **Only for OnPrem and SaaS instances running plug-in proxy**—On the plug-in server, remove the deleted plug-in folder and .war file from the webapps folder of the Tomcat installation directory.

Plug-in Proxies

You configure plug-in proxies to execute on-premise plug-in services that run behind a firewall. You can assign multiple plug-in proxies to a single plug-in.

Users select plug-ins when creating or editing endpoints, tasks, test/work item/commit/file sources. When selecting a plug-in, both the plug-in name and any assigned plug-in proxy name are shown in the format `{plug-in name}/{proxy display name}`.

For example, a user edits a **Rally Update** task. In the task type dropdown list, they see `Rally/Dev`, `Rally/QA`, and `Rally/Deploy`, meaning that different plug-in proxies named Dev, QA, and Deploy, are assigned to the Rally plug-in.

You can also see plug-in proxy names in exported DSL: `"plugin": "EMEA|Rally/Dev",`

Figure 2: Click the following icon to download the latest plug-in proxy version:

Why Do I Need a Plug-in Proxy?

Let us say that you want to integrate Continuous Delivery Director SaaS with on-premise DevOps components, such as Automic Continuous Delivery Automation, your corporate GitHub or JFrog Artifactory.

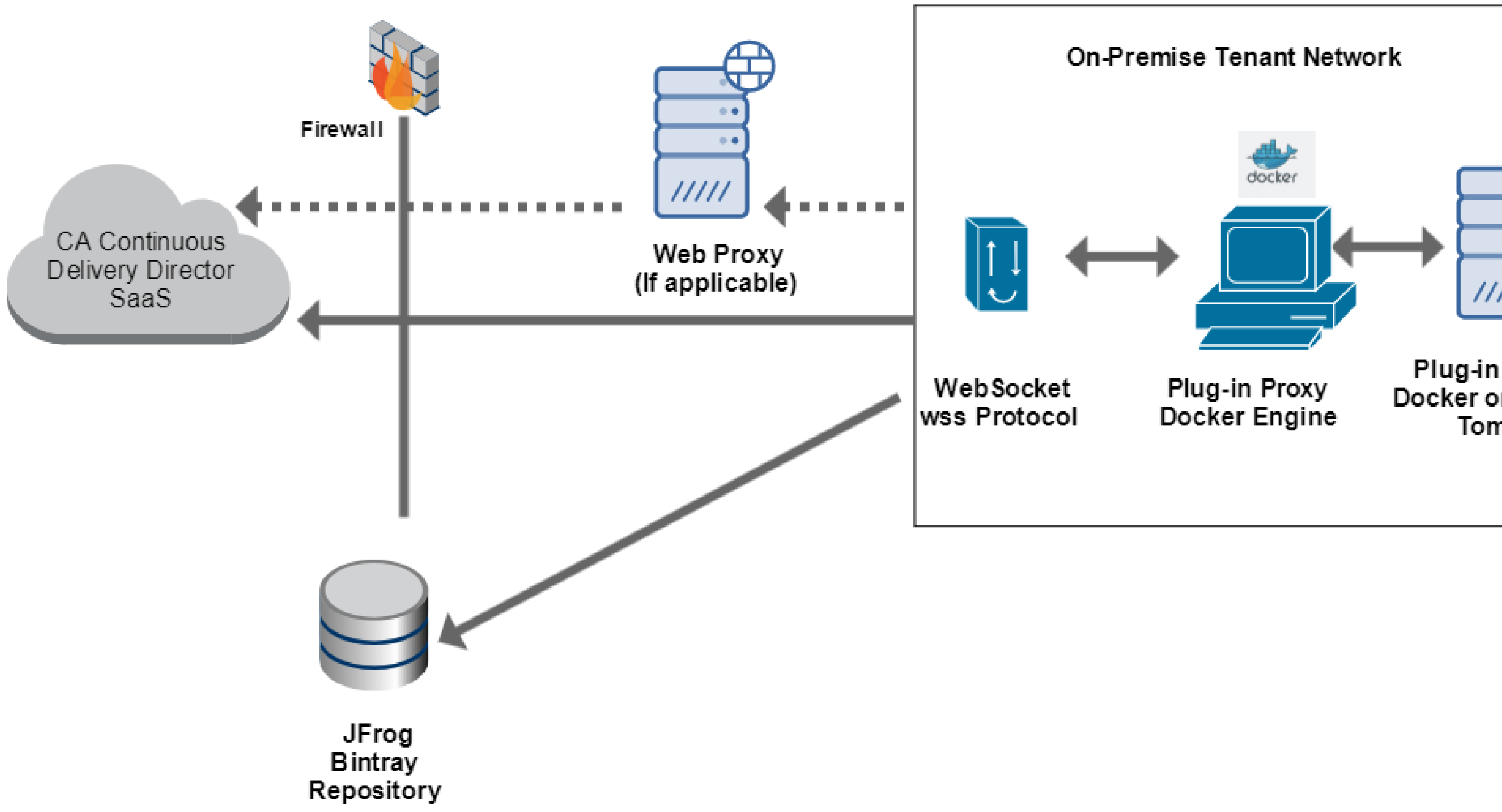
However, these on-premise components reside inside your corporate network. These components are protected by the corporate firewall from unauthorized internet access. The use of the firewall means that Continuous Delivery Director SaaS cannot easily connect to these components from outside your corporate network.

Continuous Delivery Director has developed a solution that is based on a plug-in proxy. This solution allows Continuous Delivery Director SaaS users to execute plug-in services through on-premise components securely, despite the firewall.

How does the Plug-in Proxy Work?

The following diagram shows the plug-in proxy architecture:

Figure 3: CDD Plug-in Proxy



Plug-in Proxy Workflow

1. Plug-in proxy is deployed inside the customer (tenant) on-premise network
2. Plug-in proxy connects to the remote Continuous Delivery Director system on behalf of the customer (tenant) through secured WebSocket protocol (`wss`).
   Note: If your organization uses a Web proxy, the plug-in proxy connects to Continuous Delivery Director through that web proxy.
3. Plug-in proxy retrieves the plugin registration/execution requests
4. Plug-in proxy routes these requests to the on-premise Continuous Delivery Director plug-ins that are running inside the customer on-premise network
5. Plug-in proxy is delivered as a Docker image through the CA JFrog Bintray repository
6. The customer runs the plug-in proxy as a Docker container on a Docker engine machine running inside the customer on-premise network
7. Plug-in proxy is authenticated in Continuous Delivery Director SaaS by the customer tenant ID and the customer API key.

NOTE

The plug-in proxy cannot connect to https://cddirector.io if the WebSocket WSS protocol is blocked by on-premise network elements such as the network router, firewall, and so on). The corporate firewall must be configured to enable the WebSocket WSS protocol.

WebSocket connections generally work even if a firewall is in place. The connections succeed because WebSocket connections use ports 80 and 443 which are also used by HTTP connections.

Sometimes WebSocket connections are blocked over port 80. If so, a secure SSL connection using WSS over port 443 should successfully connect.

NOTE
You can run multiple different tenants on Continuous Delivery Director SaaS.

Manage Plug-in Proxies

You manage plug-in proxies in the **Plug-in Proxies** page. This page lists proxy details including connectivity status and lets you edit, enable/disable, and delete proxies.

To manage plug-in proxies, you need the **Can manage plug-in proxy** permission.

To access the **Plug-in Proxies** page, click the cross-project settings icon, then **Plug-in Proxy**.

To enable/disable a plug-in proxy, click the actions menu on the right of a table row and choose **Enable/Disable**.

To delete a plug-in proxy, click the actions menu on the right of a table row and choose **Delete**.

1. To edit a plug-in proxy: in the **Plug-in Proxies** page, either select a name in a table row, or click the actions menu on the right of a table row and choose **Edit**.
2. Configure and set values for the following parameters:
   - **Display Name in UI**
     Specify the plug-in proxy name to be shown in the user interface. If left empty, the proxy ID is shown.
   - **Choose which IP addresses can connect**
     Determine whether only whitelisted or all IP addresses are allowed to connect to the plug-in proxy.
   - **IP Addresses**
     Specify the IP addresses that can connect to the plug-in proxy. Ex. 192.19.250.253. You can enter IP addresses manually when the whitelist option is disabled. Any IP addresses through which you have connected will be listed. If the whitelist option is enabled, only whitelisted IP addresses will be listed.
3. Click **Save**.

Set Up a Plug-in Proxy

To enable a plug-in proxy, you need a Docker engine and a Docker image pulled from the CA JFrog Bintray repository.

NOTE

The plug-in proxy is contained inside a Docker image. There are two methods for running the Docker image:

- **With Docker Compose** – Choose this method if you want to run all the available on-premise plug-ins and services concurrently.
- **Without Docker Compose** – Choose this method if you only want to run specific on-premise plug-ins and services.

- The plug-in proxy connects to Continuous Delivery Director by use of the WebSocket protocol.
- Firewall access is enabled from the plug-in proxy server to Continuous Delivery Director over the WebSocket protocol.

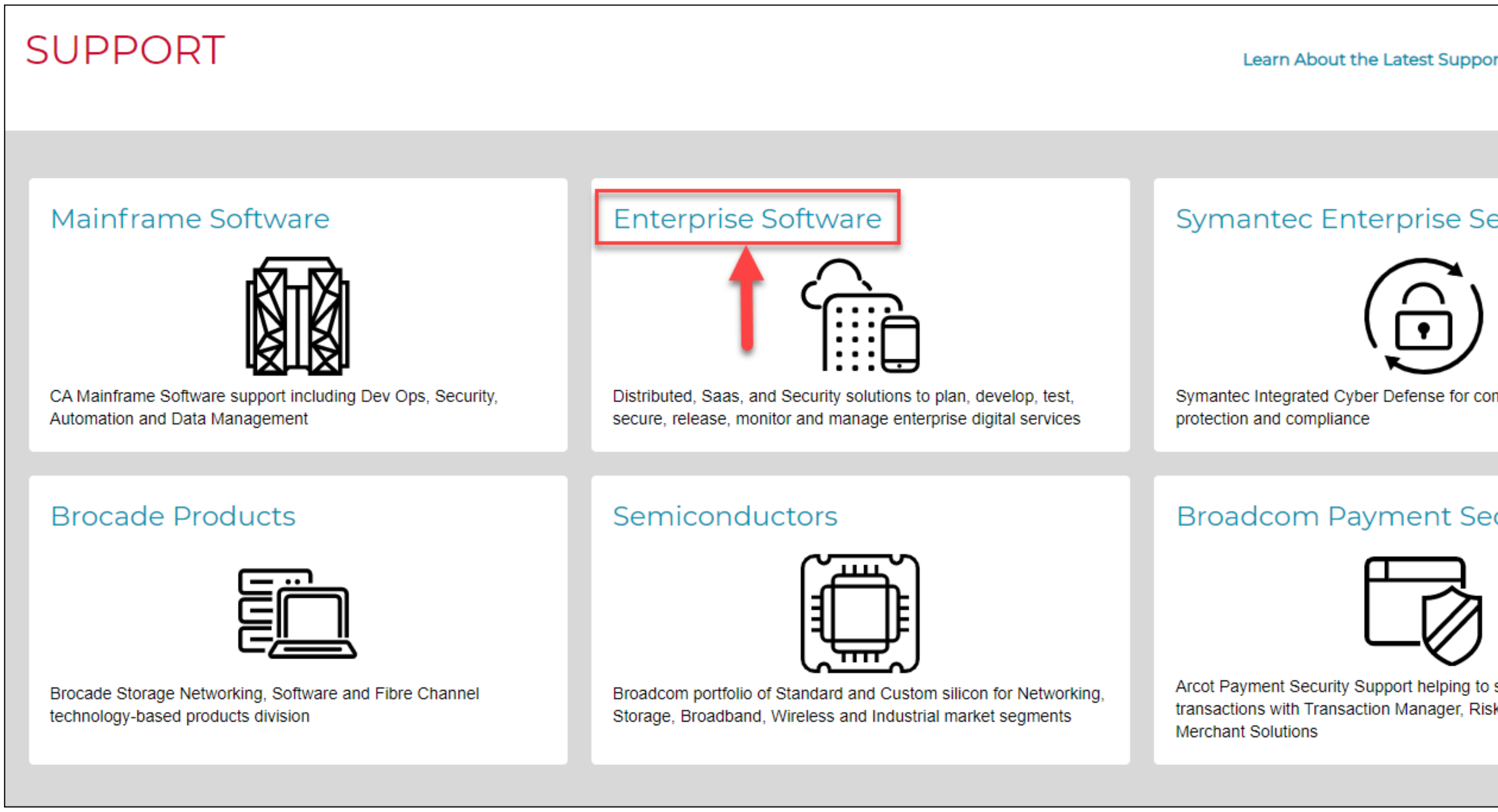
NOTE
Continuous Delivery Director SaaS runs at https://cddirector.io port 443.

- A server with Docker Engine 19.x or higher is allocated inside your on-premise network.
- For usage type: With Docker Compose. The plugins Docker image has been pulled from the CA JFrog Bintray. For more information, see Download a Docker Image.
- For usage type: Without Docker Compose. You have configured a local Apache Tomcat instance.

To download the docker image, follow these steps.

1. On the Docker engine server (the server which also hosts the required plug-ins, create a local folder.
2. For the newly-created local folder, assign write permissions for all users.
   This step enables the Docker container logs to be written.
3. In a Web browser, enter the URL `https://support.broadcom.com/` and log in to Broadcom Support.
4. In the **Support** page, click **Enterprise Software**:

   Figure 4: Support Portal - Enterprise Software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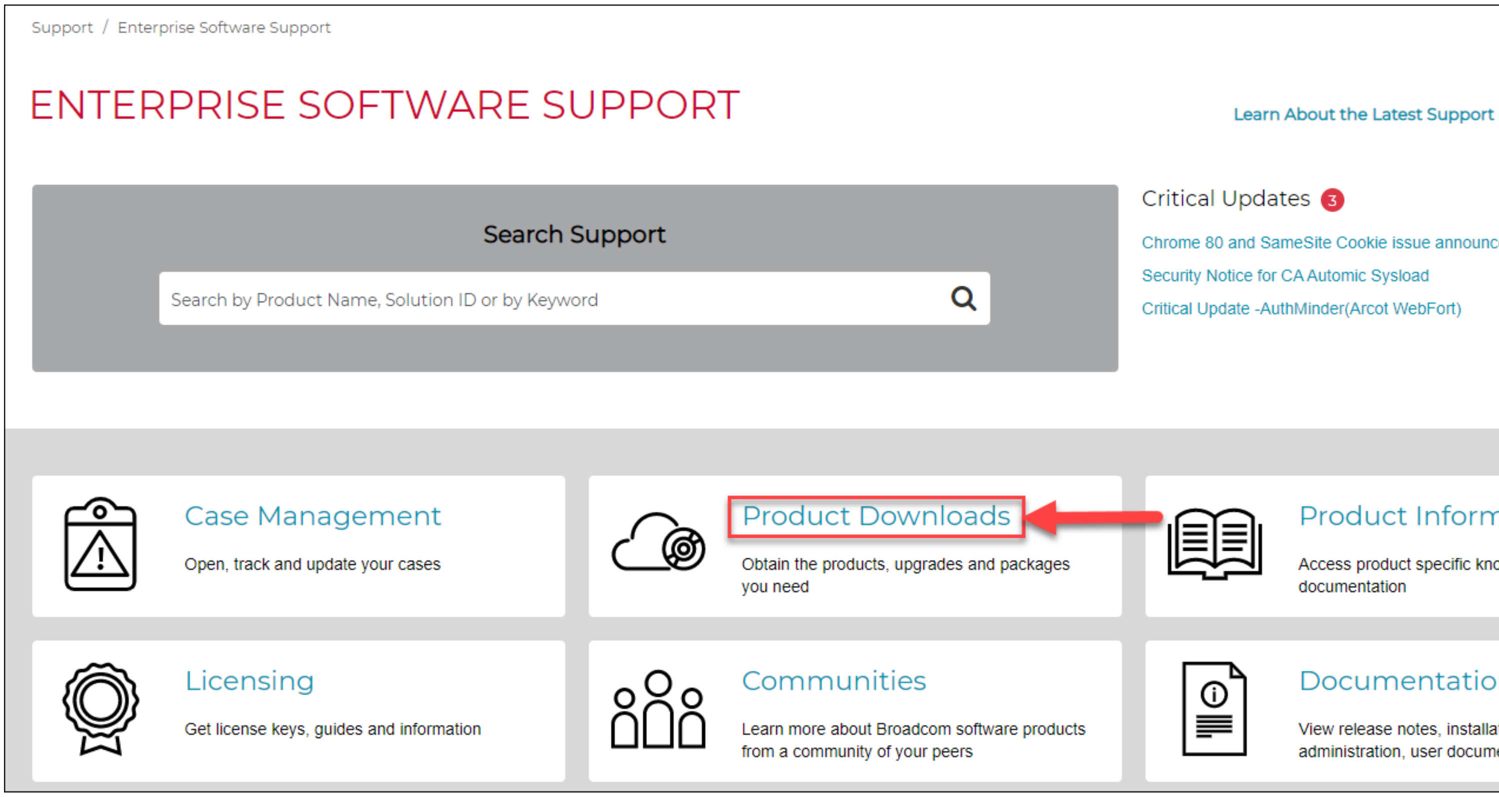
Semiconductors
Broadcom portfolio of Standard and Custom silicon for Networking, Storage, Broadband, Wireless and Industrial market segments
Broadcom Payment Sec
Arcot Payment Security Support helping to s transactions with Transaction Manager, Risk Merchant Solutions

5. Click **Product Downloads**:

Figure 5: Support Portal - Product Downloads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Get license keys, guides and information

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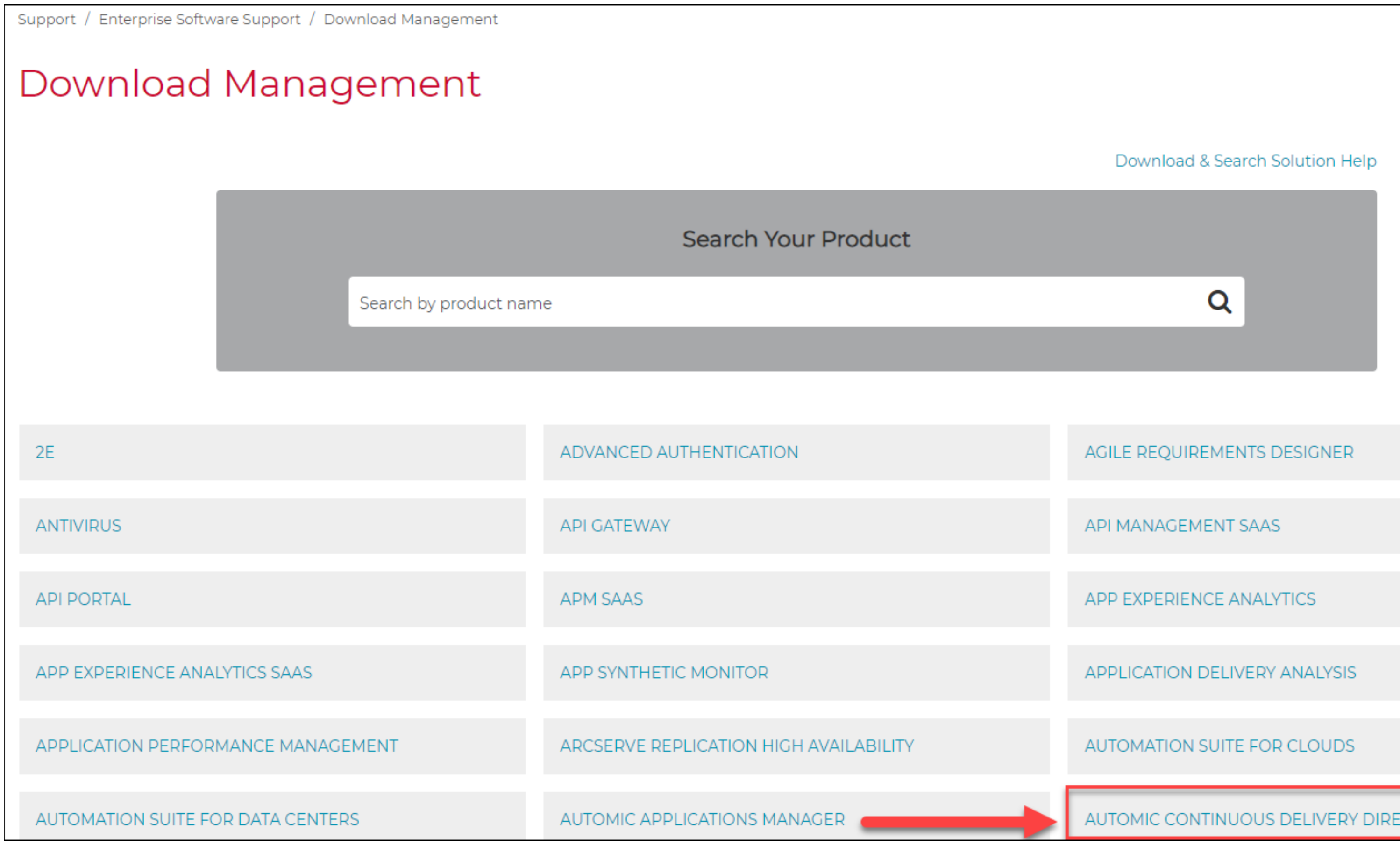
Learn more about Broadcom software products from a community of your peers

Documentatio

View release notes, installa administration, user docum

6. In the **Download Management** page, search for Continuous Delivery Director:

Figure 6: Support Portal - Download Management



Support / Enterprise Software Support / Download Management

Download Management

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Search by product name

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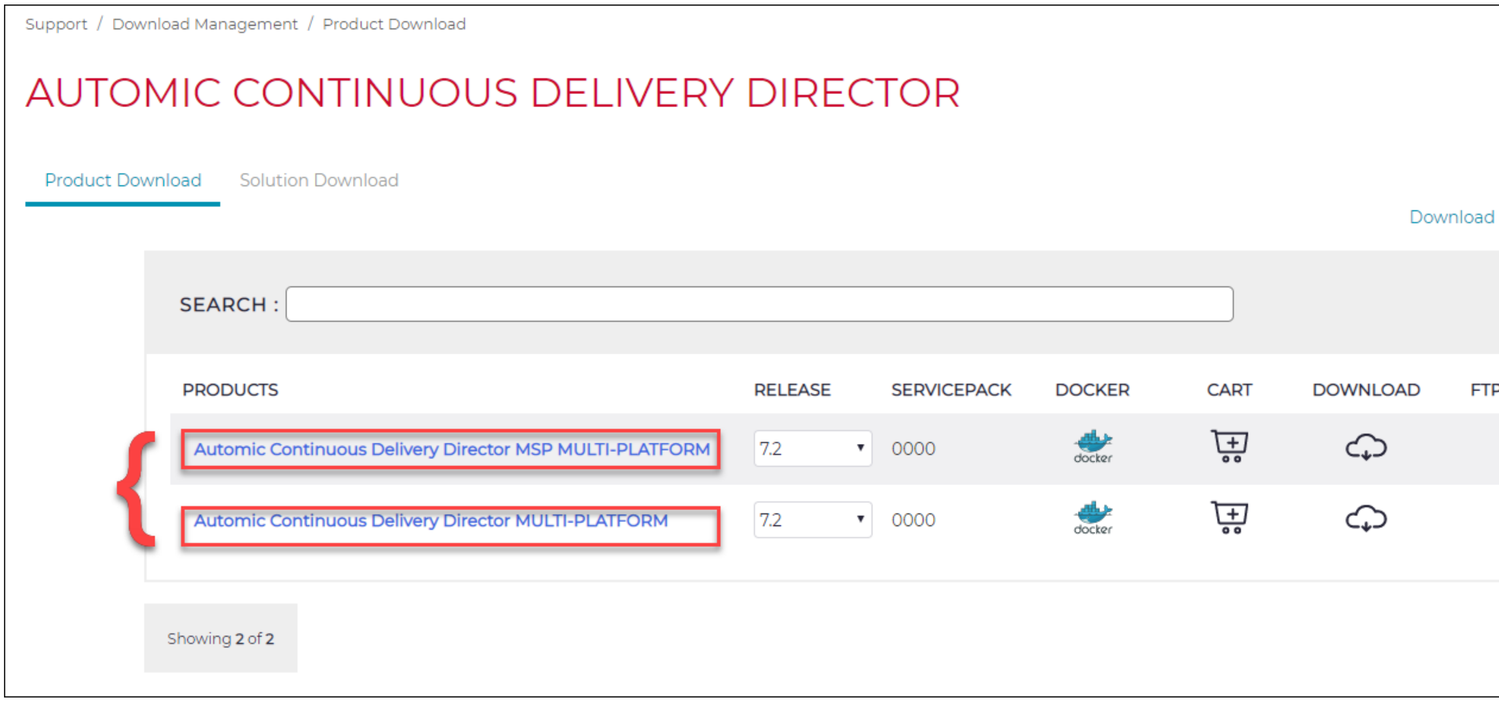
ANTIVIRUS	API GATEWAY	API MANAGEMENT SAAS
API PORTAL	APM SAAS	APP EXPERIENCE ANALYTICS
APP EXPERIENCE ANALYTICS SAAS	APP SYNTHETIC MONITOR	APPLICATION DELIVERY ANALYSIS
APPLICATION PERFORMANCE MANAGEMENT	ARCSERVE REPLICATION HIGH AVAILABILITY	AUTOMATION SUITE FOR CLOUDS
AUTOMATION SUITE FOR DATA CENTERS	AUTOMIC APPLICATIONS MANAGER	AUTOMIC CONTINUOUS DELIVERY DIRE

7. Click one of the available download names:

Figure 7: Support Portal - Available Downloads


Support / Download Management / Product Download

AUTOMIC CONTINUOUS DELIVERY DIRECTOR

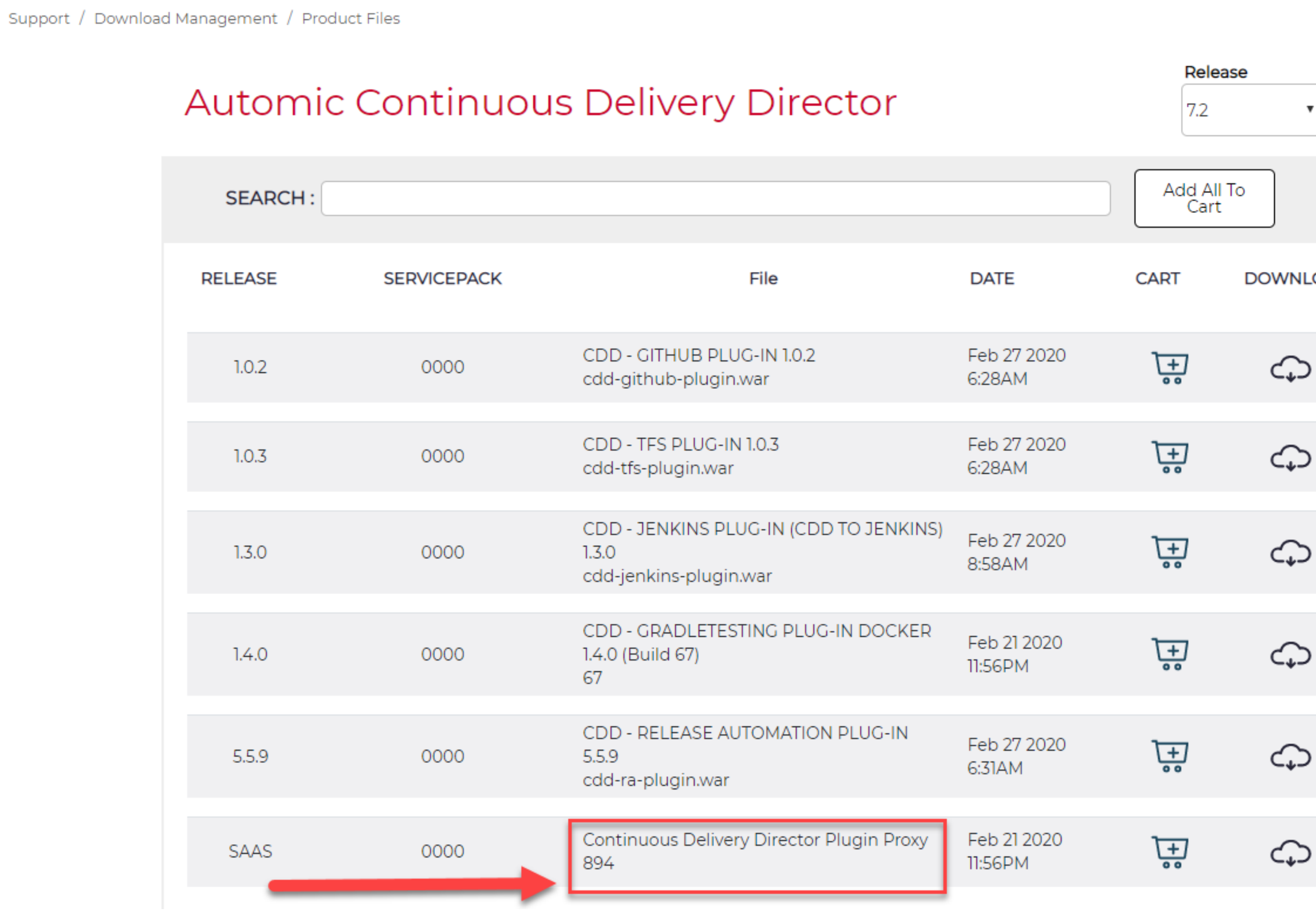
PRODUCTS	RELEASE	SERVICEPACK	DOCKER	CART	DOWNLOAD	FTP
Automic Continuous Delivery Director MSP MULTI-PLATFORM	7.2	0000	docker			
Automic Continuous Delivery Director MULTI-PLATFORM	7.2	0000	docker			

Showing 2 of 2

8. Select the version, and click the Docker icon.
   If you do not see a Docker icon, change the service pack number.

9. Log in to the private registry for secure download, then pull the image.
10. In the download components list, find and download Continuous Delivery Director Plugin Proxy:

Figure 8: Support Portal - Download Continuous Delivery Director Plugin Proxy


Support / Download Management / Product Files

Automic Continuous Delivery Director

Release: 7.2

SEARCH :

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RELEASE	SERVICEPACK	File	DATE	CART	DOWNL
1.0.2	0000	CDD - GITHUB PLUG-IN 1.0.2 cdd-github-plugin.war	Feb 27 2020 6:28AM		
1.0.3	0000	CDD - TFS PLUG-IN 1.0.3 cdd-tfs-plugin.war	Feb 27 2020 6:28AM		
1.3.0	0000	CDD - JENKINS PLUG-IN (CDD TO JENKINS) 1.3.0 cdd-jenkins-plugin.war	Feb 27 2020 8:58AM		
1.4.0	0000	CDD - GRADLETESTING PLUG-IN DOCKER 1.4.0 (Build 67) 67	Feb 21 2020 11:56PM		
5.5.9	0000	CDD - RELEASE AUTOMATION PLUG-IN 5.5.9 cdd-ra-plugin.war	Feb 27 2020 6:31AM		
SAAS	0000	Continuous Delivery Director Plugin Proxy 894	Feb 21 2020 11:56PM		

Configure Plug-in Proxies

You can edit settings.properties to support multiple plug-in proxies

- To enable plug-in proxies, in `settings.properties` (`/home/cdd/.cdd/conf/settings.properties`), ensure that the following line is set to true:
  `cdd.pop.enabled = true`
- To specify an optional unique ID of the plug-in proxy instance either in `setttings.properties` or in environment variables:
  `cdd.plugins_proxy.id = {proxy ID}`

  NOTE
  The proxy ID is limited to 200 characters which can include alphanumeric characters, hyphens, dots, and underscores.
- To define heartbeat intervals that indicate normal operation, edit the following line in `settings.properties`:

`cdd.plugins_proxy.cdd.heartbeat_interval_in_millis = {number of milliseconds}`

- To enable/disable message services for plug-in proxies such as Kafka or RabbitMQ, edit the following line in `settings.properties`:
  `cdd.plugins_proxy.message_queue.enabled =`

```
cdd.plugins_proxy.id=Dev
cdd.plugins_proxy.cdd.heartbeat_interval_in_millis = 30000
cdd.plugins_proxy.message_queue.enabled = false
```

Register an On-Premise Plug-in with Proxy

After you enable the plug-in proxy, you can register on-premise plug-ins (that run behind a firewall) to use that proxy in Continuous Delivery Director.

Only proxies that connect with an API key assigned the **Can connect plug-in proxy** permission can connect to Continuous Delivery Director.

1. Click **Administration**, then **Plug-ins**.
2. Click **Register Plug-in**.
3. Specify the plug-in manifest URL.
   `https://cdd_plugin_server:8443/cdd-ra-plugin/manifest.json`
4. In **Select Proxy**, choose the required proxy from the dropdown list.
5. Click **Register**.

The plug-in is discovered and registered and appears in the **Plug-Ins** page.

Run Docker Image With Docker Compose

After you have pulled the Docker image from the support site, you run the image through Docker Compose, a tool for defining and running multi-container Docker applications.

To enable the communication of the plug-in proxy through WebSocket, you must authenticate to Continuous Delivery Director with the API key of an administrator. You must set up a Docker secret to hold your API key.

In this method, you use a YAML file to configure your plug-ins and services. Then, with a single command, you can create and start all the plug-ins and services from your configuration.

CAUTION
If the administrator permissions of the user whose API key is used are removed, the communication fails!

NOTE
You can register two plug-ins with the same name but with different plug-in proxies.

1. From the Docker Engine server command line, change the directory to the required base folder.
   `/home/cdd`
2. Enter the following command to create a working directory to use for the Docker Compose file and the proxy logs:
   `mkdir cdd-plugins-proxy && cd cdd-plugins-proxy`
3. Grant write permissions on this folder to all users:
   `chmod -R 777 ../cdd-plugins-proxy`

   NOTE
   This step enables the Docker container logs to be written.

4. Initialize swarm mode:

   ```
   docker swarm init
   ```

5. Create a Docker secret to hold your Continuous Delivery Director API key:

   ```
   echo "{Your API KEY}" | docker secret create cdd_plugins_proxy_api_key -
   ```

   NOTE
   To find your API key, in Continuous Delivery Director, go to the **User Settings** menu.

6. Pull the `plugins-proxy` docker image from CA JFrog Bintray. Paste the commands that you saved when you downloaded the docker image from the support site.

   ```
   docker pull cdd.packages.ca.com/com/ca/cdd/{cdd-version}/plugins-proxy
   ```

7. a) Create a `docker-compose`.yaml file.
   b) Copy the following code block:

   ```
   version: '3.1'
   services:
     cdd-plugins-proxy:
       image: "cdd.packages.ca.com/com/ca/cdd/{cdd-version}/plugins-proxy:{plug-in-proxy-latest-docker-
   image-tag}"
       environment:
         CDD_PLUGINS_PROXY_ID: {plugin-proxy-id}
         CDD_PLUGINS_PROXY_CDD_API_KEY_PATH: '/run/secrets/cdd_plugins_proxy_api_key'
         CDD_PLUGINS_PROXY_CDD_TENANT_ID: {cdd-tenant-id}
         CDD_PLUGINS_PROXY_PLUGINS_WHITE_LIST: {plugin-white-list}
         CDD_PLUGINS_PROXY_CDD_URL: {cdd-web-address}
       volumes:
       - /home/cdd/.cdd:/home/cdd/.cdd
       secrets:
       - cdd_plugins_proxy_api_key
       deploy:
         replicas: 1
         restart_policy:
           condition: on-failure
   secrets:
     cdd_plugins_proxy_api_key:
       external: true
   ```

   c) Replace the following values in the YAML indicated by the curly brackets '{}':

   CAUTION

   Do not change the code except for the values within the curly brackets '{}'. Doing so may cause unpredictable results, including data loss.

   Do not change the indentation or use tab characters.

   - `{plug-in-proxy-latest-docker-image-tag}`
   - `{plugin-proxy-id}`
   - `{cdd-tenant-id}`
   - `{plugin-white-list}`
   - `{cdd-web-address}`

   Explanation of parameters:

   - `HOME_FOLDER_LOCATION`

Path to the base folder configured on the Docker Engine server with the subfolder `cdd-plugins-proxy`. Example: `/home/cdd/cdd-plugins-proxy`

- `CDD_PLUGINS_PROXY_ID`
  Unique ID of the plug-in proxy

  CAUTION
  To avoid possible conflicts with other plug-in proxies, make sure that the proxy ID you enter is unique.
- `CDD_PLUGINS_PROXY_CDD_API_KEY_PATH`
  Path to the Docker secret file on the Docker Engine server
- `CDD_PLUGINS_PROXY_CDD_TENANT_ID`
  The Continuous Delivery Director tenant ID. To find your tenant ID, in Continuous Delivery Director, go to the **User Settings** menu.
- `CDD_PLUGINS_PROXY_PLUGINS_WHITE_LIST`
  A list of the on-premise plug-ins server addresses.
- `CDD_PLUGINS_PROXY_CDD_URL`
  The web address of Continuous Delivery Director SaaS. Value: `https://cddirector.io/`

```
version: '3.1'
services:
  cdd-plugins-proxy:
    image: "cdd.packages.ca.com/com/ca/cdd/{cdd-version}/plugins-proxy:1024"
    environment:
      CDD_PLUGINS_PROXY_ID: 3129aac3-9f35-4f81-87a4-8b0ce5223402
      CDD_PLUGINS_PROXY_CDD_API_KEY_PATH: '/run/secrets/cdd_plugins_proxy_api_key'
      CDD_PLUGINS_PROXY_CDD_TENANT_ID: 96b98c94-b041-4ef5-9e85-c41c942c211c
      CDD_PLUGINS_PROXY_PLUGINS_WHITE_LIST: abcdev003773.mycompany.net
      CDD_PLUGINS_PROXY_CDD_URL: https://abcapi01704.mycompany.net:8080
    volumes:
    - /home/cdd/.cdd:/home/cdd/.cdd
    secrets:
    - cdd_plugins_proxy_api_key
    deploy:
      replicas: 1
      restart_policy:
        condition: on-failure
secrets:
  cdd_plugins_proxy_api_key:
    external: true
```

8. Deploy the new Docker stack:
   ```
   docker stack deploy --compose-file=docker-compose.yaml cdd-plugins-proxy-stack
   ```
9. Check that the Docker stack is ready:
   ```
   docker stack services cdd-plugins-proxy-stack
   ```

The plug-in proxy is enabled and is available for use for on-premise plug-ins.

Handy Docker Compose Commands

You may find the following commands useful when you manage the plug-in proxy Docker image with Docker Compose. You enter these commands from the Docker engine server command line.

To do this...	Enter
Validate Docker stack is available	`docker stack services cdd-plugins-proxy-stack`
Stop a running Docker stack	`docker stack rm cdd-plugins-proxy-stack`
Create a Docker secret file	`echo "{Your API KEY}" | docker secret create cdd_plugins_proxy_api_key -`
List existing Docker secret files	`docker secret ls`
Remove a Docker secret file	`docker secret rm cdd_plugins_proxy_api_key`

Run Docker Image Without Docker Compose

After you have downloaded the Docker image from the support site, you run the image through a command sequence. Use this method if you want to run specific on-premise plug-ins only.

This method requires a local Apache Tomcat 8.x instance on which you install the required on-premise plug-ins.

ATTENTION
To enable the communication of the plug-in proxy through WebSocket, you must authenticate to Continuous Delivery Director with the API key of an administrator. You set up a Docker secret to hold your API key.

CAUTION
If the administrator permissions of the user whose API key is used are removed, the communication will fail!

1. Use the following command to run the Docker image:

```
docker tag cdd.packages.ca.com/com/ca/cdd/plugins-proxy plugins-proxy:latest docker run -d \
--name plugins-proxy \
--restart=on-failure \
-v <local-home-folder-location>:/home/cdd/.cdd \
-e CDD_PLUGINS_PROXY_ID=<plugins-proxy-id> \
-e CDD_PLUGINS_PROXY_CDD_API_KEY=<cdd-api-key> \
-e CDD_PLUGINS_PROXY_CDD_TENANT_ID=<tenant-id> \
-e CDD_PLUGINS_PROXY_PLUGINS_WHITE_LIST=<plugin-server1,plugin-server2,...> \
-e CDD_PLUGINS_PROXY_CDD_URL=https://cddirector.io \ plugins-proxy:<cdd-docker-tag>
```

   If your organization uses a web proxy, to run the Docker image, add the following lines:

```
docker tag cdd.packages.ca.com/com/ca/cdd/plugins-proxy plugins-proxy:latest
docker run -d \
--name plugins-proxy \
--restart=on-failure \
-v <local-home-folder-location>:/home/cdd/.cdd \
-e CDD_PLUGINS_PROXY_ID=<plugins-proxy-id> \
-e CDD_PLUGINS_PROXY_CDD_API_KEY=<cdd-api-key> \
-e CDD_PLUGINS_PROXY_CDD_TENANT_ID=<tenant-id> \
-e CDD_PLUGINS_PROXY_PLUGINS_WHITE_LIST=<plugin-server1,plugin-server2,...> \
-e CDD_PLUGINS_PROXY_CDD_URL=https://cddirector.io \
-e CDD_PLUGINS_PROXY_INTERNET_PROXY_URL=http://proxy:8080 \
-e CDD_PLUGINS_PROXY_INTERNET_PROXY_USERNAME=username \
-e CDD_PLUGINS_PROXY_INTERNET_PROXY_PASSWORD=password \
plugins-proxy:<cdd-docker-tag>
```

   Explanation of parameters:

   - `CDD_PLUGINS_PROXY_ID`

Unique ID of the plug-in proxy

CAUTION
To avoid possible conflicts with other plug-in proxies, make sure that the proxy ID you enter is unique.

- `CDD_PLUGINS_PROXY_CDD_API_KEY`
  Continuous Delivery Director API key. To find your API key, in Continuous Delivery Director, go to the **User Settings** menu.
- `CDD_PLUGINS_PROXY_CDD_TENANT_ID`
  Continuous Delivery Director Tenant ID. To find your tenant ID, in Continuous Delivery Director, go to the User Settings menu.
- `CDD_PLUGINS_PROXY_PLUGINS_WHITE_LIST`
  List of Continuous Delivery Director plug-in servers. A CSV list of the on-premise server addresses of Continuous Delivery Director plug-ins.
- `CDD_PLUGINS_PROXY_CDD_URL`
  Web address of Continuous Delivery Director SaaS. Value: (default) `https://cddirector.io/`
- `cdd-docker-tag`
  The tag of the Docker image as specified by the docker pull command. Value: (default) `latest`

Explanation of parameters for web proxy only:

- `CDD_PLUGINS_PROXY_INTERNET_PROXY_URL`
  Web address to access organization web proxy.
- `CDD_PLUGINS_PROXY_INTERNET_PROXY_USERNAME`
  (Optional) Username to authenticate access to the organization web proxy.
- `CDD_PLUGINS_PROXY_INTERNET_PROXY_PASSWORD`
  (Optional) The password to authenticate access to the organization web proxy.

NOTE

Location of plug-in proxy log files

The plugins_proxy.log files are created in the logs sub-folder of the <local-home-folder- location> local folder. For example:

```
/home/cdd/.cdd/logs/ plugins_proxy.log
```

2. After you enter the command, check plugins_proxy.log to verify that the command has run and that the plug-in proxy is enabled. The `plugins_proxy.log` file is located in the `/logs` folder under the local home folder location.

When the command has run, the plug-in proxy is enabled and is available for use for on-premise plug-ins.

Containerized Plug-ins

Continuous Delivery Director provides some integrations as container images, referred to as containerized plug-ins. These plug-ins automate the configuration of integrated environments.

Version 2.3

Download Options

Use one of the following options to download the latest plug-in version:

Method	Info
wget	`wget -O containerized.war https://cspdl.broadcom.com/shared/static/emqgzflvrt0oogpinucfhtqjayr78lgk.war?LCK=ent.box.com`
MD5	`971b9b2dd860a2059d1af9819da5f8e8`
Click Download Button	

Change History

The following updates were made for version 2.3:

- Bugfix - Cucumber JVM test suite import failed on SaaS.
- Bugfix - the containerized plug-in manager does not map volumes in connectivity tests.

The following updates were made for version 2.2:

- The Fabric8 software component used by the containerized plug-in manager has been upgraded to version 5.1.1.
- The containerized plug-in manager lets you run Continuous Delivery Director docker-based plugins on Kubernetes (and not just on Docker engine).
- You can configure `settings.properties` to support multiple container management platforms.
- Bugfix: The containerized plug-in log files were overwritten in a multi-node active-active high-availability cluster setup.

Overview

Containerized plug-ins are based on Integration-as-a-Service, which is a cloud service delivery model for integration. These plug-ins deliver an integration solution that can greatly reduce the time involved in setting up third-party clients and servers as part of your continuous delivery pipeline. This solution allows release managers to quickly put together integration flows and implement orchestrations, thereby accelerating development time.

Containerized plug-ins are stored in a registry that is either private or public on a repository, such as Artifactory.

A single containerized plug-in can be deployed as multiple identical containers on multiple container management platforms.

Containerized plug-ins are comprised of system libraries, system tools, and other platform settings a third-party service provider needs to run on container management platforms.

Continuous Delivery Director has developed a tool, the **Containerized Plug-in Manager**, that enables you to work with the following container management platforms:

- Docker Engine
- Kubernetes

Continuous Delivery Director provides the following containerized plug-ins:

- Cucumber for Java Plug-in
- Cucumber for Ruby Plug-in
- Gradle Testing Plug-in
- Maven Testing Plug-in
- Playwright Plug-in
- Red Hat Ansible Plug-in
- Robot Framework Plug-in
- TestCafe Plug-in

Run Containerized Plug-ins using Docker Engine

Learn how to set up containerized plug-ins to work in Continuous Delivery Director using Docker Engine.

- A home folder is set up and includes containerized folders. For more information, see Configure the Home Folder.
- A Docker Engine machine is provisioned, preferably running Red Hat Linux 7.4.
- For Continuous Delivery Director SaaS users, a plug-in proxy is defined so that the Docker Engine machine is included in the approved list. For more information, see Plug-in Proxies.
- The containerized manager war file and a containerized plug-in tar file (which holds the required docker images) have been downloaded to the Docker Engine machine.

NOTE

Enhanced Security

Optional. To restrict the access to the Docker remote API port to allow localhost origin only, follow **all** the steps in the following **Enhanced Security** notes.

1. Enable access to Docker containers and images.
   a) From the command line, as a root user, create a user with the name `cdd` and the uid `1010` , and a group with the name `cdd` and the gid `1010` on the Docker Engine machine. Add the user `cdd` to the existing `docker` group to allow this user to run Docker images. This step enables the Docker container to read and write the required settings and logs to a persistent volume on the Docker Engine machine:

   ```
   groupadd 1010 -g 1010 cdduseradd 1010 -u 1010 -g 1010 -G docker cdd
   ```

   NOTE

   The purpose of the `cdd` user and `cdd` group is to limit read-write permissions between the host machine and the Docker containers to authorized users only.

   All `cdd` services are run on behalf of the `cdd` OS user. All Continuous Delivery Director artifacts are stored in the `cdd` home folder using `cdd` user access permissions.

   b) Set a password for the `cdd` user:

   ```
   passwd cdd {provide a password}
   ```

2. Enable access to the Docker remote API port for communication between the containerized plug-in and the Docker Engine:
   a) Create the `docker.service.d` directory:

   ```
   mkdir /etc/systemd/system/docker.service.d
   ```

   b) Create the `docker-external.conf` configuration file:

   ```
   vi /etc/systemd/system/docker.service.d/docker-external.conf
   ```

   c) Add the following content to the `docker-external.conf` file:

   ```
   [Service] ExecStart=ExecStart=/usr/bin/dockerd -H tcp://0.0.0.0:4550 -H unix:///var/run/docker.sock
   ```

NOTE

Enhanced Security

Replace 0.0.0.0 with 127.0.0.1 or with the server name of the Docker Engine machine.

d) Reload and restart the Docker daemon:

```
systemctl daemon-reload systemctl restart docker
```

3. a) Connect as the `cdd` user:

```
su - cdd
```

b) Prepare the docker images:

NOTE

In the following command, replace:

```
{path-to-local-containerized-plug-in-tar-file}
```

with the download location of the docker images on the Docker Engine machine.

```
docker load -i {path-to-local-containerized-plug-in-tar-file}
```

4. Create a `settings.properties` file with the following content and place this file under the `/home/cdd/.cdd/conf` folder:

NOTE

In the following code block, make sure you provide a value for the `cdd.plugins.containerized.container_engine.host` parameter.

NOTE

Enhanced Security

When you configured the docker-external.conf file in a previous step, if you replaced 0.0.0.0 with another value for enhanced security in the following line:

```
ExecStart=/usr/bin/dockerd -H tcp://0.0.0.0:4550 -H unix:///var/run/docker.sock
```

Set the `cdd.plugins.containerized.container_engine.host` parameter **to the same value**, for example, 127.0.0.1.

```
#Provider
cdd.plugins.containerized.platform_provider=docker

#Container Template
cdd.plugins.containerized.container.port=8080
cdd.plugins.containerized.container.user_id=1010
cdd.plugins.containerized.container.group_id=1010
cdd.plugins.containerized.container.volumes.logs=/home/1010/.cdd/logs

#Container Readiness
cdd.plugins.containerized.container_readiness.check_intervals=25
cdd.plugins.containerized.container_readiness.check_interval_duration_ms=1000

#Container (Docker) Engine
cdd.plugins.containerized.container_engine.host=
cdd.plugins.containerized.container_engine.port=4550
cdd.plugins.containerized.container_engine.home_folder=/home/1010/.cdd
```

```
#Registry
cdd.plugins.containerized.registry.url=cdd.packages.ca.com
cdd.plugins.containerized.registry.password=
cdd.plugins.containerized.registry.username=
cdd.plugins.containerized.registry.email=

#Container
cdd.plugins.containerized.ansiblecore.container.image_name=isl-dsdc.ca.com:5000/com/ca/cdd/
trunk/7.2/ plugins/ansiblecore:82
cdd.plugins.containerized.ansiblecore.container.port=8080
 cdd.plugins.containerized.ansiblecore.container.name_prefix=ac
```

5. Verify that the `docker-engine` hostname was added. Run the following command:

   NOTE

   In the following command, replace *{hostname}* with the Docker Engine machine name or IP address.

```
more /home/cdd/.cdd/conf/settings.properties | grep {hostname}
```

6. Optionally, run the containerized manager as a docker container. Alternatively, you can run the containerized manager as a standard Tomcat war file. If you choose to run the containerized manager as a docker container, from the command prompt enter the following:

   NOTE

   Enhanced Security

   Run the containerized plug-in using the network of the Docker Engine host (add `--network=host` to the following `docker run` command).

   Running the containerized plug-in using the network of the Docker Engine host may create a port conflict between the docker container and the Docker Engine machine ('Address in use' error message). In this case, do not use port 8080 as the Tomcat port of the containerized plugin. Instead, in the following command, replace *{port}* with an available port on the Docker Engine machine.

```
docker run --name containerized-plugin --network=host -e CONNECTOR_PORT={port} -e
 SECURITY_FLAG=false -e CDD_HOME_FOLDER=/home/cdd/.cdd -v /home/cdd/.cdd:/home/cdd/.cdd -d isl-
dsdc.ca.com:5000/com/ca/cdd/trunk/7.0/plugins/containerized:31
```

7. Register the containerized plug-in.
   For more information, see Manage Plug-ins.

   NOTE

   In the following command, replace *{hostname}* with the server or IP address of the machine running the containerized plug-in and replace *{port}* with the external Tomcat port of the containerized plug-in.

```
http://{hostname}:{port}/containerized/plugins/cdd-{name of containerized plugin}-plugin/manifest.json
```

```
http://10.121.64.90:8080/containerized/plugins/cdd-ansiblecore-plugin/manifest.json
```

Run Containerized Plug-ins using Kubernetes

Learn how to set up containerized plug-ins to work in Continuous Delivery Director using Kubernetes.

- A `cdd` home folder is set up and includes containerized folders. For more information, see Configure the Home Folder
- You are familiar with Kubernetes and the concepts of Persistent Volume and Persistent Volume Claim. For more information, see Kubernetes documentation.
- For Continuous Delivery Director SaaS users, the plug-in proxy is defined so that the Kubernetes machine is included in the approved list. For more information, see Plug-in Proxy.
- The containerized manager war file has been downloaded to the Kubernetes machine.
- A containerized plug-in tar file which holds the required docker images has been downloaded to the Kubernetes machine.

1. Create a namespace with the name `cdd` . From the command prompt:

```
kubectl create ns cdd
```

2. Create a persistent volume for the cdd home folder (/home/cdd/.cdd):

```
kubectl create -f PersistentVolume.yaml
```

3. Add the following content to `PersistentVolume.yaml`.

```
apiVersion: v1
kind: PersistentVolume
metadata:
  name: cdd
  labels:
    name: cdd
spec:
  capacity:
    storage: 2Gi
  accessModes:
    - ReadWriteMany
  storageClassName: hostpath
  persistentVolumeReclaimPolicy: Retain
  hostPath:
    path: /home/cdd/.cdd
    type: DirectoryOrCreate
```

4. Create a persistent volume claim at the `cdd` namespace:

```
kubectl create -n cdd -f PersistentVolumeClaim.yaml
```

5. Add the following content to `PersistentVolumeClaim.yaml`.

```
kind: PersistentVolumeClaim
apiVersion: v1
metadata:
  name: cdd
  namespace: cdd
spec:
  selector:
    matchLabels:
      name: cdd
  accessModes:
    - ReadWriteMany
  storageClassName: hostpath
  resources:
    requests:
      storage: 1Gi
    volumeName: cdd
```

6. Create a `settings.properties` file with the following content and place this file under the `/home/cdd/.cdd/conf` folder:

```
#Provider
cdd.plugins.containerized.platform_provider=kubernetes

#Cluster
cdd.plugins.containerized.cluster.namespace=
cdd.plugins.containerized.cluster.username=
cdd.plugins.containerized.cluster.password=
cdd.plugins.containerized.cluster.server_url=
cdd.plugins.containerized.cluster.persistence_volume_claim_name=
cdd.plugins.containerized.cluster.access_token=
```

7. Register the containerized plug-in. For more information, see Manage Plug-ins.

   NOTE

   In the following command, replace *`{hostname}`* with the server or IP address of the machine running the containerized plug-in and replace *`{port}`* with the external Tomcat port of the containerized plug-in.

```
http://{hostname}:{port}/containerized/plugins/cdd-{name of plugin}-plugin/manifest.json

http://10.121.64.90:8080/containerized/plugins/cdd-ansiblecore-plugin/manifest.json
```

Set Up Multiple Containerized Plug-in Managers

You can configure `settings.properties` to support multiple container management platforms.

You can use multiple container management platforms to run containerized plug-ins (for example, either for multiple Docker Engines, or for Docker Engine and Kubernetes). To support this scenario, you set up a containerized manager instance for each container management platform. You can configure `settings.properties` with multiple containerized plug-in manager settings.

You must set the *`CDD_CONTAINERIZED_ID`* environment variable to specify the unique ID of each containerized manager instance per container management platform instance. Each containerized manager instance must run using a unique value of the *`CDD_CONTAINERIZED_ID`* environment variable. The value of the *`CDD_CONTAINERIZED_ID`* environment variable is free text.

You can update the `settings.properties` file and add the concrete value of *`{cdd-containerized-id}`* right after the `cdd.plugins.containerized.` prefix.

If the *`{cdd-containerized-id}`* prefix is not found, the plug-in reverts to the same property name without the *`{cdd-containerized-id}`* prefix.

You have a Docker Engine platform and a Kubernetes platform. You need two containerized manager instances, one instance with *`CDD_CONTAINERIZED_ID`* set to 1, and the other instance with *`CDD_CONTAINERIZED_ID`* set to 2. Your `settings.properties` file includes the following lines:

```
cdd.plugins.containerized.1.platform_provider=docker
cdd.plugins.containerized.2.platform_provider=kubernetes
```

Your `settings.properties` file includes the following sections:

```
settings.properties
==================================
cdd.plugins.containerized.{cdd-containerized-id-1}.platform_provider=docker
cdd.plugins.containerized.{cdd-containerized-id-1}.container_engine.home_folder_base_url=http://
cdddev001234.mpc.mycompany.net
cdd.plugins.containerized.{cdd-containerized-id-1}.container_engine.home_folder=/home/cdd/.cdd
cdd.plugins.containerized.{cdd-containerized-id-1}.container_engine.host=http://
cdddev001234.mpc.mycompany.net
cdd.plugins.containerized.{cdd-containerized-id-1}.container_engine.port=4550

cdd.plugins.containerized.{cdd-containerized-id-2}.platform_provider=kubernetes

cdd.plugins.containerized.{cdd-containerized-id-2}.cluster.namespace=
cdd.plugins.containerized.{cdd-containerized-id-2}.cluster.username=
cdd.plugins.containerized.{cdd-containerized-id-2}.cluster.password=
cdd.plugins.containerized.{cdd-containerized-id-2}.cluster.server_url=
cdd.plugins.containerized.{cdd-containerized-id-2}.cluster.persistence_volume_claim_name=
cdd.plugins.containerized.{cdd-containerized-id-2}.cluster.access_token=

cdd.plugins.containerized.{cdd-containerized-id-1}.registry.email=user01@mycompany.com
cdd.plugins.containerized.{cdd-containerized-id-1}.registry.password=Cdd1234$
cdd.plugins.containerized.{cdd-containerized-id-1}.registry.url=docker-release-candidate-
local.artifactory-xyz.broadcom.net
cdd.plugins.containerized.{cdd-containerized-id-1}.registry.username=bld_cdd_build

cdd.plugins.containerized.{cdd-containerized-id-1}.container.volumes.artifacts=/home/cdd/.cdd/
artifacts

cdd.plugins.containerized.{cdd-containerized-id-2}.cucumberjvm.container.image_name=docker-release-
candidate-local.artifactory-xyz.mycompany.net/com/cdd/trunk/8.0/plugins/cucumberjvm\:15
cdd.plugins.containerized.{cdd-containerized-id-2}.cucumberjvm.container.volumes.artifacts=/home/
cdd/.cdd/artifacts
cdd.plugins.containerized.{cdd-containerized-
id-2}.cucumberjvm.container.volumes.artifacts.volumes=dependencies\:/home/cdd/.m2
cdd.plugins.containerized.{cdd-containerized-id-2}.cucumberjvm.container.volumes.logs=/home/
cdd/.cdd/logs
```

You also have multiple instances of the same container management platform type, docker. Your settings.properties file includes the following lines:

```
cdd.plugins.containerized.1.platform_provider=docker
cdd.plugins.containerized.2.platform_provider=docker
```

Plug-ins

View information about the available plug-ins.

Plug-ins enable users of third-party solutions to execute Continuous Delivery Director processes and deployments from within the specific solution.

Plug-in Versioning

Plug-in version numbers are incremented if there is a change to the plug-in input/output parameters or a major functionality change. For bug fixes or minor changes, the plug-in minor version number is updated. Version and minor version numbers appear on the **Plug-ins** page for each plug-in. If there is no minor version in the plug-in manifest, the minor version does not appear.

If you import a DSL file containing a plug-in reference, the file import fails in the event of a regular plug-in version mismatch. However, the import does not fail if there is only a minor version mismatch.

On the user interface, the numbering syntax for plug-in versions is <plug-in version>-<minor version>. For example, if the version is 3.5 and the minor version is 2, the plug-in version is displayed as "3.5-2". If there is no minor version, the hyphen and the minor version are not displayed.

In a DSL file, the numbering syntax for minor versions is <plug-in version>/<minor version>. For example:

```
{
    "kind": "TestSource",
    "plugin": "Robot Framework/1.2/7",
},
```

Available Plug-ins

Continuous Delivery Director provides the following plug-ins that are packaged and installable out-of-the-box:

[A] [B] [C] [D] [E] [F] [G] [H] [J] [K] [M] [N] [P] [R] [S] [T] [V]

A

- Atlassian Bitbucket
- Atlassian JIRA
- Apache Tomcat
- Automic® Continuous Delivery Automation
- AWS CodeDeploy
- AWS Elastic Beanstalk
- Azure DevOps Server (formerly Microsoft Team Foundation Server)

B

- BlazeMeter®

C

- Cucumber for Java
- Cucumber for Ruby

D

- Docker
- DX App Experience Analytics
- DX App Synthetic Monitor Plug-in

E

- Email
- Endevor SCM

F

- Flowdock

G

- GitHub
- GitLab
- Gradle Testing

H

- Helm Plug-in

J

- Jenkins
- JetBrains TeamCity
- JFrog Artifactory

K

- Kubernetes

M

- Maven Testing
- Micro Focus ALM
- Microsoft Teams

N

- Nolio Release Automation

P

- Playwright

R

- Rally® (formerly CA Agile Central)
- Red Hat Ansible
- Red Hat Ansible Tower
- Red Hat OpenShift
- REST
- Robot Framework
- Runscope

S

- ServiceNow
- Slack
- SonarQube

T

- TestCafe
- Twistlock

V

- Veracode

Each plug-in has unique characteristics, including:

- Required information for endpoint connections
- Required security for endpoint connections
- Task types
- Import capabilities
- Task input values

This section provides detailed content for each packaged plug-in to help you use its capabilities in your releases.

Apache Tomcat Plug-in

Use this plug-in to deploy WAR files stored in a Maven repository to Tomcat using the Tomcat Web Application Manager.

Plug-in Version 1.4

This plug-in helps you to automatically deploy a built war file to a Tomcat instance. Both Artifactory and Nexus type repositories are supported.

Supported Versions

This plug-in supports Apache Tomcat 8.x.

Download Options

Use one of the following options to download the latest plug-in version:

Method	Info
wget	`wget -O cdd-tomcat-plugin.war https://cspdl.broadcom.com/shared/static/e2shgys90lw0bahngnxcq9fs37h4azr0.war?LCK=ent.box.com`
MD5	`3add51665337e7dc19c86c39f914580e`
Click Download Button	⬇

What's New

The following updates were made for plug-in version 1.4:

- Bugfix: Tomcat plug-in uses the snapshot version of the pom record instead of the snapshot version of the artifact record.

The following updates were made for plug-in version 1.3:

- A new output parameter in the **Deploy Artifact** task, **Artifact URL**, returns a clickable URL to the deployed artifact.

Configuration

Register the plug-in and create endpoints as described in Manage Plug-ins

The URL of the Tomcat manifest for plug-in registration is http://<plugin-server>:<port>/cdd-tomcat-plugin/manifest.json.

Select the **Tomcat** plug-in in the **ADD ENDPOINT** dialog to create an endpoint for the Tomcat plug-in. The following Tomcat information is required wtomhen you create an endpoint:

- **Tomcat URL**
  Enter the Tomcat URL with the target location for the deployed artifact.
  Syntax: `http://${tomcat-server}:${port}`
  > **NOTE**
  > The URL can be specified as `http` or `https`
- **Tomcat Username**
  Specify a user name to authenticate to Tomcat.
- **Tomcat Password**
  Specify a password to authenticate to Tomcat.
- **Maven Repository URL**
  Enter the required Maven repository URL. This is the base URL prefix of the remote artifact repository. For example, `http://artifactory.acme.net/artifactory` or `https://repository.apache.org`.
  > **NOTE**
  > An Artifactory URL must end with: [`/artifactory`]. A Nexus URL must end with: [`/repository`].
- **Repository Name**
  Specify the name of the Maven repository where the project artifacts are stored, for example, maven-repository.
- **Maven Repository Credentials**
  Specify the authentication method for the Maven repository, either Basic or Bearer.
- **Basic**
  - **Maven Repository Username**
    Specify the username to authenticate to the Maven repository.
  - **Maven Repository Password**
    Specify the password to authenticate to the Maven repository.
- **Bearer**
  - **Maven Repository Access Token**
    Specify the Maven repository access token

Deploy Artifact

This task helps you to deploy a Maven artifact in WAR format to a Tomcat container.

Configure the following input parameters:

- **Tomcat Context Path**
  Specify the context path part of the URL under which your application will be published in Tomcat, with or without a preceding slash [/]. For example: [`tomcatPluginApp`] or [`/tomcatPluginApp`].
- **Build Number**
  Specify the build number to be deployed.
- **Artifact Package Group Name**
  Specify the package group of the repository.
- **Artifact Package Name**
  Specify the artifact name.
- **Artifact File Path**
  Specify the path to the folder location where the artifact is stored.
- **Artifact Classifier**

Specify the artifact classifier.

- **Request Timeout in Seconds**
  Specify the request timeout for each operation: download and upload.

Output Parameters

- **Artifact URL**
  Returns the full URL of the specified artifact, either release or snapshot. You can use this URL in the phase or release.

Atlassian Bitbucket Plug-in

This plug-in lets you use Bitbucket as your source control system to retrieve commit messages so you can track planned vs actual work.

Plug-in Version 2.3-1

This plug-in also lets you use Bitbucket as your file source, a connection to a JSON format representation of a release. Additionally, you can also use file sources to manage JSON files that reference other JSON files.

IMPORTANT
Only on-premise Bitbucket instances are supported by this plug-in.

Download Options

Use one of the following options to download the latest plug-in version:

Method	Info
wget	`wget -O cdd-bitbucket-plugin.war https://cspdl.broadcom.com/shared/static/tpkp2jjdp4srqhfbwqdgwbjatgzzujvk.war?LCK=ent.box.com`
MD5	`2cde05dbc47218c095c43cbfe930882b`
Click Download Button	⬇

Change History

The following updates were made for plug-in version 2.3-1:

- Support was added for Bitbucket webhook 7.6. This change allows customers to use BitBucket Data Center 7.6.

The following updates were made for plug-in version 2.3:

- Assorted bug fixes.

The following updates were made for plug-in version 2.2:

- A new **Trust Any SSL Certificate** endpoint parameter lets you allow untrusted and unsigned SSL/TLS certificates.

The following updates were made for plug-in version 2.1:

- A new optional endpoint parameter, **Project Key**, was added.

The following updates were made for plug-in version 2.0:

- You can now use Bitbucket as your source control system to retrieve commit messages so you can track planned vs actual work. To support this change, a Bitbucket **Get Commit Messages** task is now available in the **Set Source Control Connection** page.

The following updates were made for plug-in version 1.1:

- Support was added for Java 11.

Configuration

Register the plug-in and create endpoints as described in Manage Plug-ins

The URL of the Bitbucket manifest for plug-in registration is http://<plugin-server>:<port>/cdd-bitbucket-plugin/manifest.json.

Select the **Bitbucket** plug-in in the **ADD ENDPOINT** dialog to create an endpoint for the Bitbucket plug-in. The following Bitbucket information is required when you create an endpoint:

- **Bitbucket API URL**
  Enter the URL of the remote Bitbucket instance to be used for connection purposes.
  Example: `https://myBitbucket.mycompany.com:7990`
  Note: The URL can be specified as `http` or `https`
- **Username**
  Specify a user name to authenticate to Bitbucket.
- **Password**
  Specify a password to authenticate to Bitbucket.
- **Project Key**
  Specify the project key of the Bitbucket repository.
- **Trust Any SSL Certificate**
  Select this option if you want to allow untrusted and unsigned SSL/TLS certificates.

Get Commit Messages

The Bitbucket plug-in lets you retrieve and parse commit messages. Use this capability when you deploy applications in a release to see the status of related work items.

Optionally, you can configure paths to include and exclude files from the list of changed files that are part of test coverage metrics. For example, you might not want your tests (written in Java) to be counted as files that are not covered.

Follow these steps:

1. In a release, expand the **Apps & Work Items** tree on the left menu, and select the version number.
2. Select **Set Source Control Connection**.
   Note: This option is only enabled if a work item source, such as Rally®, has been configured.
3. Configure the following parameters, then select **Set**:
   - **Source Control** - Select **Bitbucket** and **Get Commit Messages**.
   - **Select Endpoint** - Select a Bitbucket endpoint.
   - **Project Key** - Specify the project key of the Bitbucket repository.
   - **Repository** - Specify the source control repository to bring the commit messages from. This should be the repository that corresponds with the project in the build server that you configure to send notifications to this application version.
     Example: `https://myBitbucket.mycompany.com/[organization]/[Repository]`
   - **Regular Expression** - (Optional) Specify a regular expression with which to parse the commit comments for work item IDs.
   - **Include Path** - (Optional) Specify one or more paths to map the packages and/or classes to include in test coverage.

  Syntax: `app/src/java/**`
- **Exclude Path** - (Optional) Specify one or more paths to map the packages and/or classes to exclude from test coverage.
  Syntax: `app/src/tests/**`

When the source control connection is configured, the plug-in returns a list of commit IDs with the following information:
Note: The list of commit IDs is not visible in the user interface.

- The commit message
- The user who made the commit (author)
- The files that have been changed
- The time of the commit

Get Files

The Bitbucket plug-in lets you use Bitbucket as a file source so that releases are automatically created and run whenever you make changes to the JSON file.

NOTE

To use this capability, first create a top-level folder in the relevant repository with the following name: *CDD-FileSource*. Place all release-related JSON files in this folder.

NOTE
The *CDD-FileSource* folder does not apply if you use file sources to manage JSON files that reference other JSON files.

Follow these steps:

1. From **RELEASES**, select **New File Source**.
2. In **CREATE FILE SOURCE**, configure the following parameters, then select **Create**:
   - **Name** - Specify a name for the file source.
   - **Select Source Control** - Select **BITBUCKET** and **Get Files**.
   - **Project Key** - Specify the project key of the Bitbucket repository.
   - **Repository** - Specify the name of the Bitbucket repository to bring the files from.
   - **Branch** - Specify the branch name.
   - **Releases Created On Behalf Of (API Key)** - Specify the API key of a user on whose behalf future releases will be created.
     Example: The API key of the product owner.
   - **Send Error Notifications To** - Specify one or more recipients to receive error notifications.
3. Save your changes. A **COPY WEBHOOK** popup is displayed containing an auto-generated webhook. This webhook supports the connection between Continuous Delivery Directorand Bitbucket. Copy this webhook and paste it into Bitbucket.

The newly-created file source is added to the **FILE SOURCES** page.

NOTE

More Information

- How to Set Up Webhooks in your Source Control

Atlassian JIRA Plug-in

This plug-in integrates with the issue tracking and project management capabilities that Jira provides.

Plug-in Version 2.4

Download Options

Use one of the following options to download the latest plug-in version:

Method	Info
wget	`wget -O cdd-jira-plugin.war https://cspdl.broadcom.com/shared/static/4xillp8ttzg8wg0eubfta0d8c2432xmg.war?LCK=ent.box.com`
MD5	`5890ac3ce7ade70d4a034c28b17ed58b`
Click Download Button	⬇

Supported Versions

The Jira plug-in supports the following Jira versions:

- 6.0
- 5.0

Capabilities

The Jira plug-in lets you perform the following tasks:

- Import content from a Jira instance into an application version.
- Update application content in Jira from a task in a release.

What's New

The following updates were made for plug-in version 2.4:

- You can now retrieve child issues together with parent issues in one API call if an embed parameter is present in the request. Previously, you could only retrieve parent and child issues in separate API calls. Additionally, the getContent API call is now asynchronous; previously, this API call was synchronized.

The following updates were made for plug-in version 2.3:

- The following issue was resolved: **Import Content Items** failed with an IO Exception: Too many open files error. This error was due the number of file descriptors that were opened exceeding the maximum number of open files permitted.

The following updates were made for plug-in version 1.2.3:

- Support was added for Java 11.

Configuration

Register the plug-in and create endpoints as described in Manage Plug-ins.

The URL of the manifest for Jira plug-in registration is http://<plugin-server>:<port>/cdd-Jira-plugin/manifest.json.

To add an endpoint for the Jira plug-in, select the **Jira** Endpoint Type in the **ADD ENDPOINT** dialog. When you create endpoints, the following Jira information is required:

- **Name**

Specifies the name of the endpoint.
- **URL**
  Specifies the URL to access the Jira instance.
- **User Name**
  Specifies the user name to access the Jira instance.
- **Password**
  Specifies the password to access the Jira instance.
- **Use Proxy**
  {Optional} Determines whether a proxy server is used.
  Note: If selected, the **Proxy Host**, **Proxy Port**, **Proxy Username**, **Proxy Password,** and **Use HTTPS** fields appear.
- **Proxy Host**
  Specifies the HostName or IP for the proxy server.
- **Proxy Port**
  Specifies the port for the proxy server.
- **Proxy Username**
  Specifies the user name for the proxy server.
- **Proxy Password**
  Specifies the password for the proxy server.
- **Use HTTPS**
  Specifies whether the Jira connection uses an SSL connection.
- **Time Out**
  Specifies the time to wait until the operation is complete before timing out, in seconds.

Tasks

The Jira plug-in lets you select one of the following task types:

Note: Each task type requires execution stage information.

> **TIP**
>
> For task fields where you can select a value from the Jira instance, type the @ symbol to receive a list of available values to choose from.

Add Jira Issues Comment

Required Fields:

Issue Key

Specifies the Jira project key that is used for the issue. This is usually the Jira project initials.

Comment

Specifies a comment to add to the specified Jira issue.

Role

Specifies the role that can view the comment. Roles belong to project issues. If null, the default value is all roles. If you select Others, use the Other Role field to define a customized role.

Create Jira Issue

Required Fields:

Input Parameters

Jira Project Key
Specifies the Jira project key that is related to the issue. This is usually the Jira project initials.

Issue Type
Select one of the following issue types that is defined in the project to which the issue belongs:

- Task
- Sub-task
- Story
- Bug
- Epic
  Note: If you select Epic, specify the Epic name.

Epic Name
Specifies the associated epic name in the Jira agile boards. This input is only valid when you select Epic in the Issue Type field.

Summary
Specifies a summary of the issue.

Priority
Specifies the priority level of the issue.

Due Date
Specifies the issue due date in the format YYYY-MM-DD.
Example: 2013-9-29

Show Advanced Settings
Displays the following additional fields:

Affects Versions
Specifies an array of affected versions separated by a semicolon. Each element is a version. Jira lets you track different versions for software projects. You can assign issues to version that are configured in project administration.

Fix Versions
Specifies an array of versions separated by a semicolon. Each element is a version. Jira lets you track different versions for software projects. You can assign issues to version that are configured in project administration.

Assignee
Specifies the issue assignee. This field defaults to the current logon user. Use the user name used to log in instead of the first name and last name values associated with the user.

Reporter
Specifies the issue reporter. This field defaults to the current logon user. Use the user name used to log in instead of the first name and last name values associated with the user.

Environment
Specifies environment details relevant to the issue such as operating system, software platform, or hardware specifications.

Description
Specifies the Jira issue description.

Labels
Specifies an array of issue labels separated by a semicolon. Each element is a label. Labels cannot contain spaces.

Custom Fields
Specifies a list of custom field names and values. The following Jira custom field types and JSON syntax are supported:

- Text Field (single line)

Syntax: `{"field_name":"textual_value"}`
- Select List (single choice)
  Syntax: `{"field_name":"choice_1"}`
- Checkboxes
  Syntax: `{"field_name":["check_1.","check_2"]}`
- Cascade field - A cascading select list with two levels of select lists. What you see in the second select list depends on what you choose in the first select list.
  Syntax: `{"field_name":["Parent Value", "Child Value"]}`. If you want to enter the parent value only, the syntax is `{"field_name":["Parent Value", ""]}` (that is, no space between the double quotes).

Note: If a standard field and a custom field have identical field names, the merged field displays the custom field value.

Values: You can update multiple values in the following JSON syntax:
`{"field1":"value1","field2":"value2"...}`

Examples:

`{"Links":"Reporter","Votes":"Watcher","Updated":"Remaining"}.`

For Cascade: `{"Task Type":["Tests","Run UI Test"]}`

Output Parameters
Note: You can store the returned values in tokens (except for built-in tokens) for use in other release items.

Issue Key
Returns the key of the created issue.
Example: AP-51

Issue ID
Returns the ID of the created issue.

Self Link
Returns the URL of the created issue.

Update Jira Issue Status

Issue Key
Specifies the key that is used for the Jira issue. This is usually the Jira project initials.

Transition I would like to perform
Select from the following transitions:

- Resolve Issue
- Reopen
- Closed
- Start Progress
- Stop Progress
- Start Work
- Stop Work
- Define
- Accept
- Restart Work
- Block
- Complete
- Verified
- Assign
- To Do
- In Progress
- Done
- Others

Resolution
Specifies how the issue is resolved if you are resolving the issue. Select from an available resolution, or add custom codes to the Jira default codes. In some workflows, this field is mandatory. Refer to your Jira workflow configuration.

Comment
Specifies a comment for a reopened issue. In some workflows, this field is mandatory. Refer to your Jira workflow configuration.

Wait for Approval

The **Wait for Approval** task lets you determine that tasks are queued until the completion and approval of a specified issue.

Required Fields:

Jira Issue ID
Specifies the ID of a Jira issue to be completed and approved before the next task starts.

Required Status
Specifies the required status for the selected Jira issue to reach before the next task starts.

Poll Interval
Specifies the length of time in seconds between system requests for the Jira issue status.
Default: 120 seconds

Import Work Items

The Jira plug-in uses the Jira Query Language (JQL), to import Jira work items into a release. Use this capability when you deploy a release to see the related Jira issue information.

Follow these steps:

1. In a release, click the **Work Items** tab on the left menu.
2. Select **Add Work Items**.
   The **ADD WORK ITEMS** window opens.
3. Enter a name for the work items source.

Example: *Jira Feed*

4. Under **Work Items Source**, select the Jira plug-in and a configured Jira endpoint.
5. Provide information in the required parameter fields. You can import the following Jira metadata into a release by entering a JQL query into the **Query** field:
   – **Summary Example:** *summary = issue ID_123456*
   – **Type Example:** *type = bug and status = resolved*
   – **External Id Example:** *External issue ID ~ YourID_123456*
   – **Display Type Example:** *type = status = open*
   – **Status Example:** *status = open and priority = urgent and assignee = jsmith*

Tutorial Video

The following video shows how to configure Continuous Delivery Director integration with Jira:

Automic® Continuous Delivery Automation Plug-in

Release automation is a key component of your continuous delivery pipeline. The Automic Continuous Delivery Automation (CDA) plug-in enables you to apply core CDA deployment modeling (applications, environments, and so on) and deployment capabilities.

This plug-in lets you start both Application and General workflows in CDA directly from the Continuous Delivery Director user interface.

NOTE
This plug-in is available for both on-premise installations and SaaS (through a plug-in proxy).

Plug-in Version 4.1-4

Download Options

Use one of the following options to download the latest plug-in version:

Method	Info
wget	`wget -O cdd-cda-plugin.war https://cspdl.broadcom.com/shared/static/ypqyd6xzz4adfzbwsms9ob2udycx1kxy.war?LCK=ent.box.com`
MD5	`f800052d56365305b70140b2e40b25b5`
Click Download Button	

Change History

The following update was made for plug-in version 4.1-4:

- Bugfix: Internal defect.

The following update was made for plug-in version 4.1-3:

- Bugfix: An ungrammatical error message was generated when the following scenario occured. A CDA task to start an Application workflow ran. However two mutually exclusive options were both configured: provide a package and create a package.

The following updates were made for plug-in version 4.1-2:

- Bugfix: The link in the CDA deployments report under the CDA deployment column was missing. Additionally, the domain name was missing in the link.
- Bugfix: Setting dynamic values in a CDA task generated a 500 internal server error, indicating that the HTTP request could not be fulfilled because an unexpected condition was encountered.

The following updates were made for plug-in version 4.1-1:

- Bugfix: The set build action was performed on the package name instead of on the build number.

The following updates were made for plug-in version 4.1:

- Build numbers are now available as dynamic properties. This change allows you to dynamically update the *`last_successful_change`* property dynamically in CDA with a build number passed from the task in Continuous Delivery Director.

The following updates were made for plug-in version 4.0:

- **Import Application from CDA to Continuous Delivery Director**
  The previous plug-in imported a CDA application as a Continuous Delivery Director application. The new plug-in imports a CDA component as a Continuous Delivery Director application.
  NOTE
  A Continuous Delivery Director application is equivalent to a CDA component and a Continuous Delivery Director business application is equivalent to a CDA application.
- **Create Package**
  In the CD pipeline, each component requires a separate build job, and the package must be created from the artifacts created by all the build jobs.
  The previous plug-in used Jenkins to create the package, meaning that if you wanted to create a CD pipeline, you had to set up a separate package for each component.
  The new plug-in can automatically create packages. If a build of any of the components is ready, the plug-in automatically creates a package and runs the deployment.
- **Build Promotion**
  The previous plug-in performed the set build action on a package and not on a build. Therefore build promotion did not take place per component, but per package instead. Furthermore, a workaround to create a package name was required before build promotion could be used.
  The new plug-in resolves this issue and you can simply use the last successful change of any of the other deployments tools that Continuous Delivery Director supports.
- **Plug-in Downloads**
  The old plug-in was only available from the Automic Marketplace. Users can now download the new plug-in from the Continuous Delivery Director home page.

Supported Versions

The CDA plug-in supports CDA 12.0 and above.

To learn more about CDA, see https://docs.automic.com/documentation

Capabilities

This plug-in lets you perform the following activities:

- Import applications and environments from a CDA instance. You can include all CDA applications and their environments in releases, phases, tasks, and reports.
- Start a workflow in CDA from a task in a release.

Import CDA Applications and Environments

You can import applications and environments from your CDA endpoint to be used in the continuous delivery orchestration pipeline.

NOTE
You must make any changes to the applications or environments directly within your CDA instance.

Continuous Delivery Director converts any imported CDA environments with the same name to a single shared environment.

TIP

Import applications and environments from CDA before using this CDA plug-in.

For more information about the application and environment model import, see Applications and Environments.

Workflows

In CDA, workflows are used to carry out physical deployments. A workflow describes all necessary steps for the deployment of your application.

Workflows consist of a set of tasks or actions, which are organized in a combination of sequential and parallel execution paths, which are combined with conditions, loops, pre-conditions, and post-conditions. Each action can run in parallel or sequentially for one or multiple deployment targets within an environment.

In Continuous Delivery Director, after you configure CDA workflows using the CDA plug-in, you can execute workflows at any time or schedule workflows to run at a specific time. You can monitor the executions to see how the workflows are progressing. You can also take action to influence the execution process, such as rolling back to a specific task, when the execution fails or gets delayed.

The CDA plug-in supports the following types of workflows:

- Application workflows. For more information, see Start Application Workflow.
- General workflows. For more information, see Start General Workflow.

ATTENTION

Application workflows are stored in folders with the application (no separate access control), whereas general workflows are stored in separate folders.

Configure a CDA Plug-in Endpoint

You are familiar with Automic Continuous Delivery Automation (CDA).

You have been granted the **Can create endpoints** permission.

1. Register the plug-in as described in Manage Plug-ins.
   The manifest for the CDA plug-in is `http://<host>:<port>/cdd-cda-plugin/manifest.json`.

2. From the **Administration** menu, click **Endpoints** > **Add Endpoint**.
3. In the **ADD ENDPOINT** dialog, select the **CDA** plug-in.
4. Configure the following endpoint parameters:
   - **CDA URL**
     Specify the URL to the required CDA instance.
   - **Username/Password**
     Specify the credentials of a CDA user (client/name/department and password) with sufficient permissions to execute a CDA application (the equivalent of a Continuous Delivery Director business application) deployment.
5. Click **Test Connection** to check the connection to CDA.
6. Click **Add**.

Start Application Workflow

This task lets you run an Automic Continuous Delivery Automation (CDA) application workflow in the context of Continuous Delivery Director phases and releases.

One or more CDA endpoints are available.

Applications and environments have been imported from CDA.

Application workflows combine and orchestrate different component workflows for complete end-to-end application deployment. You can use application workflows for installations, updates, and removal of one or more components that are involved in deployment for a specific application. To provide a clear structure that is easier to build and to monitor, application workflows are made up of two kinds of workflows:

- **Application deployment workflow**
  Defines the overall process of an application deployment by defining the components which are deployed.
  An application workflow typically has only one main purpose, for example, installing a program, deploying an update, or provisioning a new instance.
- **Component workflow**
  Orchestrates the deployment of an individual component (or parts of it) on one or more deployment targets within an environment. Here you define the steps for the deployment of a single component of an application. You can regard components as the building blocks for application deployment.
  For example, a website may have frontend, backend, and database components. Each component should be independent of the other components so that only those components that have been updated are deployed.

This task creates a package upon build notification and uses the Continuous Delivery Director applications of the task as the component names,

1. In a release, create an automatic task as described in Create Automatic Tasks.
2. Configure the following input parameters:

   TIP

   Values: Applies to the **Application**, **Application Workflow**, **Package**, and **Deployment Profile** properties. To define a value, do one of the following actions:

   - To select from a list of possible values, type an at sign "@" in the field
     Example: *Deploy Tomcat*
   - To select from a list of built-in tokens (reusable placeholders that are used to create generic workflows), type a percent sign "%" in the field
   - Type free text
   - Enter a combination of free text and tokens

- **Application**
  Specify a CDA application name to execute an application workflow. You can find the application names in the **Applications** pane if you imported the CDA deployment model and assigned the relevant applications to the release.
- **Workflow**
  Specify the name of the application workflow to be executed.
- **Provide a Package**
  Specify an existing package to execute an application workflow. A package is an instance (a version, a revision, a tag, and so on) of an application and defines the content to deploy.

  NOTE
  If you enter a package name, you cannot select the **Create a Package?** option.
- **Create a Package?**
  Select this option if you want to create a package to execute an application workflow. The following fields appear:

  NOTE
  If you select this option, you cannot specify a package name in **Provide a Package**.
  - **Package Name Prefix**
    Specify a prefix for the package name. This plug-in appends the current timestamp to this prefix to generate a unique name.
  - **Package Type**
    Specify the package type, such as Deployment, Generic, and so on.
  - **Artifacts**
    Specify the artifacts for the package in JSON format. An artifact is a version of a file to be deployed, located in a specific repository. In a deployment package, an artifact is created for each component. For each component specify the following:
    - **Package Name Prefix**
      Specify a prefix for the package name. This plug-in appends the current timestamp to this prefix to generate a unique name.
    - **Package Type**
      Specify the package type, such as Deployment, Generic, and so on.
    - **Artifacts**
      Specify the artifacts for the package in JSON format. For each component specify the following:
      - `Component Name`
        Component name to assign to package. Specified components must match applications added to this task.
      - `Artifact Source`
        Specify artifact source name from which to retrieve the artifact.
      - `Artifact Name`
        Specify artifact name to include in the package.

      JSON format:

```
{
    "Artifacts": [
        {
            "Component Name": "{component name}",
            "Artifact Source": "{artifact source}",
            "Artifact Name": "{artifact name}"
        }
    ]
}
```

Example:

```
{
    "Artifacts": [
        {
            "Component Name": "Joe-Comp1",
            "Artifact Source": "ArtifactSource",
            "Artifact Name": "PetShop.war"
        }
    ]
}
```

- **Deployment Profile**
  Specify a deployment profile to execute an application workflow. A deployment profile links an application to one specific environment. Typically a profile is an intersection between the application components and the environment deployment targets. The deployment profile is used during the deployment execution and defines the target deployment location.
- **Installation Mode**
  Select one of the following options:
  – **SkipExisting** to only deploy the application on deployment targets where the package has not yet been deployed.
  – **OverwriteExisting** to deploy the package on every deployment target and overwrite existing components.
- **Dynamic Property**
  (Optional). Specify a dynamic property to use as an input parameter for the workflow execution. Select a dynamic property and a value to pass on.
- **Value**
  (Optional). If you have specified a dynamic property to be used as an input parameter for the workflow execution, specify a value to pass on.
- **Additional Dynamic Properties**
  (Optional). Specify additional dynamic properties and values (in JSON format) to pass on.
- **Compensation Parameters**
  Define parameters for a compensation workflow to be executed if the CDA status of the main workflow is *rejected*, *revoked* or *canceled*.
  – **Workflow**
  – **Dynamic Property**
  – **Value**
  – **Additional Dynamic Properties**

3. Configure the following output parameters:
   - **Package Name**
     Specify the package name that is created in CDA.
   - **ExecutionID**
     Specify the ID of the execution.
   - **RunID**
     Specify the run ID in the Automation EngIne.
4. Click **Create**.

Start General Workflow

This task lets you run an Automic Continuous Delivery Automation general workflow in the context of Continuous Delivery Director phases and releases.

One or more CDA endpoints are available.

Applications and environments have been imported from CDA.

General workflows are available as an option for more generic tasks (as the name implies), such as a single starting point for larger-scale process automation, maintenance tasks, or for any action that does not require access to the CDA object model. General workflows are used for generic CDA processes only (such as checking an internal CDA resource). Typically, any actions outside of deployment are executed here.

General workflows are most often used for the orchestration of multiple application deployments alongside other tasks, or for user-triggered maintenance tasks. General workflows do not belong to any CDA application (equivalent to a Continuous Delivery Director business application).

This task lets you orchestrate core CDA activities at a high level. For example, a Continuous Delivery Director release might include multiple applications that you can deploy through the CDA deployment model.

1. In a release, create an automatic task as described in Create Automatic Tasks.
2. Configure the following input parameters:

   TIP

   Values: Applies to the **Application**, **Application Workflow**, **Package**, and **Deployment Profile** properties. To define a value, do one of the following actions:

   - To select from a list of possible values, type an at sign "@" in the field
     Example: *Deploy Tomcat*
   - To select from a list of built-in tokens (reusable placeholders that are used to create generic workflows), type a percent sign "%" in the field
   - Type free text
   - Enter a combination of free text and tokens

- **Workflow**
  Specify the name of the general workflow to be executed.
- **Dynamic Property**
  (Optional). Specify a dynamic property to use as an input parameter for the workflow execution. Select a dynamic property and a value to pass on.
- **Value**
  (Optional). If you have specified a dynamic property to be used as an input parameter for the workflow execution, specify a value to pass on.
  To define a value, perform one of the following actions:
  – To select from a list of possible values, type an at sign "@"
  – To select from a list of built-in tokens (reusable placeholders that are used to create generic workflows), type a percent sign "%"
  – Type free text
  – Enter a combination of free text and tokens
- **Additional Dynamic Properties**
  (Optional). Specify additional dynamic properties and values (in JSON format) to pass on.
- **Compensation Parameters**
  Define parameters for a compensation workflow to be executed if the CDA status of the main workflow is *rejected*, *revoked* or *canceled*.
  – **Workflow**
  – **Dynamic Property**
  – **Value**
  – **Additional Dynamic Properties**

3. Configure the following output parameters:
   - **ExecutionID**
     Specify the ID of the execution.
   - **RunID**
     Specify the run ID in the Automation EngIne.
4. Click **Create**.

AWS CodeDeploy Plug-in

This plug-in lets you deploy to AWS cloud environments from a GitHub repository.

To configure endpoints, see Configure an AWS CodeDeploy Endpoint .

To configure tasks, see Create Deployment (AWS CodeDeploy).

Plug-in Version 2.0

Download Options

Use one of the following options to download the latest plug-in version:

Method	Info
wget	`wget -O cdd-awscodedeploy-plugin.war https://cspdl.broadcom.com/shared/static/k6o510qt4fhbvhmp9foagrmzu569ogpy.war?LCK=ent.box.com`
MD5	`8668b9c8d449eb423738aa7d5994e92b`
Click Download Button	⬇

Supported Versions

The AWS CodeDeploy plug-in supports the core AWS CodeDeploy SaaS solution.

For more information, see the AWS CodeDeploy documentation at https://aws.amazon.com/documentation/codedeploy/

Change History

The following updates were made for plug-in version 2.0:

- Support was added for Amazon S3 buckets as source control repositories in endpoints.
  WARNING
  This plug-in update is not backward compatible. To avoid potential issues, unregister the plug-in, overwrite the war file, and re-register.
- Default values were added to the **Version ID** endpoint parameter.

The following updates were made for plug-in version 1.2:

- Support was added for Java 11.

AWS Elastic Beanstalk Plug-in

The AWS Elastic Beanstalk plug-in lets you deploy web applications from Amazon S3 cloud storage to AWS Elastic Beanstalk application container environments.

NOTE

You can deploy web applications that are packaged in a web application archive (WAR) file.

Plug-in Version 2.1

Download Options

Use one of the following options to download the latest plug-in version:

Method	Info
wget	`wget -O cdd-awselasticbeanstalk-plugin.war https://cspdl.broadcom.com/shared/static/gb16spt5474ve3cxj7alm1bq07u9ngin.war?LCK=ent.box.com`
MD5	`b7f4b05ba0783b8e14cae4e98acf2c3b`
Click Download Button	⬇

Supported Versions

The AWS Elastic Beanstalk plug-in supports the core AWS Elastic Beanstalk SaaS solution.

For more information, see the AWS Elastic Beanstalk documentation at https://docs.aws.amazon.com/console/quickstarts/

What's New

The following updates were made for plug-in version 2.1:

- Support was added for Java 11.

Configuration

Register the plug-in and create endpoints as described in Manage Plug-ins.

Manifest URL

For plug-in registration, use the following AWS Elastic Beanstalk manifest URL:

http://<plugin-server>:<port>/cdd-awselasticbeanstalk-plugin/manifest.json

Endpoint Parameters

The following parameters are required to create an endpoint:

- **Access Key ID**
  Specifies the AWS Access Key ID that provides permission to access the AWS Elastic Beanstalk instance

Example: AKIAIOSFODNN7EXAMPLE
- **Secret Access Key**
  Specifies the AWS secret access key that is used to access the AWS Elastic Beanstalk instance
  Example: wJalrXUtnFEMI/K7MDENG/bPxRfiCYEXAMPLEKEY
- **AWS Region**
  Specifies the AWS region
  Example: eu-west-1
- **Source**
  Specifies the source type
  Example: S3
- **S3 Bucket**
  Specifies the name of the Amazon S3 bucket that is used to cache your source archives

To check the connection to AWS Elastic Beanstalk and to Amazon S3, use the endpoint **Test Connection** option. The **Test Connection** option returns the following results:

- **Success**
  Both connections were successful
- **Failure**
  One or more connections failed

Tasks

The following task types are available in the AWS Elastic Beanstalk Plug-in:

Deploy

The Deploy task contains the following fields:

Input Parameters

- **Application Name**
  Specifies the logical name of the application as the name appears in your Amazon S3 account
  Values: Free text, or a combination of text and tokens
  Note: For a list of available values, enter the commercial at sign (@). For a list of available tokens, enter the percent sign (%)
- **Environment Name**
  Specifies the name of the AWS Elastic Beanstalk environment to update
  Values: Free text, or a combination of text and tokens
  Note: For a list of available values, enter the commercial at sign (@). For a list of available tokens, enter the percent sign (%)
  Example: Tomcat 8
- **S3 Key**
  Specifies the WAR file name or a folder name as these items appear in your Amazon S3 account
- **Values:** Free text, or a combination of text and tokens
  Note: For a list of available tokens, enter the percent sign (%)
- **Build Number**
  Specifies the build number that is associated with the selected WAR file
  Values: Free text, or a combination of text and tokens
  Note: For a list of available tokens, enter the percent sign (%)
- **Description**
  (Optional) Specifies a description of the deployment

Output Parameters

- **Application URL**Specifies the URL of the deployed application
  Values: Free text or a combination of text and tokens
  Note: For a list of available tokens, enter the percent sign (%).

Tutorial Videos

Configuration

The following video shows how to configure Continuous Delivery Director integration with AWS Elastic Beanstalk:

Azure DevOps Server Plug-in

Plug-in Version 1.1-2

This plug-in synchronizes work items between Azure DevOps Server (formerly Team Foundation Server (TFS) and Visual Studio Team System (VSTS) and Continuous Delivery Director. This integration allows Azure DevOps Server to be used as any other content source for a release in Continuous Delivery Director.

Content synced includes features, epics, code review requests, tasks, test cases, and bugs. You can also import content into Continuous Delivery Director from Azure DevOps Server.

Method	Info
wget	`wget -O cdd-tfs-plugin.war https://cspdl.broadcom.com/shared/static/nb4twkai3laqb513vueq0it6asteptz3.war?LCK=ent.box.com`
MD5	`0b9f9e073b58022eb61920d2ca46db75`
Click Download Button	

Supported Versions

The TFS plug-in supports TFS 2017, TFS 2018, Azure DevOps Server 2019 and above, Azure DevOps Services (Cloud).

To learn more about Azure DevOps Server, see https://azure.microsoft.com/en-us/services/devops/server/

Capabilities

The Azure DevOps Server supports the following capabilities:

- Release Tasks
  - Run Build
  - Create Work Item
  - Update Work Item
  - Wait for Approval
- Get Files
- Import Work Items

Change History

The following updates were made for plug-in version 1.1-2:

- A **Get Commit Messages** task was added to the **Set Source Control Connection** feature. This task lets you use Azure DevOps Server to retrieve and parse commit messages. Use this capability when you deploy applications in a release to see the status of related work items and to compare planned and actual work items.
- You can now retrieve parent work items together with child work items. Use this capability when comparing planned and actual work items.

The following updates were made for plug-in version 1.1:

- You can now use TFS/VSTS as a file source so that releases are automatically created and run whenever you make changes to the JSON file.
- A new endpoint parameter has been added, **TFS Version**.

The following updates were made for plug-in version 1.0.3:

- Support was added for Java 11.

Configure an Azure DevOps Server Endpoint

Enable communication and synchronization of assets between Azure DevOps Server and Continuous Delivery Director.

You are familiar with Azure DevOps Server (formerly Team Foundation Server (TFS) and Visual Studio Team System (VSTS).

You have been granted the **Can create endpoints** permission.

1. Register the plug-in as described in Manage Plug-ins.
   The manifest for the Azure DevOps Server plug-in is `http://<host>:<port>/cdd-tfs-plugin/manifest.json`.
2. From the **Administration** menu, click **Endpoints** > **Add Endpoint**.
3. In the **ADD ENDPOINT** dialog, select the **Azure DevOps Server** plug-in.
4. Configure the following endpoint parameters:
   - **URL**
     Enter the URL of your Azure DevOps Server machine or Azure DevOps Services instance.
   - **Collection**
     Enter the name of your team project collection (a group of team projects).
   - **Authentication Type**
     Select one of the following methods to authenticate to the TFS service:
     – **Personal Access Token**
     – **NTLM**
     For Personal Access Token
     – **Azure DevOps Server Username**
       Enter the user name to authenticate to the Azure DevOps Server service.
     – **Personal Access Token**
       Enter your personal access token to authenticate to the TFS service.
     For NTLM
     – **Azure DevOps Server Username**
       Enter the user name to authenticate to the Azure DevOps Server service.
     – **Azure DevOps Server Password**
       Enter your password to authenticate to the Azure DevOps Server service.
     – **Domain**
       Enter the Azure DevOps Server domain.

  Example: `ca.com`

- **Version**
  Select an option:
  – (Default) **TFS 2018 Update 3**

5. Click **Test Connection** to check the connection to Playwright.
6. Click **Add**.

Import Work Items (Azure DevOps Server)

The Azure DevOps Server plug-in lets you sync work items between Azure DevOps Server and Continuous Delivery Director releases. Use this capability when you create a release to see the related Azure DevOps Server information.

You have configured an endpoint between Azure DevOps Server and Continuous Delivery Director as described in Configure an Azure DevOps Server Endpoint.

You can also connect applications to Azure DevOps Server to see which work items are being developed and entering your release pipeline on every notification arrival from your build server. To set up this configuration, follow the instructions in Set Work Items Connection.

1. In a release, click the **Work Items** tab on the left menu.
2. Select **Add Work Items**.
   The **ADD WORK ITEMS** window opens.
3. Select **External Items**.
4. Enter a name for the work items source.
   `Azure Feed`
5. Under **Work Items Source**, select the **Azure DevOps Server** plug-in and a configured **Azure DevOps Server** endpoint.
6. In **Import Using**, select either **Filter** or **WIQL**. **WIQL** lets you write queries in Work Item Query Language to import content.
7. Provide information in the required parameter fields. These fields let you build a query that searches Azure DevOps Server for work items that match the specified criteria.

   WIQL

   - **Query**
     Specify a WIQL query to import work items. For example:
     ```
     SELECT [System.ID],[System.WorkItemType],[System.Title],[System.State]
     FROM WorkItems
     WHERE [System.TeamProject] = 'TFS Demo'
     ```

   Filter

   Use the following fields to filter the work item import results:

   > **TIP**
   > **Values:** To select from a list of possible values, type an at sign "@" in the field. You cannot combine values with free text or tokens. Applies to all fields except **Work Item Tags**.

   - **Team Project**
     Specify the name of the Azure DevOps Server team project that contains the content you want to import. Type an at sign "@" to select from a list of team projects in the Azure DevOps Server endpoint. Type the at sign "@" in other fields to select from a dynamic list of entities that are associated with the selected team project.

Values: An alphanumeric string.
- – Must not contain any Unicode control characters or surrogate characters
- – Must not contain the following characters: `/ : \ ~ & % ; @ ' " ? < > | # $ * } { , + = [ ]`
- – Must not start with an underscore (_)
- – Must not start or end with a period (.)

- **Area Path**
  Specify the area path that is defined for the team project.
- **Iteration Path**
  Specify the iteration path that is defined for the team project.
- **Work Item Type**
  Specify the type of work item that you want to import.
- **Work Item State**
  Specify the work item states to import. This field lets you filter what is imported based on the state.
  Example: Import only work items that are in the **Done** state.
- **Work Item Tags**
  Specify the work item tags stored in Azure DevOps Server. This field lets you filter what work items are imported as long as the items contain at least one specified tag.

8. Select **Create**.

The content source is saved and a list of the returned work items is displayed under the application in the left menu. These work items are now available to assign to tasks in phases to associate with the release.

Get Files (Azure DevOps Server)

Use Azure DevOps Server as a file source so that releases are automatically created and run whenever you make changes to a JSON file in source control.

- You have configured an endpoint between Azure DevOps Server and Continuous Delivery Director as described in Configure an Azure DevOps Server Endpoint.
- You have created a top-level folder in the relevant repository in Azure DevOps Server with the following name: `CDD-FileSource` and placed all release-related JSON files in this folder.

1. Do one of the following:
   - From **RELEASES**, click **File Source**, then **New File Source**.
   - From the **Administration** menu, click **File Sources**, then **New File Source**.
2. In **CREATE FILE SOURCE**, configure the following parameters:
   - **Name**
     Enter a name for the file source.
   - **Select Source Control**
     Select **Azure Devops Server** and **Get Files**.
   - **Select Endpoint**
   - **SCM Type**
     Select either Git or TFVC, according to the source control management system used in Azure Devops Server.
   - **Project**
     Specify a Azure Devops Server project name or ID.
   - **Repository**
     Specify the name of the Azure Devops Server repository from which to import the files.
   - **Branch**

Specify a branch used by the specified project. To allow processing of webhook notifications from all repository branches, keep this field empty.

- **Releases Created On Behalf Of (API Key)**
  Specify the API key of a user on whose behalf future releases will be created. For example, the API key of the product owner.
- **Send Error Notifications To**
  Specify one or more recipients to receive error notifications.

3. Click **Create**.

   A **COPY WEBHOOK** popup is displayed containing an auto-generated webhook.
4. Copy this webhook and paste it into Azure Devops Server.

The newly-created file source is added to the **FILE SOURCES** page.

NOTE
For more information, seeHow to Set Up Webhooks in your Source Control.

Run Build (Azure DevOps Server)

Run Azure DevOps Server project builds in the context of Continuous Delivery Director phases and releases.

One or more Azure DevOps Server endpoints are available.

1. In a release, create an automatic task as described in Create Automatic Tasks.
2. Configure the following parameters:

   TIP

   Values: To define a value, do one of the following actions:

   - To select from a list of possible values, type an at sign "@" in the field
     Example: *Deploy Tomcat*
   - To select from a list of built-in tokens (reusable placeholders that are used to create generic workflows), type a percent sign "%" in the field
   - Type free text
   - Enter a combination of free text and tokens

   Input Parameters

   - **Project Name**
     Specify the name of an Azure DevOps Server team project.
   - **Build Definition Name**
     Specify the name of an Azure DevOps Server build definition related to the specified project.
   - **Ignore Warnings**
     Determine whether warnings are suppressed at the build level.
   - **Agent Queue**
     Specify the agent queue used by the specified build definition.
   - **Branch**
     Specify the version control branch used by the project.
   - **Parameters**
     Specify the parameters for an Azure DevOps Server parametrized build to pass to the specified build configuration. Define the parameters in JSON format. Syntax:
     `{"param1":"value", "param2":"value" }`

Output Parameters

- **Build Number**
  Returns the ID of the build that was run.
- **Build Result**
  Returns the status of the build that was run.
- **Source Version**
  Returns a link to the change-set of the build.

3. Click **Create**.

Create Work Item (Azure DevOps Server)

Create a work item and return the work item ID for future use.

One or more Azure DevOps Server endpoints are available.

1. In a release, create an automatic task as described in Create Automatic Tasks.
2. Configure the following parameters:

   TIP

   Values: To define a value, do one of the following actions:

   - To select from a list of possible values, type an at sign "@" in the field
     Example: *Deploy Tomcat*
   - To select from a list of built-in tokens (reusable placeholders that are used to create generic workflows), type a percent sign "%" in the field
   - Type free text
   - Enter a combination of free text and tokens

   Input Parameters

   - **Team Project**
     Specify the name of an Azure DevOps Server team project where you want to create the work item.
   - **Work Item Type**
     Specify the type of work item that you want to create.
     NOTE
     (For Azure DevOps Services) Enter a valid Azure DevOps Services work item type. This field is case-sensitive.
   - **Work Item Title**
     Specify the name of the work item that you want to create.
   - **Work Item Tags**
     Specify the work item tags to be added to the work item that you want to create. Use simple text and separate multiple tags with commas. Syntax: `tag1, tag2, ...`
   - **Additional Fields**
     Specify one or more "field name":"value" pairs. You can update multiple fields using the following format: {"field1":"value1","field2":"value2"…}. You can use this parameter for both standard and custom fields. For example, `{"System.Description": "Follow the code samples from MSDN"}`

   Output Parameters

   - **Work Item ID**
     Specifies the ID of the newly-created work item.

3. Click **Create**.

Update Work Item (Azure DevOps Server)

Update an existing work item with customized fields.

One or more Azure DevOps Server endpoints are available.

1. In a release, create an automatic task as described in Create Automatic Tasks.
2. Configure the following parameters:

   TIP

   Values: To define a value, do one of the following actions:

   - To select from a list of possible values, type an at sign "@" in the field
     Example: *Deploy Tomcat*
   - To select from a list of built-in tokens (reusable placeholders that are used to create generic workflows), type a percent sign "%" in the field
   - Type free text
   - Enter a combination of free text and tokens

   Input Parameters

   - **Work Item IDs**
     Specify one or more IDs of work items to update. Separate multiple IDs with commas.
     NOTE
     The fields to update must be common to all work items you list here.
   - **Fields to Update**
     Specify one or more "field name":"value" pairs. You can update multiple fields using the following format: {"field1":"value1","field2":"value2"…}. You can use this parameter for both standard and custom fields. For example: `{"System.Description": "Follow the code samples from MSDN"}`
3. Click **Create**.

Wait for Approval (Azure DevOps Server)

Determine what tasks are queued until the completion and approval of a specified work item.

One or more Azure DevOps Server endpoints are available.

1. In a release, create an automatic task as described in Create Automatic Tasks.
2. Configure the following parameters:

   TIP

   Values: To define a value, do one of the following actions:

   - To select from a list of possible values, type an at sign "@" in the field
     Example: *Deploy Tomcat*
   - To select from a list of built-in tokens (reusable placeholders that are used to create generic workflows), type a percent sign "%" in the field
   - Type free text
   - Enter a combination of free text and tokens

   Input Parameters

- **Work Item ID**
  Specify the ID of a work item to be completed and approved before the next task starts.**Note:** (For VSTS) Enter a valid VSTS work item type. This field is case-sensitive.
  NOTE
  (For Azure DevOps Services): Enter a valid Azure DevOps Services work item type. This field is case-sensitive.
- **Required State**
  Specify the required state for the selected work item to reach before the next task starts.
- **Poll Interval**
  Specify the length of time in seconds between system requests for the work item state. Default: **120 seconds**

3. Click **Create**.

BlazeMeter® Plug-in

The BlazeMeter plug-in lets you run load and performance tests as part of your releases. This plug-in also lets you import test suites from BlazeMeter to run Adaptive Testing tasks.

Plug-in Version 3.7-1

This plug-in automatically registers the BlazeMeter load testing capabilities with Continuous Delivery Director.

Watch the following video for a summary of how Continuous Delivery Director works with the BlazeMeter plug-in:

Download Options

Use one of the following options to download the latest plug-in version:

Method	Info
wget	`wget -O cdd-blazemeter-plugin.war https://cspdl.broadcom.com/shared/static/942ic59jaoq9ytym4xe6yufkbz5dgxbi.war?LCK=ent.box.com`
MD5	`a028a67d4573fad27e2f0624ca28930d`
Click Download Button	⬇

Supported Versions

The BlazeMeter plug-in supports the core BlazeMeter SaaS solution.

For more information, see the BlazeMeter documentation at https://guide.blazemeter.com/

Change History

The following update was made for plug-in version 3.7-1:

- Bugfix: When the plug-in was deployed onto multiple hosts, the log files were overwritten because all instances wrote to the same log file.

The following update was made for plug-in version 3.7:

- A new execution parameter, **Enable JMeter Parameters**, was added to the **Get Test Assets** (import tests/test suites) function in the **Adaptive Testing Catalog**. This parameter lets you import BlazeMeter tests with the `taurus` configuration type with a `JMeter` executor.
- The`cdd_BlazeMeter_plugin.log` file was renamed as `cdd-blazemeter-plugin.log`.

The following updates were made for plug-in version 3.6:

- Four optional filter fields were added to the **Get Test Assets** (import tests/test suites) function in the **Adaptive Testing Catalog**:
  - **Test Configuration Type**
  - **Test Execution Type**
  - **Test Script Type**
  - **Test Executor Type**

  These filters are available for the **Test** option only and are not applicable to the **Multi Test** option.
- Users can now view a BlazeMeter report without logging in to BlazeMeter.
- A new dynamic endpoint parameter, **Use Proxy**, was added. This parameter determines whether to use a proxy server.
- Support was added for the enhanced API key authentication. To support this enhancement, two new parameters were added to the **Authentication Type** field, **API Key ID** and **API Key Secret**.

The following updates were made for plug-in version 3.1:

- Support for the test advisor was enhanced. This plug-in can now recognize new and updated test suites.

The following updates were made for plug-in version 2.3:

- Support was added for Java 11.

Configuration

Register the plug-in and create endpoints as described in Manage Plug-ins.

Manifest URL

For plug-in registration, use the following BlazeMeter manifest URL:

http://<plugin-server>:<port>/cdd-blazemeter-plugin/manifest.json

Endpoint Parameters

The following parameters are required to create an endpoint:

- **Name**
  Specify the name of the endpoint.
- **URL**
  Specify the URL that is used to access the BlazeMeter instance.
  Default: https://a.blazemeter.com
- **Authentication Type**
  Select one of the following methods to authenticate to the BlazeMeter service:

  > **NOTE**
  > For more information on API keys, see the BlazeMeter documentation.

  - **Legacy**
  - **Advanced**

  For Legacy only
  - **API Key**

Specify the unique identifier for the BlazeMeter user.
Values: A string of alphanumeric characters.

For Advanced only

– **API Key ID**
Specify the enhanced BlazeMeter API Key ID.
– **API Key Secret**
Specify the enhanced BlazeMeter API Key Secret.

- **Use Proxy**
{Optional} Determines whether a proxy server is used
Note: If selected, the **Proxy Server URL**, **Proxy Server Username**, and **Proxy Server Password** fields appear.
  – **Proxy Server URL**
  Specify the web address that is used to access the proxy server
  – **Proxy Server Username**
  {Optional} Specify the username that is used to authenticate to the proxy server
  – **Proxy Server Password**
  {Optional} Specify the password that is used to authenticate to the proxy server

Test Failure Criteria

You can define test failure criteria in BlazeMeter to set your test pass / fail criteria for various metrics, such as response times, errors, hits/s, test duration, and so on.

If test failure criteria have been defined in BlazeMeter, Continuous Delivery Director will show test pass/fail results of BlazeMeter tests. If test failure criteria have **not** been defined in BlazeMeter, Continuous Delivery Director will always show the tests as passed. In BlazeMeter, the test results appear as **not set**.

Tasks

The following task types are available in the BlazeMeter plug-in:

TIP

To select from a list of available BlazeMeter Values, enter the commercial At symbol (@) in the task field.

Run Test

The Run Test task requires the following fields:

- **Workspace**
Specify the name of the workspace to which the test creator belongs
- **Project**
Specify the project where the test is defined
- **Test**
Specify the test to run

Run Collection

The Run Collection task requires the following fields:

- **Workspace**
Specify the name of the workspace to which the test collection belongs
- **Project**
Specify the project where the test is defined
- **Collection**

Specify the test collection to run

Get Test Assets

This plug-in lets you import test suites into the Adaptive Testing Catalog.

Follow these steps:

1. Select **Tests**, then **Adaptive Testing Catalog**.
2. Specify the **Application** and the **Application Version**. The menu next to the application name and version is activated.
3. Select **Get Test Assets**.
4. Fill in the following fields:
   - **Test Source Name**
   - **Plug-in**
     Select **BlazeMeter** and **Import Test Suites.**
   - **Endpoint**
     Select a BlazeMeter endpoint.
   - **Workspace Name**
     Specify the name of the BlazeMeter workspace where the test suites you want to import are located.
   - **Project Name**
     Specify the name of the BlazeMeter project where the test suites you want to import are located. If left empty, test suites will be imported from all sub-projects.
   - **Type**
     Select either **Test** to import a specific test suite or **Multi Test** to import multiple test suites. If you select **Test**, the following filters appear:
     - **Test Configuration Type**.
       Possible Values: "external", "externalFunctionalMobile", "followme", "functionalApi", "functionalGui", "http", "jmeter", "taurus", "webdriver"
     - **Test Execution Type**
       Possible Values: "blazemeterImage", "taurusCloud"
     - **Test Script Type**
       Possible Values: "jmeter", "selenium", "taurus"
     - **Test Executor Type**
       Possible Values: "gatling", "grinder", "jmeter", "locust", "newman", "pbench", "selenium", "siege", "taurus", "tsung"
   - **Is Public Report**
     Select this option to enable users to access a link to the test report without logging in to BlazeMeter.
   - **Enable JMeter Parameters**
     Select this option to enable the **Jmeter Parameters** text box.

     NOTE
     This option is applicable for BlazeMeter tests with the`taurus` configuration type with a `JMeter` executor.
     - Specify a JSON array of "key"/"value" pairs. On execution, the BlazeMeter test source sets the JMeter properties of all taurus tests with a JMeter executor to this JSON array.
   - **Tags**
     Select one or more tags to execute test suites tagged with your selection. Leave empty to execute all the test suites under the application version.
     Example: Type `bl` to retrieve all test suites tagged with labels beginning with *bl*, such as *blazemeter.sanity.test*

Cucumber for Java Plug-in

This plug-in lets you easily add Cucumber Java-based features as test suites to your release pipeline.

Plug-in Version 1.4.1-4

This plug-in integrates with Cucumber-JVM, a pure Java implementation of Cucumber. The Cucumber for Java plug-in is containerized and supports Adaptive Testing functionality. You can import features from Cucumber-JVM to run as test suites within release pipelines. This plug-in provides you with a Cucumber test automation framework for Java-based Git and SVN builds that is open-source and application-independent.

Download Options

Use one of the following options to download the latest plug-in version:

Method	Info
wget	`wget -O cdd-cucumberjvm-plugin-v1.4.1-4b115.tar.gz https://cspdl.broadcom.com/shared/static/hr9mykdy7wwrg287ns1eumuua6obhikx.gz?LCK=ent.box.com`
MD5	`c5d1dd52e8c68f72601431219d3393df`
Click Download Button	⬇
Download Docker Image from Customer Support Portal	Yes
Download TAR file from Customer Support Portal for customers who cannot use `docker pull`	Yes

Change History

The following update was made for plug-in version 1.4.1-4:

- You can now specify system properties when importing test suites. To support this change, a **System Properties** input parameter was added to the **Get Test Assets** task.

The following updates were made for plug-in version 1.4.1-3:

- You can now specify the location of the settings-security.xml file. This improvement is essential in environments where users do not have control over the home directory (such as a continuous integration farm, where each project may have its own settings.xml configuration except for settings-security.xml). To support this change, a **Settings Security File Path** input parameter was added to the **Get Test Assets** task.
- When a **Get Test Assets** task fails, the error message now contains a URL linking to the import log file. This enhancement helps users trace the root cause of a task failure. Previously, the error message did not contain full information for troubleshooting purposes.

The following update was made for plug-in version 1.4.1-2:

- Bugfix: When test execution failed for a Cluecumber custom report, the link to the associated report was not generated.

The following update was made for plug-in version 1.4.1-1:

- Support was added for custom SSL TrustStore files. These files contain only those certificates trusted by the client. These certificates are CA root certificates, that is, self-signed certificates.

The following update was made for plug-in version 1.4.1:

- A new execution parameter, **Custom Reports**, has been added to the **Get Test Assets** task, with the following options, **Default**, **Maven Cucumber Reporting**, and **Cucumber**. This field lets you store and present custom cucumber reports based on the project pom.xml settings.

The following update was made for plug-in version 1.3.2:

- Support was added for importing Cucumber JVM repositories with multiple projects. To support this enhancement, two new import parameters have been added to the **Get Test Assets** task: **Settings File Path** and **Update Snapshots**.

The following update was made for plug-in version 1.3.1:

- Bugfix: A missing Maven POM file error was invoked when trying to import from a subfolder.

The following updates were made for plug-in version 1.3:

- Two new parameters, **Settings File Path**, and **Update Snapshots** were added to the **Run Adaptive Testing** task.
- Bugfix: Import test suites failed, because of missing Two new parameters, **Settings File Path**, and **Update Snapshots** were added to the **Run Adaptive Testing** task.

The following update was made for plug-in version 1.2:

- A new parameter, **Cucumber Tags** was added to the **Run Adaptive Testing** task.

The following update was made for plug-in version 1.1:

- Support was added for missing values in 1.x report.

Prerequisites

- A Linux machine is provisioned with Docker Engine installed and an OS user has been created whose `UID/GID` are `1010/1010` and a `home` folder created at `/home/cdd/`. For more information, see Set Up Containerized Plug-ins.
- The docker remote API port (4550) is open. For more information, see Set Up Containerized Plug-ins.
- A Tomcat 8.5 server is installed with the `containerized-manager` plug-in deployed.
- The Tomcat server is owned and run by an OS user whose `UID/GID` are `1010/1010` .
- You are working with JVM (Java Virtual Machine) 8 or 11.

Set Up the Cucumber Plug-in

1. Connect to support.broadcom.com with your Broadcom support account and continue to https://support.broadcom.com/enterprise-software/download-center.
2. Select either **Continuous Delivery Director** or **Continuous Delivery Director** SaaS and click the Docker button. Follow the on-screen instructions to pull the image to your localhost.
3. In the `settings.properties` file under `/home/cdd/.cdd/conf/`, add the following lines:

```
cdd.plugins.containerized.cucumberjvm.container.image_name=cdd.packages.ca.com/com/ca/cdd/v720/7.2/
plugins/cucumber:51
cdd.plugins.containerized.cucumberjvm.container.volumes.artifacts.volumes=dependencies:/home/cdd/.m2
```

4. Restart the containerized-manager service.
5. Register the new plug-in using the following manifest URL: `http://<plugin-server>:<port>/containerized/plugins/cdd-cucumberjvm-plugin/manifest.json`.

Configure the Cucumber Plug-in

You configure the Cucumber plug-in either for the initial setup, or whenever a change to the test build configuration is required.

Endpoint Parameters

The following parameters are required to create an endpoint:

- **Build Tool**
  Specify the tool used to manage your project builds.
- **Version Control System**
  Specifies the version control system where your source project resides.
- **Git/SVN Project URL**
  Specify the URL to access the Git or SVN project repository.
- **Git/SVN Username**
  Specify the user name to access GitHub or SVN
- **Git/SVN Password**
  Specify the password to access GitHub or SVN

To check the connection to Cucumber and to the version control system, select **Test Connection**. The **Test Connection** action returns the following results:

- **Success**
  The connection was successful
- **Failure**
  The connection failed

Tasks

The Cucumber plug-in supports the **Run Adaptive Testing** task type.

Prerequisites:

- One or more application versions are specified.
- One or more Cucumber test suites exist for the application versions specified.

Branch

Specify the branch name.

Features Folder

Specify the relative path of the folder where the required features are located. The specified folder path must be relative to the project base directory.

Glue

Specify the glue for the features.

Cucumber Tags

(Optional) Specify a list of cucumber tags.

Example:

(@Demo or @Sanity) and not @Ignore

Settings File Path

(Optional) Specify an alternate path for the `user settings.xml` file.

Update Snapshots

(Optional) Select to force a check for missing releases and updated snapshots on remote repositories.

JVM Parameters

(Optional) Specify space-separated JVM parameters to customize individual instances.

Example: `\"-Dtest.HOST=google.com\"` - Overrides the IP address or hostname of URL used by the browser to execute tests. To enable detailed error and debug logs, add switches such as `-X` and `-e`.

Get Test Assets (Cucumber for Java)

This plug-in lets you import test suites into the Adaptive Testing Catalog.

1. Select **Tests**, then **Adaptive Testing Catalog**.
2. Specify the **Application** and the **Application Version**. The menu next to the application name and version is activated.
3. Select **Get Test Assets**.
4. Fill in the following fields:

> **NOTE**
> Use the @ symbol in the following fields to select from a dynamic list of entities associated with the selected project.

- **Test Source Name**
- **Plug-in**
  Select **Cucumber JVM** and **Import Tests (Cucumber JVM).**
- **Endpoint**
  Select a Cucumber JVM endpoint.
- **Project Base Directory**
  Specify the relative path to the project base directory. This is the location of the project pom.xml. Default is . which is the project root folder.
- **Branch**
  Specify the branch name.
- **Features Folder**
  Specify the relative path of the folder where the required features are located. Features are the equivalent of test suites. The specified folder path must be relative to the project base directory.
- **Glue**
  Specify the glue for the features.
- **Cucumber Tags**
  (Optional) Specify a list of cucumber tags.
  Example:
  (@Demo or @Sanity) and not @Ignore
- **Settings File Path**
  (Optional) Specify an alternate path to the `user settings.xml` file.
- **Settings Security File Path**
  (Optional) Specify an alternate path to the `settings-security.xml` file.
- **Update Snapshots**
  (Optional) Select this option to force a check for missing releases and updated snapshots on remote repositories.
- **System Properties**

(Optional) Specify a Java system property to include information about the current configuration.
Example: To configure all security-related debugging options, enter the string: `\"-Djava.security.debug=all\"`. To enable detailed error and debug logs, add switches such as `-X` and `-e`.
- **JVM Parameters**
  (Optional) Specify space-separated JVM parameters to customize individual instances.
  Example: `\"-Dtest.HOST=google.com\"` - Overrides the IP address or hostname of URL used by the browser to execute tests. To enable detailed error and debug logs, add switches such as `-X` and `-e`.
- **Tags**
  Select or create one or more tags to label the imported tests.

The test results for the specified build appear on the **Adaptive Testing Results** page, together with links to the associated reports in Cucumber JVM.

Cucumber for Ruby Plug-in

This plug-in lets you easily trigger Cucumber acceptance tests automatically from your releases.

Cucumber is a popular tool that developers use for testing software. Cucumber executes test specifications written in a human-readable language called Gherkin and produces reports indicating whether the software behaves according to the specification.

The Cucumber plug-in is containerized and supports Adaptive Testing functionality. This plug-in provides you with a Cucumber test automation framework for Git builds that is open-source and application-independent.

Plug-in Version 1.4:

Download Options

Use one of the following options to download the latest plug-in version:

Method	Info
wget	`wget -O cdd-cucumberruby-plugin-v1.4b121.tar.gz https://cspdl.broadcom.com/shared/static/qwvntjmiq9wg45jhooudr8jld0cthwer.gz?LCK=ent.box.com`
MD5	`2945272e55b7c19734d96ef9065e4f75`
Click Download Button	
Download Docker Image from Customer Support Portal	Yes
Download TAR file from Customer Support Portal for customers who cannot use `docker pull`	Yes

Prerequisites

- A Linux machine is provisioned with Docker Engine installed and an OS user has been created whose `UID/GID` are `1010/1010` and a `home` folder created at `/home/cdd/`. For more information, see Set Up Containerized Plug-ins.
- The docker remote API port (4550) is open. For more information, see Set Up Containerized Plug-ins.
- A Tomcat 8.5 server is installed with the `containerized-manager` plug-in deployed.
- The Tomcat server is owned and run by an OS user whose `UID/GID` are `1010/1010` .

What's New

The following updates were made for plug-in version 1.4:

- The plug-in name was changed to Cucumber for Ruby. This plug-in supersedes the previous Cucumber plug-in.
- This plug-in now executes all the test suites that are selected by the Test Advisor in batch mode. Additionally, if the user decides to run all tests, all test suites are run in batch mode, regardless of whether the test suites are selected by the Test Advisor.
- Support for Apache Subversion repositories was added.

Set Up the Cucumber Plug-in

1. Connect to support.broadcom.com with your Broadcom support account and continue to https://support.broadcom.com/enterprise-software/download-center.
2. Select either CONTINUOUS DELIVERY DIRECTOR or CONTINUOUS DELIVERY DRCTR SAAS and click the Docker button. Follow the on-screen instructions to pull the image to your localhost.
3. Create the following folder structure under the user `/home/cdd/` directory:

```
mkdir /home/cdd/.cdd
mkdir /home/cdd/.cdd/logs
mkdir /home/cdd/.cdd/conf
mkdir /home/cdd/.cdd/artifacts
mkdir /home/cdd/.cdd/certificates
```

4. Create a `settings.properties` file under `/home/cdd/.cdd/conf/` and add the following lines:

```
cdd.plugins.containerized.container_engine.home_folder=/home/cdd/.cdd
cdd.plugins.containerized.container_engine.port=4550
cdd.plugins.containerized.container.volumes.artifacts=/home/cdd/.cdd/artifacts
cdd.plugins.containerized.container.volumes.logs=/home/cdd/.cdd/logs
cdd.plugins.containerized.cucumber.container.image_name=cdd.packages.ca.com/com/ca/cdd/v720/7.2/plugins/
cucumberruby:101
```

5. Restart the containerized-manager service.
6. Register the new plug-in using the following manifest URL: `http://<plugin-server>:<port>/containerized/plugins/cdd-cucumber-plugin/manifest.json`.

Configure the Cucumber Plug-in

You configure the Cucumber plug-in either for the initial setup, or whenever a change to the test build configuration is required.

Endpoint Parameters

The following parameters are required to create an endpoint:

- **Version Control System**
  Specify the version control system where your source project resides, either Git or Apache Subversion (SVN).
- **Git/SVN Repository URL**
  Specify the URL to access the Git or SVN project repository
- **Git/SVN Username**
  Specify the user name to access GitHub/SVN.

NOTE
For GitHub, only required if the Git repository is not a public repository.

- **Git/SVN Password**
  Specify the password to access GitHub/SVN.
  NOTE
  For GitHub, only required if the Git repository is not a public repository.

To check the connection to Cucumber and to the version control system, select **Test Connection**. The **Test Connection** action returns the following results:

- **Success**
  The connection was successful
- **Failure**
  The connection failed

Tasks

The Cucumber plug-in supports the **Run Adaptive Testing** task type. You can import test suites from the Adaptive Testing Catalog through the **Get Test Assets** command.

For more information, see Setting Up the Test Module

Prerequisites:

- One or more application versions are specified.
- One or more Cucumber test suites exist for the application versions specified.

Branch

Specify the branch name.

Root Folder

Specify the relative path to the folder where the required features are located. When left empty, tests are imported from the root folder.

Tags

Select one or more tags to execute test suites tagged with your selection. Leave empty to execute all the test suites under the application version.

Example: Type `ro` to retrieve all test suites tagged with labels beginning with *ro*, such as *robot.sanity.test*

Build/Commit id

Specify the commit ID (Git) of the code to test.

TIP

To select from a list of available tokens, enter the percent sign (%) in the task field.

Run a subset of test suites selected by the Test Advisor

Choose this option to run only the test suites that the Test Advisor selects. The test advisor selects test suites that are likely to fail fast.

Docker Plug-in

This plug-in lets you deploy Docker images to run and to remove containers, and to run commands within containers. Optionally, for the **Run Container** task, you can run a readiness probe to notify you when the container is ready to accept traffic.

Plug-in Version 1.2

Supported Versions

The Docker plug-in supports the core Docker solution.

For more information, see the Docker documentation at https://docs.docker.com/.

Download Options

Use one of the following options to download the latest plug-in version:

Method	Info
wget	`wget -O cdd-docker-plugin.war https://cspdl.broadcom.com/shared/static/bmmohlxc3qq6lm4z6q5fs8nf6tjfewz6.war?LCK=ent.box.com`
MD5	`32a136c059e6e3c746cb9fb3bbf9203f`
Click Download Button	⬇

What's New

The following updates were made for plug-in version 1.2:

- A new **Remove Image** task lets you remove specified images from a container.

The following updates were made for plug-in version 1.1:

- Support was added for Java 11.

Configuration

Register the plug-in and create endpoints as described in Manage Plug-ins.

Manifest URL

For plug-in registration, use the following Docker manifest URL:

http://<plugin-server>:<port>/cdd-docker-plugin/manifest.json

Endpoint Parameters

To create endpoints, provide the following parameters:

- **Docker Engine Host**
  Specify the Docker Engine hostname
- **Docker Engine Port**
  Specify the Docker Engine port
- **Registry Host**
  Specify the path to the Docker registry host
  Example: my.registry.address:port/repositoryname
- **Registry User**

Specify the username to authenticate to the Docker registry.
- **Registry Password**
  Specify the password to authenticate to the Docker registry.

To check the connection to Docker and to GitHub, use the endpoint **Test Connection** option. The **Test Connection** option returns the following results:

- **Success**
  Both connections were successful
- **Failure**
  One or more connections failed

Tasks

The following task types are available in the Docker plug-in:

Run Container

The Run Container task contains the following fields:

Input Parameters

- **Image Name**
  Specify the Docker image name.
- **Container Environment Variable**
  Specify environment variables that are available to processes running inside the container
  Example: `CDD_DATABASE_NAME=name1,X=2,Y=3`
- **Ports to Expose**
  Specify one or more ports to expose to provide services or to listen on.
  Example: `9090:8080,7070:7070`
- **Map Volumes**
  Enter a list of comma-separated key:value pairs.
  Values: `key` = name of the volume on the host machine, and `value` = the path where the file or directory is mounted in the container.
  Example: `myvol7:/root/cdd/home/myvol7/.cdd`
- **Container Name**Specify the name of the container to run.
- **Build Number**
  Specify the build number associated with the Docker image provided.
- **Readiness Relative Path**
  Specify the relative path to the readiness probe REST call.
  Example: `GET https://www.cdd.com/cdd/execution/0000/v1/readiness`
- **Initial Delay (in Seconds)**
  Specify the number of seconds after the container starts to run before the readiness probe is initiated.
  Minimum: 1
- **Probe Frequency**
  Specify how often (in seconds) to perform the probe.
  Default: 10 (seconds)
  Minimum: 1
- **Timeout (in Seconds)**
  Specify the number of seconds to elapse after which the probe times out.
  Minimum: 1
- **Maximum Number of Failed Attempts**
  Specify the maximum number of failed probe attempts allowed before the task is failed.
  Minimum: 1

Output Parameters

- **Container ID**
  Specifies the container ID.

Remove Container

The Remove Container task contains the following fields:

Input Parameters

- **Container ID**
  Specify the ID of the container to remove.

Run Command in Docker

The Run Command in Docker task contains the following fields:

> **NOTE**
>
> If the run command execution status is 0, the task will be marked as finished, otherwise the task will be marked as failed.

Input Parameters

- **Image Name**
  Specify the Docker image name.
- **Command**
  Specify a single command or a call for execution file.
  Example: ls; /home/{username}/run.sh
- **Arguments**
  Specify arguments to append to the command.
  Example: -a -l ...

Remove Image

The Remove Image task contains the following fields:

Input Parameters

- **Image**
  Specify the name or the ID of the image to remove.
  Example: `alpine:latest`

DX App Experience Analytics Plug-in

This plug-in lets you monitor application usage, user interactions, and performance.

> **NOTE**
>
> Formerly known as CA App Experience Analytics

Plug-in Version 1.1

Supported Versions

The DX App Experience Analytics plug-in supports the core DX App Experience Analytics SaaS solution.

For more information, see the DX App Experience Analytics documentation at App Experience Analytics - Getting Started.

Download Options

Use one of the following options to download the latest plug-in version:

Method	Info
wget	`wget -O cdd-axa-plugin.war https://cspdl.broadcom.com/shared/static/aa78fm4w8bye780u9xkpxxgpqdizmakw.war?LCK=ent.box.com`
MD5	`9bdaee64e1eeefc80a5b0325d7661777`
Click Download Button	⬇

Change History

The following updates were made for plug-in version 1.1:

- Support was added for Java 11.

Configuration

Register the plug-in and create endpoints as described in Manage Plug-ins.

Manifest URL

For plug-in registration, use the following CA App Experience Analytics manifest URL:

http://<plugin-server>:<port>/cdd-axa-plugin/manifest.json

Endpoint Parameters

The following parameters are required to create an endpoint:

- **URL**
  Specifies the URL to the DX App Experience Analytics instance
  Example: https://axa.ca.com
- **API Key**
  Specifies the DX App Experience Analytics access token that you obtain as the result of the Authentication API For more information, see the DX App Experience Analytics REST API documentation.
  Example: a3bdf820-1eaf-47f4-acd6-7caca7fe17d2

To check the connection to DX App Experience Analytics, use the endpoint **Test Connection** option. The **Test Connection** option returns the following results:

- **Success**
  Both connections were successful
- **Failure**
  One or more connections failed

Tasks

The following task types are available in the DX App Experience Analytics plug-in:

Monitor

Use this task to monitor application performance, usage, and user experience in real time

This task requires the following fields:

> **TIP**
>
> To load a list of external values, enter the commercial at sign @ in the task field. To select from a list of available tokens, enter the Percent sign (%). You can also use free text alone or together with tokens.

Input Parameters

- **Application**
  Specifies the name of the application
  Value: Application name as registered with DX App Experience Analytics
- **Time Range**
  Specifies the time range to monitor the application.
  Value: Dynamic value. Enter the commercial at sign @ to load the possible dynamic values: last hour, last 12 hours, last 24 hours, last week

DX App Synthetic Monitor Plug-in

This plug-in lets you control site and application performance monitoring from your release pipeline.

Plug-in Version 1.2-1

DX App Synthetic Monitor (formerly CA App Synthetic Monitor) helps you ensure that users can access sites and applications 24/7, regardless of their location or the device they are using. This tool lets you check site and application performance and quickly pinpoint problems. Unlike most monitoring tools that depend on actual user transactions, DX App Synthetic Monitor mimics real user behavior with synthetic transactions. These transactions take place 24 hours a day through a global network of nearly 100 monitoring stations across six continents.

For more information about DX App Synthetic Monitor, see DX App Synthetic Monitor SaaS documentation.

Download Options

Use one of the following options to download the latest plug-in version:

Method	Info
wget	`wget -O cdd-asm-plugin.war https://cspdl.broadcom.com/shared/static/rrl57ag5vizhq7ftprucd69xpnufghud.war?LCK=ent.box.com`
MD5	`168187ad95644791b80e6e321830bd2f`
Click Download Button	

You can use this plug-in to perform the following tasks:

- Activate and Deactivate Monitors
- Run Rule Check

To connect to a specific instance of DX App Synthetic Monitor, add an endpoint. For more information, see Configure a DX App Synthetic Monitor Plug-in Endpoint.

Change History

The following updates were made for plug-in version 1.2-1

- The default URL In the ASM API URL endpoint parameter was deprecated and was not yet updated with the latest URL.

The following updates were made for plug-in version 1.2

- A **Run Rule Check** task was added to enable users to check that the target machine is up and running and available for use in the release pipeline.

The following updates were made for plug-in version 1.1

- To improve usability, the **Activate or Deactivate** parameter in the **Activate and Deactivate** task was changed from a checkbox to a dropdown with **Activate** and **Deactivate** options.

Configure a DX App Synthetic Monitor Plug-in Endpoint

You are familiar with DX App Synthetic Monitor.

You have the **Can create endpoints** permission.

1. Register the plug-in as described in Manage Plug-ins.
   The manifest for the DX App Synthetic Monitor plug-in is `http://<host>:<port>/cdd-asm-plugin/manifest.json`.
2. From the **Administration** menu, click **Endpoints** > **Add Endpoint**.
3. In the **ADD ENDPOINT** dialog, select the **DX App Synthetic Monitor** plug-in.
4. Configure the following input parameters:
   - **ASM API URL**
     Specify the DX App Synthetic Monitor API URL. Syntax: `https://api.asm.saas.broadcom.com`
   - **Authentication Method**
     Select a method to authenticate to the DX App Synthetic Monitor API.
     Basic
     – **Username**
       Enter the user name to log into DX App Synthetic Monitor.
     – **Password**
       Enter the API password set in the DX App Synthetic Monitor account settings.
       NOTE
       This is **not** the password you use to log into DX App Synthetic Monitor.
     Bearer
     – **Access Token**
       Specify the access token you use to access DX App Synthetic Monitor.
   - **Use Proxy**
     Select this option to connect to a remote endpoint through a proxy server.
     – **Proxy Server URL**
     – **Proxy Server Username**
     – **Proxy Server Password**

5. To check the connection to DX App Synthetic Monitor and to the source control system, click **Test Connection**.
6. Click **Add**.

Activate and Deactivate Monitors

This task lets you activate and deactivate monitors from a DX App Synthetic Monitor instance in your release pipeline.

One or more DX App Synthetic Monitor endpoints are available.

DX App Synthetic Monitor offers several types of monitors that you can use to measure page performance. Monitors also check whether your website is serving or providing content correctly. If performance issues occur, the monitors send alerts.

1. In a release, create an automatic task as described in Create Automatic Tasks.
2. Configure the following input parameters:
   - **Activate or Deactivate**
     From the dropdown, select either **Activate** or **Deactivate** to activate or deactivate the monitors specified in the **Monitor Name** parameter.
   - **Folder Name**
     Specify the name of the folder in which the monitors are located.
   - **Monitor Name**
     Specify the name of a monitor to activate/deactivate. If left empty, all the monitors in the selected folder will be activated/deactivated.
3. Click **Create**.

Run Rule Check (DX ASM)

Check whether, after a monitor is activated, that the target machine is up and running. This check validates that you can proceed with a release.

One or more DX App Synthetic Monitor endpoints using basic authentication are available.

NOTE
This task works only with basic authentication; bearer authentication is not available.

This task performs a rule check for the specified monitor every number of seconds per the polling interval time. If the status is not set to 0 by the defined timeout period, the task fails.

1. In a release, create an automatic task as described in Create Automatic Tasks.
2. Configure the following input parameters:
   - **Monitor Name**
     Specify the name of a monitor to check. To select from a list of available monitors, enter the commercial at symbol (@) in the task field. To use a token, enter a percent '%' sign.
   - **Poll Interval**
     Specify the period of time in seconds after which the status will be checked. Default: 5.
   - **Timeout**
     Specify the timeout in seconds. Default: 180.

3. Click **Create**.

Email Plug-in

Plug-in Version 1.3

Download Options

Use one of the following options to download the latest plug-in version:

Method	Info
wget	`wget -O cdd-email-plugin.war https://cspdl.broadcom.com/shared/static/tbyeswz79xmacgocgtc0crf3gyfbto6v.war?LCK=ent.box.com`
MD5	`e6648d5c48bb476dd6501e971e46fee4`
Click Download Button	⬇

What's New

The following updates were made for plug-in version 1.3:

- Connection timeout fixed.

The following updates were made for plug-in version 1.2:

- Added From Name and Address to the Send Email task.

The following updates were made for plug-in version 1.1:

- Support was added for Java 11.

Configuration

Register the plug-in and create endpoints as described in Manage Plug-ins.

The URL of the Email manifest for plug-in registration is http://<plugin-server>:<port>/cdd-email-plugin/manifest.json.

Select the **Endpoint** plug-in in the **ADD ENDPOINT** dialog to create an endpoint for the Email plug-in. The following information is required when you create an endpoint:

- **Host**
  Specify the URL of the SMTP server
- **Port**
  Specify the SMTP server port
- **Use Secure Connection**
  Select this option to use SSL to connect to the SMTP server
- **From Address**
  Specify an email address to send all emails from this email account
- **Sender Display Name**
  Enter free text to be used as the sender name. If the field is empty, only the **From Address** is displayed
- **Username/Password**

Specify access credentials to authenticate to the SMTP server
- **Send Test Email To:**
  Enter a valid email address to receive the test email when **Test Connection** is selected

Tasks

The Email plug-in provides the **Send Email** task.

For more information about creating tasks, see Tasks.

Send Email

The **Send Email** task lets you send preconfigured auto-generated email messages from a phase. This task requires the following information:

Input Parameters

- **To/CC/BCC**
  Enter email addresses that are separated by a comma. Use % prefix for tokens. You can also use free text alone or together with tokens. For example, you create a token that is named `BCC-Email` with a value of `cdduser@mycompany.com`
- **Subject**
  Enter the email subject text. Use % prefix for tokens. You can also use free text alone or together with tokens.
- **Body**
  Enter the email body text. Use % prefix for tokens. You can also use free text alone or together with tokens.

Endevor Software Change Manager Plug-in

This plug-in lets you automate deployments of mainframe software through Endevor Software Change Manager (Endevor SCM) by generating Endevor packages dynamically throughout the lifecycle. Tasks are available for the creation and management of packages within your Continuous Delivery Director pipeline.

Plug-in Version 1.1

A package is a set of actions that may require approval before the actions can be executed. Packages usually contain Move actions only, because the primary use of a package is to move a group of related elements from stage to stage in the software lifecycle.

Supported Versions

This plug-in supports Endevor SCM versions 18.0 and higher. You must have web services installed on the Endevor SCM host.

This plug-in is REST API-based and is distributed as a war file.

Download Options

Use one of the following options to download the latest plug-in version:

Method	Info
wget	`wget -O cdd-endevor-plugin.war https://cspdl.broadcom.com/shared/static/88usmlbbk142rlvpkdqwkv8wbpkhnsyo.war?LCK=ent.box.com`

MD5	`0187bc8ff38f71247bad696deeb0ca8e`
Click Download Button	

What's New

The following updates were made for plug-in version 1.1:

- This plug-in is now REST API-based. Previously, this plug-in was Brightside-based.

Capabilities

The Endevor SCM plug-in provides tasks to perform the following package-related operations:

- Approve or deny a package
- Create a package
- Cast a package
- Execute a package
- Backout a package
- Ship a package
- Delete a package

Configuration

Register the plug-in and create endpoints as described in Manage Plug-ins.

The URL of the Endevor manifest for plug-in registration is `http://<plugin-server>:<port>/cdd-endevor-plugin-manifest.json`.

To create an endpoint for the Endevor plug-in, in the **ADD ENDPOINT** dialog, select the **Endevor SCM** plug-in The following Endevor SCM information is required when you create an endpoint:

- **Hostname**
  Enter the Endevor SCM host name.
- **Port**
  Enter the port number for the Endevor SCM host.
- **Instance**
  Enter the Endevor SCM Web Services data source name.
- **Username/Password**
  Enter valid credentials for the Endevor SCM host.
- **Use HTTPS**
  Specify whether to use HTTPS or HTTP to connect to the Endevor SCM REST API.
- **Trust any SSL Certificate**
  Specify whether to allow untrusted and unsigned TLS/SSL certificates. If your Endevor SCM instance uses a valid certificate, do not change this value to `True`.
- **URL Resource**
  Enter the base URL for the Endevor REST API. If needed, specify a context root to override the default of `/EndevorService/rest`.
- **Package Naming Convention**
  Enter a regular expression to validate that the package name meets the naming convention requirements. If you leave this field empty, any package name is allowed.

Tasks

The Endevor SCM plug-in includes the following tasks:

For more information about creating tasks, see Tasks.

Create Package Based on Selection Criteria

The **Create Package Based on Selection Criteria** task lets you create a new package in Endevor SCM from the Continuous Delivery Director pipeline.

Input Parameters

- **Package Name**
  Specify a name for the new package. If a naming convention regex pattern is specified in the endpoint, the name must follow this pattern, or else the task will fail.
- **Package Description**
  Specify a package description.
- **Set Options**
  Specify only the options to apply. Use the SCL syntax as described in Endevor SCM documentation. Do not add the command 'Set Options' - this is added by the Endevor plugin. For example:\"CCID 'DEMO' COMMENTS \"Demonstration\" .\

  NOTE
  The SCL (Software Control Language) is the language used for the non-interactive (batch) execution of Endevor SCM. SCL is a freeform language, with English-like statements, that allows you to manipulate elements, environment definitions, and packages within Endevor SCM.
- **System**
  Specify the Endevor SCM system where your project resides.
- **Subsystem**
  Specify the Endevor SCM subsystem where your project resides.
- **Environment**
  Specify the Endevor SCM environment where your project resides.
- **Stage Number**
  Specify the Endevor SCM stage number where your project resides.
- **CCID**
  Specify the Generate CCID associated with an element.

  NOTE
  Change Control Identifiers (CCIDs) provide a means of grouping and manipulating similar kinds of change activity.
- **Type**
  Specify the name of the Endevor SCM element type.
- **Urgency Type**
  Select the urgency type - \"Standard\" or \"Emergency\".
- **Element Action**
  Select the element action; either Generate or Move.
- **Promotion**
  Select this option to define the package as a promotion package.
- **Sharable**
  Select this option to determine that the package can be edited by more than one person when in 'In-edit' status.
- **No Backout**

Select this option to deny a backout facility for this package.

- **Error Level**
  Specify the return code of a failed action. Any returned code with a value greater than the specified code will fail the task. Possible values: NORMAL(\"0000\"), WARNING(\"0004\"), CAUTION(\"0008\"), ERROR(\"0012\"), SEVERE(\"0016\"), INTERNAL(\"0020\").
- **Cast the Package**
  Select this option to freeze the contents of the package in Endevor SCM and to prevent further changes to the package.
- **Execute the Package**
  Select this option to execute a package in Endevor SCM with a status of 'Approved' or 'Exec-failed'.

Cast Package

The **Cast Package** task lets you freeze the contents of the package in Endevor SCM and to prevent further changes to the package.

Input Parameters

- **Package Name**
  Specify a package name to be cast.
- **Error Level**
  Specify the return code of a failed action. Any returned code with a value greater than the specified code will fail the task. Possible values: NORMAL(\"0000\"), WARNING(\"0004\"), CAUTION(\"0008\"), ERROR(\"0012\"), SEVERE(\"0016\"), INTERNAL(\"0020\").

Approve/Deny Package

The **Approve/Deny Package** task lets you change the status of a package to Approved or Denied.

Input Parameters

- **Package Name**
  Specify a package name to be approved/denied.
- **Error Level**
  Specify the return code of a failed action. Any returned code with a value greater than the specified code will fail the task. Possible values: NORMAL(\"0000\"), WARNING(\"0004\"), CAUTION(\"0008\"), ERROR(\"0012\"), SEVERE(\"0016\"), INTERNAL(\"0020\").
- **Approve/Deny**
  Define whether to approve or deny the package.

Execute Package

The **Execute Package** task lets you execute packages that have a status of Approved or Execfailed.

Input Parameters

- **Package Name**
  Specify a package name to be executed.
- **Error Level**
  Specify the return code of a failed action. Any returned code with a value greater than the specified code will fail the task. Possible values: NORMAL(\"0000\"), WARNING(\"0004\"), CAUTION(\"0008\"), ERROR(\"0012\"), SEVERE(\"0016\"), INTERNAL(\"0020\").

Backout Package

The **Backout Package** task lets you return all the outputs affected by the execution of a package to their prior state:

Input Parameters

- **Package Name**
  Specify a package name to backout.
- **Error Level**
  Specify the return code of a failed action. Any returned code with a value greater than the specified code will fail the task. Possible values: NORMAL(\"0000\"), WARNING(\"0004\"), CAUTION(\"0008\"), ERROR(\"0012\"), SEVERE(\"0016\"), INTERNAL(\"0020\").
- **Statement Number**
  Specify the SCL statement number for the element action you want to back out.
- **Element Name**
  Specify the element name for the element action you want to back out.

Ship Package

The **Ship Package** task lets you send packages to predefined destinations and to confirm the transmission of packages per destination.

Input Parameters

- **Package Name**
  Specify a package name to be shipped.
- **Error Level**
  Specify the return code of a failed action. Any returned code with a value greater than the specified code will fail the task. Possible values: NORMAL(\"0000\"), WARNING(\"0004\"), CAUTION(\"0008\"), ERROR(\"0012\"), SEVERE(\"0016\"), INTERNAL(\"0020\").
- **Destination**
  Specify the name of the remote site to which you want to ship the specified package.

Delete Package

The **Delete Package** task lets you delete packages of a specified status and age.

Input Parameters

- **Package Name**
  Specify the package name to delete. You can use a wildcard to delete multiple packages.
- **Status to Delete**
  Specify the statuses of the Packages that you are deleting. If you do not specify the package status, the DELETE PACKAGE action deletes Packages of any status type.This option is available only when using a wildcarded Package name and ignored when the Package name is fully specified. Possible values: "ALLSTATE", "INEDIT", "INAPPROVAL", "APPROVED", "INEXECUTION", "EXECUTED", "EXECFAILED", "COMMITTED", "DENIED"
- **Older Than (days)**
  Specify the minimum age of the package you are deleting. A package must be older than the number of days you specify. This option is available only when using a wildcarded package name and is ignored when the package name is fully specified.
- **Error Level**
  Specify the return code of a failed action. Any returned code with a value greater than the specified code will fail the task. Possible values: NORMAL(\"0000\"), WARNING(\"0004\"), CAUTION(\"0008\"), ERROR(\"0012\"), SEVERE(\"0016\"), INTERNAL(\"0020\").

Flowdock Plug-in

The Flowdock plug-in lets you automatically post release and application-related messages from Continuous Delivery Director to a designated flow.

Plug-in Version 1.0.2

In Flowdock, a flow is a team workspace that contains a chat room and a shared inbox.

Supported Versions

The Flowdock plug-in supports the core Flowdock REST API.

For more information, see the Flowdock REST API documentation at https://www.flowdock.com/api/rest.

Download Options

Use one of the following options to download the latest plug-in version:

Method	Info
wget	`wget -O cdd-flowdock-plugin.war https://cspdl.broadcom.com/shared/static/w6j6kxilp4uxexu6ns9kll81xvc8d877.war?LCK=ent.box.com`
MD5	`24f554579dd169cea64a225612d63959`
Click Download Button	⬇

Capabilities

The Flowdock plug-in lets you send messages to a designated flow.

What's New

The following updates were made for plug-in version 1.0.2:

- Support was added for Java 11.

Configuration

Continuous Delivery Director and Flowdock use OAuth 2.0 for authentication. To set up OAuth, you first register a new app with the Flowdock service. When you register the new app, you provide the application name and an OAuth Redirect URI.

1. In Continuous Delivery Director, register the plug-in as *described* in Manage Plug-ins.
2. Go to https://www.flowdock.com/oauth/applications
   The **New application** form opens.
   Note: The only mandatory fields are **Name** and **OAuth Redirect URL**.
3. In **Name**, enter the application name to be used to post messages.
   Value: An alphanumeric string, up to a maximum of 16 characters.
   Example: *CDD2FlowApp*
4. In **OAuth Redirect URI**, enter a URL to redirect back to.
   Note: For testing purposes, use: urn:ietf:wg:oauth:2.0:oob

5. Click **Save**.
   The landing page for the app you simply created opens.
6. In the **Create a new source** section, select a flow and generate a source token.
   Important: Copy the source token and store it in a safe location. This token is the flow token that you need to create the endpoint. You cannot generate the source token again.
7. Create an endpoint as described in Manage Plug-ins.

Manifest URL

For plug-in registration, use the following Flowdock manifest URL:

http://<plugin-hostname>:<port>/cdd-flowdock-plugin/manifest.json

Endpoint Parameters

The following parameters are required to create an endpoint:

- **URL**
  Specifies the URL to connect to the Flowdock REST API
  Value: https://api.flowdock.com
- **Flow Token**
  Specifies the source token of the flow where you want the notifications to go.

To check the connection to Flowdock, use the endpoint **Test Connection** option.

Tasks

The Flowdock plug-in provides the following task:

- Post Message

Post Message

The task lets you send a free-text message to a flow.

This task requires the following information:

- **Message**
  Specifies the text to send to the flow inbox. For more information, see: https://www.flowdock.com/api/messages

GitHub Plug-in

This plug-in lets you use GitHub as your source control system to retrieve commit messages.

Plug-in Version 1.0.3-1

This plug-in also enables you to use GitHub as your file source, a connection to a JSON format representation of a release. Additionally, you can use file sources to manage JSON files that reference other JSON files.

Download Options

Use one of the following options to download the latest plug-in version:

Method	Info
wget	`wget -O cdd-github-plugin.war https://cspdl.broadcom.com/shared/static/fpid2ho3k02wlceh6ea7khfayo4sjhio.war?LCK=ent.box.com`
MD5	`260f057f15b8938eb9c96eadd5c7d4c0`
Click Download Button	⬇

What's New

The following update was made for plug-in version 1.0.3-1:

- You can now authenticate to GitHub with a GitHub API key. To support this change, the **Password** endpoint parameter has been renamed **Password/API Key**.
  This change was necessary because Basic authentication using a password to the Github API has been deprecated. For more information, see https://developer.github.com/changes/2020-02-14-deprecating-password-auth/.

The following updates were made for plug-in version 1.0.3:

- A new endpoint parameter, **Owner**, was added.
- In the **Branch** field of the **Get Files** task, you can now enable the processing of GitHub webhook notifications from all repository branches.

The following updates were made for plug-in version 1.0.2:

- Support was added for Java 11.

Configuration

Register the plug-in and create endpoints as described in Manage Plug-ins

The URL of the GitHub manifest for plug-in registration is http://<plugin-server>:<port>/cdd-github-plugin/manifest.json.

Select the **GitHub** plug-in in the **ADD ENDPOINT** dialog to create an endpoint for the GitHub plug-in. The following GitHub information is required when you create an endpoint:

- **GitHub API URL**
  Enter the URL of the remote GitHub instance to be used for connection purposes.
  Example: `http://api.github.com`
  Note: The URL can be specified as `http` or `https`
- **Username**
  NOTE
  This field is not required when using an API key for authentication (GitHub Cloud supports only API Key.
  Specify a user name to authenticate to GitHub.
- **Password/API Key**
  Specify a password or a GitHub API key to authenticate to GitHub.
  NOTE
  You can generate API keys in GitHub.
- **Owner**

Specify either the organization name for GitHub Enterprise or the owner name for public and private GitHub accounts.

Get Commit Messages

The GitHub plug-in lets you retrieve and parse commit messages. Use this capability when you deploy applications in a release to see the status of related work items.

Follow these steps:

1. From **Administration**, click **Applications**.
2. – In the **Applications** list, select one or more application rows.
   – In the **Applications** list, click an application name.

   NOTE
   The **Application Management** page opens.
3. From the **Actions** menu, click **Set Source Control Connection**.
   Note: This option is only enabled if a work item source, such as Rally®, has been configured.
4. Configure the following parameters, then select **Set**:
   – **Source Control** - Select **GitHub** and **Get Commit Messages**.
   – **Owner** - Specify either the organization name for GitHub Enterprise or the owner name for public and private GitHub accounts.
   – **Repository** - Specify the source control repository to bring the commit messages from. This should be the repository that corresponds with the project in the build server that you configure to send notifications to this application version.
   Example: `https://myGitHub.mycompany.com/[organization]/[Repository]`
   – **Regular Expression** - Specify a regular expression with which to parse the commit comments for work item IDs.
   – **Include Path** - (Optional) Specify one or more paths to map the packages and/or classes to include in test coverage.
   Syntax: `app/src/java/**`
   – **Exclude Path** - (Optional) Specify one or more paths to map the packages and/or classes to exclude from test coverage.
   Syntax: `app/src/tests/**`

When the source control connection is configured, the plug-in returns a list of commit IDs with the following information:
Note: The list of commit IDs is not visible in the user interface.

- The commit message
- The user who made the commit (author)
- The files that have been changed
- The time of the commit

Get Files

The GitHub plug-in lets you use GitHub as a file source so that releases are automatically created and run whenever you make changes to the JSON file.

NOTE

To use this capability, first create a top-level folder in the relevant repository with the following name: *CDD-FileSource*. Place all release-related JSON files in this folder.

NOTE
The *CDD-FileSource* folder does not apply if you use file sources to manage JSON files that reference other JSON files.

Follow these steps:

1. From **RELEASES**, select **New File Source**.
2. In **CREATE FILE SOURCE**, configure the following parameters, then select **Create**:
   - **Name** - Specify a name for the file source.
   - **Select Source Control** - Select **GitHub** and **Get Files**.
   - **Select Endpoint**
   - **Owner** - Specify the owner of the GitHub repository.
   - **Repository** - Specify the name of the GitHub repository to bring the files from.
   - **Branch** - Specify the branch name. To allow processing of GitHub webhook notifications from all repository branches, keep this field empty.
   - **Releases Created On Behalf Of (API Key)** - Specify the API key of a user on whose behalf future releases will be created.
     Example: The API key of the product owner.
   - **Send Error Notifications To** - Specify one or more recipients to receive error notifications.
3. Save your changes. A **COPY WEBHOOK** popup is displayed containing an auto-generated webhook. This webhook supports the connection between Continuous Delivery Directorand GitHub. Copy this webhook and paste it into GitHub.

The newly-created file source is added to the **FILE SOURCES** page.

More Information

- How to Set Up Webhooks in your Source Control

GitLab Plug-in

This plug-in lets you use GitLab SCM (Source Control Management) as your source control system.

Plug-in Version 1.7-1

This plug-in enables you to:

- Retrieve commit messages
- Import GitLab issues, including linked issues
- Use GitLab SCM as your file source, a connection to a JSON format representation of a release. Additionally, you can use file sources to manage JSON files that reference other JSON files.
- Import applications from GitLab repositories using the **External Applications** button on the **Applications** page

Download Options

Use one of the following options to download the latest plug-in version:

Method	Info
wget	`wget -O cdd-gitlab-plugin.war https://cspdl.broadcom.com/shared/static/j15i2n8dq7x7mku9op8nx9qhcc7y5xpj.war?LCK=ent.box.com`
MD5	`72e21951cdf08f85a8e6b17479df4d71`
Click Download Button	⬇

What's New

The following updates were made for plug-in version 1.7-1:

- To avoid errors, the **Get Commit Messages** task now uses the first commit if previous builds have failed.

The following updates were made for plug-in version 1.7:

- You can now import files from GitLab repositories as applications.

The following updates were made for plug-in version 1.6:

- You can now retrieve linked issues (work items) from GitLab.

The following updates were made for plug-in version 1.5:

- You can now synchronize issues (work items) between GitLab and Continuous Delivery Director and assign issues to release tasks.

The following updates were made for plug-in version 1.4:

- In the **Branch** field of the **Get Files** task, you can now enable the processing of GitLab webhook notifications from all repository branches.
- A new **Trust Any SSL Certificate** endpoint parameter lets you allow untrusted and unsigned SSL/TLS certificates.

Configuration

Register the plug-in and create endpoints as described in Manage Plug-ins

The URL of the GitLab SCM manifest for plug-in registration is https://<plugin-server>:<port>/cdd-gitlab-plugin/manifest.json.

- **GitLab API URL**
  Enter the URL of the remote GitLab instance to be used for connection purposes.
  Syntax: `http://api.gitlab.com` for public and private GitLab accounts or `https://[hostname]/api/v4` for on-premise GitLab instances.
  Note: The URL can be specified as `http` or `https`
- **Authentication Method**
  Select one of the following authentication methods:
  - **OAuth2 Token**
    Specify a OAuth2 token to authenticate to GitLab.
  - **Personal Access Token**
    Specify a Personal Access Token to authenticate to GitLab.
- **Trust Any SSL Certificate**
  Select this option if you want to allow untrusted and unsigned SSL/TLS certificates.

  WARNING
  Use at your own risk! Selecting this option can expose your environment to "man in the middle" attacks. CA Technologies does not accept responsibility for security vulnerabilities that are caused by selecting this option.
- **GitLab Owner**
  Specify a GitLab owner name.

Import Work Items

This plug-in lets you sync issues between GitLab and Continuous Delivery Director releases. Use this capability when you create a release to see the related GitLab information.

Follow these steps:

1. In a release, click the **Work Items** tab on the left menu.
2. Select **Add Work Items**.
   The **ADD WORK ITEMS** window opens.
3. Select **External Work Items**.
4. Enter a name for the work items source.
   Example: *GitLab Feed*
5. Under **Work Items Source**, select the **GitLab** plug-in and a configured **GitLab** endpoint.
6. Provide information in the required parameter fields. These fields let you build a query that searches GitLab for issues that match the criteria.
   – **Repository**
     Specify a repository from which to import issues. A repository contains the codebase in GitLab that is updated with version control. A repository is part of a GitLab project.
   – **Issue State**
     Select the required state to return issues; 'Opened', 'Closed', or 'All' to return all issues.
   – **Issue Labels**
     Specify a comma-separated list of required issue labels to return. Enter 'None' to return all issues without a label. Enter 'Any' to return all issues with at least one label.
   – **Issue Milestone**
     Specify a milestone title to return issues. Enter 'None' to return all issues without a milestone. Enter 'Any' to return all issues that have an assigned milestone.
   – **Search Filter**
     Specify a filter text to search issues against their title and description.
   – **Is Confidential?**
     Select this option to filter issues that are either public or visible only to authorized members of a GitLab project.
   – **Is Archived?**
     Select this option to return issues only from non-archived projects. Clear this option to return issues from both archived and non-archived projects.
   – **Issue Scope**
     Select the value to return issues for the given scope: 'Created by Me', 'Assigned to Me' or 'All'.
7. Click **Create**.
   The work items source is saved and a list of the returned issues is displayed under the application in the left menu. These issues are now available to assign to tasks in phases to associate with the release.

Get Commit Messages

The GitLab plug-in lets you retrieve and parse commit messages. Use this capability when you deploy applications in a release to see the status of related work items.

Follow these steps:

1. In a release, expand the **Applications** tree on the left menu, and select the version number.
2. Select **Set Source Control Connection**.
   Note: This option is only enabled if a work items source, such as Rally®, has been configured.
3. Configure the following parameters, then select **Set**:
   – **Source Control** - Select **GitLab** and **Get Commit Messages**.
   – **Repository** - Specify the source control repository to bring the commit messages from. This should be the repository that corresponds with the project in the build server that you configure to send notifications to this application version.

  Example: `https://mygitlab.mycompany.com/[organization]/[Repository]`
- **Regular Expression** - Specify a regular expression with which to parse the commit comments for work item IDs.
- **Include Path** - (Optional) Specify one or more paths to map the packages and/or classes to include in test coverage.
  Syntax: `app/src/java/**`
- **Exclude Path** - (Optional) Specify one or more paths to map the packages and/or classes to exclude from test coverage.
  Syntax: `app/src/tests/**`

When the source control connection is configured, the plug-in returns a list of commit IDs with the following information:
Note: The list of commit IDs is not visible in the user interface.

- The commit message
- The user who made the commit (author)
- The files that have been changed
- The time of the commit

Get Files

The GitLab plug-in lets you use GitLab as a file source so that releases are automatically created and run whenever you make changes to the JSON file.

> **NOTE**
>
> To use this capability, first create a top-level folder in the relevant repository with the following name: *CDD-FileSource*. Place all release-related JSON files in this folder.
>
> **NOTE**
> The *CDD-FileSource* folder does not apply if you use file sources to manage JSON files that reference other JSON files.

Follow these steps:

1. From **RELEASES**, select **New File Source**.
2. In **CREATE FILE SOURCE**, configure the following parameters, then select **Create**:
   - **Name** - Specify a name for the file source.
   - **Select Source Control** - Select **GitLab** and **Get Files**.
   - **Select Endpoint**
   - **Repository** - Specify the name of the GitLab repository to bring the files from.
   - **Branch** - Specify the branch name. To allow processing of GitHub webhook notifications from all repository branches, keep this field empty.
   - **Releases Created On Behalf Of (API Key)** - Specify the API key of a user on whose behalf future releases will be created.
     Example: The API key of the product owner.
   - **Send Error Notifications To** - Specify one or more recipients to receive error notifications.
3. Save your changes. A **COPY WEBHOOK** popup is displayed containing an auto-generated webhook. This webhook supports the connection between Continuous Delivery Directorand GitLab SCM. Copy this webhook and paste it into GitLab SCM.

The newly-created file source is added to the **FILE SOURCES** page.

Import Applications

You can import applications from a GitLab endpoint. If you have not created an endpoint yet, go to **Administration** > **Endpoints** and click **Add Endpoint**.

To import applications, go to **Administration** > **Applications** and click **Add External Application**..

NOTE

More Information

- How to Set Up Webhooks in your Source Control

Gradle Testing Plug-in

The Gradle testing plug-in lets you automate JUnit testing on Git and Apache Subversion (SVN) builds. This plug-in is containerized and supports Adaptive Testing functionality.

This plug-in is available as a Docker image on the customer support portal which has specific requisites and installation steps.

Plug-in Version 1.11-1

Supported Versions

The Gradle testing plug-in supports the following Gradle versions:

- 5.4.1
- 4.1
- 4.4
- 4.0.2
- 3.5

For more information, see the Gradle documentation at https://gradle.org/.

Download Options

Use one of the following options to download the latest plug-in version:

Method	Info
wget	`wget -O cdd-gradletesting-plugin-v1.9-1b133.tar.gz https://cspdl.broadcom.com/shared/static/jdptq0efilpdmgxiem796e88a2sp9vqx.gz?LCK=ent.box.com`
MD5	`bf26c1c112f87788588ed4ab87f29a98`
Click Download Button	
Download Docker Image from Customer Support Portal	Yes
Download TAR file from Customer Support Portal for customers who cannot use `docker pull`	Yes

Change History

The following updates were made for plug-in version 1.11-1:

- Bugfix: Get Tests Assets/Sync Test Source fails on the last plug-in version.
- To improve usability, the following parameters were changed to textarea fields:

  - **Source Set**
  - **JVM Parameters**
  - **Extra Execution Parameters**

The following updates were made for plug-in version 1.9:

- The **New or Updated Test Suites** heuristic is now supported for SVN test suites. This metric is a weighting factor when the Test Advisor intelligently selects a subset of test suites to run in subsequent test cycles.
- Fixed - DE473431. Test suites configured to be skipped were not calculated in the test execution result.

Manifest URL

For plug-in registration, use the following manifest URL:

http://<plugin-server>:<port>/cdd-gradletesting-plugin/manifest.json

Configuration

You configure the Gradle testing plug-in either for the initial setup, or whenever a change to the test build configuration is required.

Endpoint Parameters

The following parameters are required to create an endpoint:

- **Gradle Version**
  Specify the version of Gradle to use in automated testing.
- **Version Control System**
  Specify the version control system where your source project resides.
- **Git/SVN Project URL**
  Specify the URL to access the Git or SVN project repository.
- **GitHub/SVN Username**
  Specify the user name to access GitHub or SVN
- **GitHub/SVN Password**
  Specify the password to access GitHub or SVN

To check the connection to Gradle and to the version control system, select **Test Connection**. This action returns the following results:

- **Success**
  The connection was successful
- **Failure**
  The connection failed

Tasks

The Gradle plug-in supports the **Run Adaptive Testing** task type.

Prerequisites:

- One or more application versions are specified.
- One or more Gradle test suites exist for the application versions specified.

- **Tags**
  Select one or more tags to execute test suites tagged with your selection. Leave empty to execute all the test suites under the application version.

Example: Type `gr` to retrieve all test suites tagged with labels beginning with *gr*, such as *gradle.sanity.test*

- **Build/Commit id**
  Specify the commit ID (Git) or build number (SVN) of the code to test.

  TIP

  To select from a list of available tokens, enter the percent sign (%) in the task field.

Get Test Assets

The Gradle plug-in lets you import test suites into the Adaptive Testing Catalog.

Follow these steps:

1. Select **Tests**, then **Adaptive Testing Catalog**.
2. Specify the **Application** and the **Application Version**.
   The menu next to the application name and version is activated.
3. Select **Get Test Assets**.
4. Fill in the following fields:
   – **Test Source Name**
   – **Plug-in**
   Select **Gradle Testing** and **Import Test Suites.**
   – **Endpoint**
   Select a Gradle Testing endpoint.
   – **Branch**
   For Git, specify the **name** of the branch where the test suites you want to import are located.
   For SVN, specify the **path** of the branch where the test suites you want to import are located.
   – **Gradle Project**
   Specify the name of the Gradle project where the test suites you want to import are located. If left empty, test suites will be imported from all sub-projects.
   – **Source Set**
   Specify the name of the source set where the Java source files of the test suites you want to import are located. If left empty, the Java source files will be imported from all source sets.
   – **Extra Execution Parameters**
   Specify comma-separated name: value pairs to pass to Gradle.
   Example: `HOST:google.com,PORT:8080`
   – **JVM Parameters**
   Specify space-separated JVM parameters to customize individual instances.
   Example: `-Dtest.HOST=google.com` Overrides the IP address or host name of URL used by the browser to execute tests.
   – **Tags**
   Specify one or more tags to find possible test suite matches.
   Example: Type `gr` to retrieve all test suites tagged with labels beginning with *gr*, such as *gradle.sanity.test*

Helm Plug-in

This plug-in helps you streamline the installation and management of Kubernetes/Openshift applications or resources using Helm Charts.

Plug-in Version 1.0-1

Helm uses a packaging format called charts. A chart is a collection of files that describe a related set of Kubernetes/ Openshift resources. You can use this plug-in to perform the following chart-related tasks:

- Install Release by Helm Chart
- Upgrade Release by Helm Chart
- Roll Back Release
- Uninstall Releases

The Helm plug-in is containerized.

To connect to a specific instance of Helm, add an endpoint. For more information, see Configure a Helm Plug-in Endpoint.

For more information about Helm version 3, see Helm version 3 documentation.

Download Options

Use one of the following options to download the latest plug-in version:

Method	Info
wget	`wget -O cdd-helm-plugin-v1.0-1b62.tar.gz https://cspdl.broadcom.com/shared/static/gvv4korz5ykab7fhilcfyrlyco7mrrw6.gz?LCK=ent.box.com`
MD5	`957d14e3722d717830f430b08487b5cd`
Click Download Button	⬇
Download Docker Image from Customer Support Portal	Yes
Download TAR file from Customer Support Portal for customers who cannot use `docker pull`	Yes

Supported Versions

This plug-in supports Helm versions 2 and 3.

NOTE

For Helm version 2, the Tiller component is assumed to be installed already on Kubernetes/Openshift server side. If not, then run the following commands to install the Tiller component on the cluster to support Helm operations.

```
kubectl -n kube-system create serviceaccount tiller
kubectl create clusterrolebinding tiller --clusterrole cluster-admin --serviceaccount=kube-
system:tiller
helm init --service-account tiller
```

For more information about Helm version 2, see Helm version 2 documentation.

Change History

The following updates were made for plug-in version 1.0-1:

- The locations for stable and incubator charts have changed. The new location for the stable repository is `https://charts.helm.sh/stable` and the new location for the incubator repository is `https://charts.helm.sh/incubator`. If you use charts in either of these old locations below you MUST update the repositories you used before November 13, 2020. The new locations are hosted using GitHub pages.

Name	Old Location	New Location
stable	`https://kubernetes-charts.storage.googleapis.com`	`https://charts.helm.sh/stable`
incubator	`https://kubernetes-charts-incubator.storage.googleapis.com`	`https://charts.helm.sh/incubator`

NOTE
Please upgrade the Helm plugin to the latest versions.

- Bugfix: The `sns` prefix (for Amazon Simple Notification Service) was missing from the default value for the AWS S3 **Service API URL** endpoint parameter.

Configure a Helm Plug-in Endpoint

You are familiar with Helm and Kubernetes/OpenShift.

You have been granted the **Can create endpoints** permission.

1. Register the plug-in as described in Manage Plug-ins.
   The manifest for the Helm plug-in is `http://<host>:<port>/containerized/plugins/cdd-helm-plugin/manifest.json`.
2. From the **Administration** menu, click **Endpoints** > **Add Endpoint**.
3. In the **ADD ENDPOINT** dialog, select the **Helm** plug-in.
4. Configure the following input parameters:
   - **Cluster URL**
     Specify the Kubernetes/OpenShift cluster URL.
   - **Authentication Method**
     Select a method to authenticate to Helm.
     API Token
     – **API Token**
       Specify the cluster API token.
     Kubeconfig
     – **Kubeconfig File Path**
       Specify the Kubeconfig file path.
     – **Kubeconfig Context**
       Specify the Kubeconfig context to use.
   - **Helm Version**
     Specify the Helm version.
     – **Source Control**
       Select the required source control system to connect to your Helm chart repository.
       GitHub
       - **GitHub API URL**
       - **GitHub Owner**
       - **GitHub Repository**
       - **GitHub Branch**
       - **GitHub Username**
       - **GitHub Password**

       GitLab

- **GitLab API URL**
- **Authentication Method**
  Select either **OAuth2 Token** or **Personal Access Token**.
- **GitLab Owner**
- **GitLab Repository**
- **GitLab Branch**

Bitbucket

- **Bitbucket API URL**
- **Account Name/Project Key**
  Specify the Bitbucket account name or project key.
- **Bitbucket Repository**
- **Bitbucket Branch**
- **Bitbucket Username**
- **Bitbucket Password**

Helm Chart Repository

- **Helm Chart Repository API URL**
- **Helm Chart Repository Username**
- **Helm Chart Repository Password**

AWS S3

- **Service API URL**
- **Region**
- **Access Key**
- **Secret Key**
- **Bucket Name**

– **Trust Any SSL Certificate**
Select this option if you want to allow untrusted and unsigned SSL/TLS certificates.

WARNING
Use at your own risk! Selecting this option can expose your environment to "man in the middle" attacks. CA Technologies does not accept responsibility for security vulnerabilities that are caused by selecting this option.

5. To check the connection to Helm and to the source control system, click **Test Connection**.
6. Click **Add**.

Install Release by Helm Chart

This task installs a Helm chart or chart reference into a release.

One or more Helm endpoints are available.

1. In a release, create an automatic task as described in Create Automatic Tasks.
2. Configure the following input parameters:
   - **Helm Chart Directory**
     Specify the Helm Chart directory or Chart Key if Helm Chart Repository is the source control system in use.
   - **Helm Chart Settings**
     Define a list of keys/value pairs. Enter each key/value pair in a separate line.
   - **Commit Updated Settings**

  Select this option to commit the updated Helm Chart settings into the selected source control system.
- **Helm Release Name**
  Specify the Helm release name.
- **Cluster Namespace**
  (Optional) Specify the cluster namespace.
- **Wait**
  Select this option to wait until all pods, PVCs, services, and a minimum number of pods of a deployment, StatefulSet, or ReplicaSet are in a ready state before marking the release as successful. The maximum time to wait is defined in the **Timeout Duration** field. The deployment ensures that only a certain number of pods are down during the update. By default, at least 75% of the required number of pods are up (a maximum of 25% of the pods are unavailable).
- **Timeout Duration**
  Specify a period in seconds to wait for any individual Kubernetes operation to complete.

3. Click **Create**.

Upgrade Release by Helm Chart

This task upgrades a release to a new version of a chart.

One or more Helm endpoints are available.

1. In a release, create an automatic task as described in Create Automatic Tasks.
2. Configure the following input parameters:
   - **Helm Chart Directory**
     Specify the Helm Chart directory or Chart Key if Helm Chart Repository is the source control system in use.
   - **Helm Chart Settings**
     Define a list of keys/value pairs. Enter each key/value pair in a separate line.
   - **Commit Updated Settings**
     Select this option to commit the updated Helm Chart settings into the selected source control system.
   - **Helm Release Name**
     Specify the Helm release name.
   - **Cluster Namespace**
     (Optional) Specify the cluster namespace.
   - **Wait**
     Select this option to wait until all pods, PVCs, services, and a minimum number of pods of a deployment, StatefulSet, or ReplicaSet are in a ready state before marking the release as successful. The maximum time to wait is defined in the **Timeout Duration** field. The deployment ensures that only a certain number of pods are down during the update. By default, at least 75% of the required number of pods are up (a maximum of 25% of the pods are unavailable).
   - **Timeout Duration**
     Specify a period in seconds to wait for any individual Kubernetes operation to complete.
3. Click **Create**.

Rollback Release

This task rolls back a release to a previous version.

One or more Helm endpoints are available.

1. In a release, create an automatic task as described in Create Automatic Tasks.
2. Configure the following input parameters:
   - **Helm Release Name**
     Specify the Helm release name.
   - **Rollback to Release Version**
     Specify the release version number to which you want to roll back. Leave empty to roll back to the previous release.
   - **Cluster Namespace**
     (Optional) Specify the cluster namespace.
   - **Wait**
     Select this option to wait until all pods, PVCs, services, and a minimum number of pods of a deployment, StatefulSet, or ReplicaSet are in a ready state before marking the release as successful. The maximum time to wait is defined in the **Timeout Duration** field. The deployment ensures that only a certain number of pods are down during the update. By default, at least 75% of the required number of pods are up (a maximum of 25% of the pods are unavailable).
   - **Timeout Duration**
     Specify a period in seconds to wait for any individual Kubernetes operation to complete.
3. Click **Create**.

Uninstall Releases

This task takes a Helm release name and uninstalls the release.

One or more Helm endpoints are available

Running this task removes all of the resources associated with the last release of the chart as well as the release history, freeing up the release for future use.

1. In a release, create an automatic task as described in Create Automatic Tasks.
2. Configure the following input parameters:
   - **Helm Release Name**
     Specify the Helm release name.
   - **Cluster Namespace**
     (Optional) Specify the cluster namespace.
   - **Timeout Duration**
     Specify a period in seconds to wait for any individual Kubernetes operation to complete.
3. Click **Create**.

Jenkins Plug-in

This plug-in lets you execute Jenkins jobs from within a release pipeline.

Plug-in Version 1.3.0-2

The Jenkins plug-in provides an interface in Continuous Delivery Director for running project builds in Jenkins. The integration allows you to start and stop existing project builds through the Jenkins REST API and get their status (failed, passed). This helps you to leverage existing jobs defined in Jenkins, including build, deploy, and testing activities.

NOTE
This plug-in uses the Jenkins basic REST API only and does not work with any third-party Jenkins plug-in.

Download Options

Use one of the following options to download the latest plug-in version:

Method	Info
wget	`wget -O cdd-jenkins-plugin.war https://cspdl.broadcom.com/shared/static/xzeuo7unlfltv5963w4wsk16ae90dwq7.war?LCK=ent.box.com`
MD5	`40ba7d7e768f4cda69494176e87bdc2a`
Click Download Button	⬇

Change History

The following updates were made for plug-in version 1.3.0-2:

- Bugfix: Upgrading from plug-in version 1.3.0 to 1.3.0-1 in release DSLs caused `Missing details` errors in **Run Build** tasks.
- Bugfix: When a Jenkins task was executed using a JSON file with one or more missing parameters, an unclear and therefore unhelpful error message was displayed.
- The **Task Status for Unstable Build** field in the **Run Build** task is now optional.

The following updates were made for plug-in version 1.3.0-1:

- You can now control how this plug-in handles an unstable Jenkins build. To support this capability, a new **Task Status for Unstable Build** field was added to the **Run Build** task. This field allows you to define whether the task is considered as **Done** or **Failed**.

The following updates were made for plug-in version 1.3.0:

- Added support for CloudBees Request Filter Plugin and tree query parameters.

The following updates were made for plug-in version 1.0.3:

- Support was added for Java 11.

Tasks

The Jenkins plug-in provides the Run Build task.

Tutorial Video

The following video shows how to configure Continuous Delivery Director integration with Jenkins, and how to run Jenkins jobs within the release pipeline.

Configure a Jenkins Endpoint

You are familiar with Jenkins.

You have been granted the **Can create endpoints** permission.

1. Register the plug-in as described in Manage Plug-ins.
   The manifest for the Jenkins plug-in is `http://<host>:<port>/cdd-jenkins-plugin/manifest.json`.
2. From the **Administration** menu, click **Endpoints** > **Add Endpoint**.
3. In the **ADD ENDPOINT** dialog, select the **Jenkins** plug-in.
4. Configure the following endpoint parameters:
   - **Jenkins Server URL**
     Enter the URL of the remote Jenkins instance to be used for connection purposes. **Example:** `http://35.201.71.157`
     NOTE
     The URL can be specified as `http` or `https`
   - **Authentication Method**
     Select an authorization method to use to establish a connection to Jenkins. You have to enter additional information, depending on your choice. **Values:**Basic, Authentication Token
     – **Basic** authentication is based on using Jenkins authentication credentials (login/password). You use the same credentials to establish a connection to Jenkins through your web browser. You can:
       a. Ask your system administrator to provide you with personal authentication credentials, or
       b. Check the global security configuration in Jenkins, or
       c. Directly access the Jenkins security configuration page at `http://<your-Jenkins-URL>/configureSecurity/`.
     – **Authentication Token** is used to create an anonymous connection to a Jenkins instance. This method is based on a special token that can be created in Jenkins projects by selecting the **Trigger builds remotely** Jenkins option.
       NOTE
       Jenkins lets you create a new token for each project, so that, in most cases, you will have different string tokens for different projects. When you use the authentication token method, one endpoint is assigned to each project.
       NOTE
       You can configure your Jenkins instance to use the **Anyone can do anything** or **Logged-in users can do anything** or **Allow anonymous read access** authorization methods. A project-based matrix authorization strategy, that is, user and group-based, prevents access with tokens. Remote users can only connect to Jenkins with basic authorization credentials (user/password).
   - **Task Start Delay**
     (Optional) Enter the amount of time (in seconds) between the scheduled start of a build and the time Jenkins is triggered to start that build. **Values:**`None` - use Jenkins configuration, `0` (seconds) - start immediately
     NOTE
     Maximum delay allowed is 1800 seconds, that is, half an hour.
   - **Task Execution Timeout**
     Enter the length of time (in seconds) that is allowed to pass after the task starts before the job is marked as failed. The count starts as soon as the task execution starts, so any delay (low Jenkins machine CPU time/memory, time lags due to overloaded execution threads) can result in a timeout execution fail message. **Values:** Minimum: 5 seconds; maximum: 43,200 seconds, that is, 12 hours.
     NOTE
     The timeout parameter value must be greater than the delay parameter value.

NOTE
If your Jenkins project is configured to build concurrently, then each task launch causes a different build job to be queued. If your Jenkins execution queue does not have a free execution thread, then any build task is postponed and can trigger a timeout execution fail.

5. Click **Test Connection** to check the connection to Jenkins.
6. Click **Add**.

Run Build (Jenkins)

Run Jenkins project builds in the context of Continuous Delivery Director phases and releases.

One or more Jenkins endpoints are available.

1. In a release, create an automatic task as described in Create Automatic Tasks.
2. Configure the following parameters:

   TIP

   Values: To define a value, do one of the following actions:

   - To select from a list of possible values, type an at sign "@" in the field
     Example: *Deploy Tomcat*
   - To select from a list of built-in tokens (reusable placeholders that are used to create generic workflows), type a percent sign "%" in the field
   - Type free text
   - Enter a combination of free text and tokens

   Input Parameters

   - **Project Name**
     Specify the name of a Jenkins team project.
   - **Build Parameters**
     (Optional) Specify the parameters for a Jenkins parameterized build. Define the parameters in JSON format. For example:
     `{"parameter": [{"name":"id", "value":"123"}, {"name":"verbosity", "value":"high"}]}`
   - **Task Start Delay (in Seconds)**
     Define the task execution start delay in seconds (none - use Jenkins configuration, 0 seconds - start immediately. Maximum is 1800 seconds (half an hour)).
   - **Task Expiration Timeout (in Seconds)**
     Define the task build expiration timeout in seconds (from 5 seconds up to 43200 seconds (12 hours)). This value must be higher than the task start delay value.
   - **Task Status for Unstable Build**
     (Optional) Define whether the task should fail if the Jenkins build status is `\"Unstable\"`.

     NOTE
     In Jenkins, a build that is built successfully but is reported unstable by one or more publishers is considered unstable. For example, if the JUnit publisher is configured and a test fails then the build is marked unstable.

3. Click **Create**.

JetBrains TeamCity Plug-in

The JetBrains TeamCity plug-In lets you easily add completed builds to your pipeline for deployment, testing, and production.

Plug-in Version 1.1

The TeamCity integration enables zero-touch continuous delivery, continuous testing, and continuous deployment. This plug-in fully integrates TeamCity CI and build functionality into the robust Continuous Delivery Director pipeline planning, management, and orchestration functionality. Enable the TeamCity plug-in to connect TeamCity builds directly to the Continuous Delivery pipeline so that a successful build triggers pipeline execution.

Download Options

Use one of the following options to download the latest plug-in version:

Method	Info
wget	`wget -O cdd-teamcity-plugin.war https://cspdl.broadcom.com/shared/static/kme3s9lz7czryd1xpkzvr9yz36d1nivi.war?LCK=ent.box.com`
MD5	`9a147c66567f5f6cefaee4df3559cd2d`
Click Download Button	

What's New

The following updates were made for plug-in version 1.1:

- Support was added for Java 11.

Configuration

Register the plug-in and create endpoints as described in Manage Plug-ins

The URL of the TeamCity manifest for plug-in registration is http://<plugin-server>:<port>/cdd-teamcity-plugin/manifest.json.

Select the **TeamCity** plug-in in the **ADD ENDPOINT** dialog to create an endpoint for the TeamCity plug-in. The following TeamCity information is required when you create an endpoint:

- **TeamCity Server URL**
  Enter the URL of the remote TeamCity instance to be used for connection purposes.
  Example: http://35.201.71.157
  Note: The URL can be specified as `http` or `https`
- **Username**
  Specify the username to authenticate to the TeamCity server.
- **Password**
  Specify the username to authenticate to the TeamCity server.
- **Trust Any SSL Certificate**
  Select this option if you want to allow untrusted and unsigned SSL/TLS certificates.
  Warning: Use it at your own risk! Selecting this option can expose your environment to "man in the middle" attacks. CA does not accept responsibility for security vulnerabilities caused by the selection of this option.

Tasks

The TeamCity plug-in provides the **Run Build** task.

For more information about creating tasks, see Tasks.

Run Build

The **Run Build** task lets you run TeamCity project builds in the context of Continuous Delivery Director phases and releases. This task requires the following information, which must match the corresponding TeamCity values:

Input Parameters

- **Build Configuration ID**
  Specify a unique ID of a TeamCity build configuration.
- **Parameters**
  Specify the parameters for a TeamCity parametrized build. Define the parameters in JSON format.
  Syntax: `{"param1":"value", "param2":"value" }`

Output Parameters

- **Build Number**
  Specifies the TeamCity build number.

Configure Plug-in for JetBrains TeamCity

Use the following procedure to configure global settings for the plug-in for TeamCity. You can override these settings per build configuration. For more information, see Send Build Notifications from JetBrains TeamCity.

1. Download the `cdd-teamcity-integration-build.zip` file from https://cddirector.io/plugins/ or from the https://casupport.broadcom.com site to your local machine.
2. In TeamCity, go to **Administration**, then the **Plugins List** page.
3. Upload the plug-in zip file from your local machine.
   The Continuous Delivery Director plug-in appears on the **Plugins List** page and is listed in the left panel under **Integrations**.
4. Click the **Enable uploaded plugins** option.
   The plug-in is now available for use.
5. In the left panel under **Integrations**, click **Continuous Delivery Director**.
6. Configure and set values for the following parameters:
   - **CDDirector Server URL**
     Specify the URL to the required Continuous Delivery Director instance, such as `cddprod.cdd.com/8080/`
   - **Tenant ID**
     – For an on-prem install of Continuous Delivery Director, the tenant ID is `00000000-0000-0000-0000-000000000000`.
     – For Continuous Delivery Director SaaS, you can find the tenant ID in Continuous Delivery Director under **User Settings**.
   - **API Key**
     Specify the Continuous Delivery Director API key of an authorized user, such as an integration user, release manager, or administrator. You can find the API key in Continuous Delivery Director under **User Settings**.
7. Save your configuration.
   The Continuous Delivery Director plug-in for TeamCity is configured and ready for use.

Related Links

Plug-in for JetBrains TeamCity on page 225
Use this plug-in to send build notifications from TeamCity to Continuous Delivery Director.

Send Build Notifications from JetBrains TeamCity on page 105
You can configure a build integration to send TeamCity build notifications to Continuous Delivery Director.

Send Build Notifications from JetBrains TeamCity

You can configure a build integration to send TeamCity build notifications to Continuous Delivery Director.

You have enabled and configured the Plug-in for JetBrains TeamCity.

Continuous Delivery Director can automatically create and execute a new release every time a new application (component) version is built by TeamCity. Continuous Delivery Director can automatically create a release on the arrival of a build notification (with a preconfigured *create new release* request).

You can use this plug-in to update and deploy business applications that contain a subgroup of applications (components). You can also attach DSL files to business applications to use as templates for releases. A build notification that comes from any of the business application child applications (components) can trigger the creation of a release based on a template.

You can also easily edit, override, and delete, existing build integrations.

> **NOTE**
> The following procedure shows you how to override the global settings per build configuration. For more information about configuring global settings for the plug-in for TeamCity, see Configure Plug-in for JetBrains TeamCity.

1. In TeamCity, on the **Build** page, click the **CDDirector Plugin** tab, then **Add Build CDD Integrations**.
2. Select **Click to create new CDD integration for this build**.
3. Configure and set values for the following parameters:
   - **CDDirector Server URL**
     Specify the URL to the required Continuous Delivery Director instance, such as `cddprod.cdd.com/8080/`
   - **Tenant ID**
     – For an on-prem install of Continuous Delivery Director, the tenant ID is `00000000-0000-0000-0000-000000000000`.
     – For Continuous Delivery Director SaaS, you can find the tenant ID in Continuous Delivery Director under **User Settings**.
   - **API Key**
     Specify the Continuous Delivery Director API key of an authorized user, such as an integration user, release manager, or administrator. You can find the API key in Continuous Delivery Director under **User Settings**.
   - **Application Name**
     Specify the name of your application as it appears in Continuous Delivery Director.
   - **Application Version**
     Specify the version number or ID of your application as it appears in Continuous Delivery Director.
   - **Create a Release**
     Select this option to create a release from a business application-related DSL file. After a TeamCity build completes, the release DSL is sent to Continuous Delivery Director. A new release is automatically created according to the application defined in the DSL file.
   - **DSL Parameters**
     Specify the business application DSL in the form of "name":"value" pairs. For example:

```
{"business_application_name": "Biometric Payment",
"BUSINESSAPPLICATION VERSION NAME": "master"}
```

   - **Override File Source Parameters**
     Select this option to override the file source parameters specified in Continuous Delivery Director form of "name":"value" pairs. For example:

```
{"branch": "master"}
```

4. Save your configuration.

When a successful TeamCity build completes, TeamCity sends a build notification to Continuous Delivery Director, and if specified, triggers release creation.

Related Links

Plug-in for JetBrains TeamCity on page 225

Use this plug-in to send build notifications from TeamCity to Continuous Delivery Director.

Configure Plug-in for JetBrains TeamCity on page 104

JFrog Artifactory Plug-in

The JFrog Artifactory plug-in lets you sync Docker images between Artifactory and Bintray through the Continuous Delivery Director user interface.

Plug-in Version 2.2

You can also copy items from one Artifactory repository to another repository. This integration enables you to use Artifactory as a key component of a continuous delivery pipeline for applications in Docker containers.

Supported Versions

The Artifactory plug-in supports Artifactory 4.*x* and above.

To learn more about Artifactory, see https://www.jfrog.com/

Download Options

Use one of the following options to download the latest plug-in version:

Method	Info
wget	`wget -O cdd-artifactory-plugin.war https://cspdl.broadcom.com/shared/static/lhqtp5zo00c2uuqfae01bj6gamp8d4g4.war?LCK=ent.box.com`
MD5	`f4bd71790534394d47f030c6e50d218e`
Click Download Button	⬇

Capabilities

The Artifactory plug-in lets you sync Docker images between Artifactory and Bintray.

What's New

The following updates were made for plug-in version 2.2:

- **Source Repository** in the **Copy Items** task is now optional; previously, this field was mandatory. If you leave this field empty, you can provide the repository name as part of the **Source File Path** value.

You can now either rename the source filename or keep the existing source filename. In **Source File Path**, you provide the file path including the file name.
If **Target File Path** does not contain a file name (for example: `maven-integration-local/com/ca/cdd/release-candidate/cdd-artifactory-plugin/`), the artifact is copied with the same name as in **Source File Path**.
To keep the same file name as in **Source File Path**, provide the target file path only. The file name in the target file path will be identical to the file name in the source file path.
If you provide a source file path up to the folder level, you can copy the entire content without changing the file names. Provide the target repository and the target file path up to the folder level, and the file names will match.
Target File Path is optional. If the field is empty, the files in **Source File Path** are copied to **Target File Path**.

The following updates were made for plug-in version 2.1:

- Support was added for Java 11.

The following update was made for 2.0:

- A new task, **Copy Item**, has been added. This task lets you copy an artifact or folder from a local Artifactory repository to another repository.

Configuration

Register the plug-in and create endpoints as described in Manage Plug-ins.

The URL of the Artifactory manifest for plug-in registration is http://<plugin-server>:<port>/cdd-artifactory-plugin/manifest.json.

Select the **Artifactory** plug-in in the **ADD ENDPOINT** dialog to create an endpoint for the Artifactory plug-in. The following Artifactory information is required when you create an endpoint:

- **Registry**
  Enter the URL of your Artifactory instance.
- **Username/Password**
  Enter the access credentials of an Artifactory user.

Tasks

The Artifactory plug-in provides the **Copy Item** and **Distribute Artifact** tasks.

For more information about creating tasks, see Tasks.

Copy Item

The **Copy Item** task lets you copy an artifact or folder from one Artifactory repository to another repository. This task requires the following information:

Input Parameters

- **Source Repository**
  (Optional) Specify the local repository from which you want to copy an artifact or a folder.
  > **NOTE**
  > If you leave this field empty, you can provide the repository name as part of the **Source File Path** value.

  Example: `docker-release-candidate-local`
- **Source File Path**
  Specify the file path under the local repository of the artifact or folder you want to copy. You can include file names.
  Example: `com/mycompany/cdd/trunk/7.0/server/CDD.last_successful_change`
- **Target Repository**

Specify the repository to which you want to copy the specified artifact or folder.
Example: `docker-release-candidate-local`

- **Target File Path**
  (Optional) Specify the file path under the repository to which you want to copy the specified artifact or folder. You can add new folders to the file path to create at runtime.

  NOTE

  To keep the same file name as in **Source File Path**, provide the target file path only. The file name in the target file path will be identical to the file name in the source file path.

  If you provide a source file path up to the folder level, you can copy the entire content without changing the file names. Provide the target repository and the target file path up to the folder level, and the file names will match.

  If **Target File Path** is empty, the files in **Source File Path** are copied to **Target File Path**.

  Example: `com/mycompany/cdd/release-candidate/server/CDD.last_successful_change`
- **Dry Run**
  Select this option to simulate moving your specified artifact or folder to Bintray without actually distributing this item.

Distribute Artifact

The **Distribute Artifact** task lets you sync Docker images between Artifactory and Bintray, in the context of Continuous Delivery Director phases and releases. This task requires the following information, which must match the corresponding Artifactory values:

TIP

Values: Applies to the **Source Repository**, **Tag**, and **Distribution Repository** properties.

To define a value, do one of the following actions:

- To select from a list of possible values, type an at sign "@" in the field.
  Example: **Deploy Tomcat**
- To select from a list of built-in tokens (reusable placeholders that are used to create generic workflows), type a percent sign "%" in the field.
- Type free text
- Enter a combination of free text and tokens

Input Parameters

- **Source Repository**
  Specify the name of the source repository in Artifactory where the Docker image is located
- **Image**
  Specify the name of the Docker image to upload to Bintray

  TIP

  Values: To define a value, do one of the following actions:

  - To select from a list of built-in tokens (reusable placeholders that are used to create generic workflows), type a percent sign "%" in the field
  - Type free text
  - Enter a combination of free text and tokens
- **Tag**
  Specify the name of the tag that is stored for the Docker image to upload to Bintray
- **Distribution Repository**
  Specify the name of the distribution repository through which the Docker image should be uploaded to Bintray

Kubernetes Plug-in

This plug-in lets you deploy containerized applications in a clustered environment and manage related, distributed components across varied infrastructures.

Plug-in Version 2.3.3-3

You can use this plug-in to perform the following Kubernetes-related tasks:

- Create Deployment
- Delete Deployment
- Set Image
- Import Files from AWS S3 (Kubernetes)

To connect to a specific instance of Kubernetes, add an endpoint. For more information, see Configure a Kubernetes Plug-in Endpoint.

For more information about Kubernetes, see Kubernetes documentation.

The following task types are available in the Kubernetes plug-in:

Download Options

Use one of the following options to download the latest plug-in version:

Method	Info
wget	`wget -O cdd-kubernetes-plugin.war https://cspdl.broadcom.com/shared/static/e1t4keczf4v89azpojulyapv4sewo7i5.war?LCK=ent.box.com`
MD5	`256cfb2cffefb59395615a4e2916ea5f`
Click Download Button	

Supported Versions

The Kubernetes plug-in supports the core Kubernetes solution.

What's New

The following update was made for 2.3.3-3:

- The Fabric8 software component used by this plug-in has been upgraded to version 5.1.1.

The following update was made for 2.3.3-2:

- Bugfix: The log bridge from Catalina to cdd-server log files now records fabric8 HTTP traffic only. Previously, idle k8s/os plug-in activities were recorded, resulting in very large log files.

The following update was made for 2.3.3-1:

- The Kubernetes plugin now logs complete details of all HTTP requests and responses, including HTTP method, URL, headers, and body).

The following update was made for 2.3.2:

- Bugfix: Invalid build references were removed from the plug-in.

The following updates were made for 2.3.1:

- You can now select GitLab, AWS S3, and Web Service as source control systems from which to import YAML files. Previously, you could only select GitHub and Bitbucket. These new options have been added to the **Source Control** endpoint parameter.
- You can now use AWS S3 as a file source, a connection to JSON format representations of releases.

The following updates were made for 2.0:

- The method to authenticate to the Kubernetes service account has been changed from Basic (username/password) to Bearer tokens.
- Support was added for Java 11.

Configure a Kubernetes Plug-in Endpoint

You are familiar with Kubernetes.

You have the **Can create endpoints** permission.

1. Register the plug-in as described in Manage Plug-ins.
   The manifest for the Kubernetes plug-in is `http://<host>:<port>/cdd-kubernetes-plugin/manifest.json`
   .
2. From the **Administration** menu, click **Endpoints** > **Add Endpoint**.
3. In the **ADD ENDPOINT** dialog, select the **Kubernetes** plug-in.
4. Configure the following input parameters:
   - **URL**
     Specify the URL of the Kubernetes API. Example: `https://api.cluster.com/`
   - **API Token**
     Specify the Bearer token to authenticate to your Kubernetes service account.
   - **Source Control**
     Select the required source control system to connect to your file repository.
     GitHub
     - **GitHub API URL**
     - **GitHub Owner**
     - **GitHub Repository**
     - **GitHub Branch**
     - **GitHub Username**
     - **GitHub Password**

     GitLab
     - **GitLab API URL**
     - **Authentication Method**
       Select either **OAuth2 Token** or **Personal Access Token**.
     - **GitLab Owner**
     - **GitLab Repository**
     - **GitLab Branch**

     Bitbucket
     - **Bitbucket API URL**
     - **Account Name/Project Key**

Specify the Bitbucket account name or project key.

- **Bitbucket Repository**
- **Bitbucket Branch**
- **Bitbucket Username**
- **Bitbucket Password**

AWS S3

- **Service API URL**
- **Region**
- **Access Key**
- **Secret Key**
- **Bucket Name**

Web Service

- **Web Service API URL**
- **Web Service Username**
- **Web Service Password**

- **Trust Any SSL Certificate**
  Select this option if you want to allow untrusted and unsigned SSL/TLS certificates.

  WARNING
  Use at your own risk! Selecting this option can expose your environment to "man in the middle" attacks. CA Technologies does not accept responsibility for security vulnerabilities that are caused by selecting this option.

5. To check the connection to Kubernetes and to the source control system, click **Test Connection**.
6. Click **Add**.

Create Deployment

This task lets you deploy your containerized applications on top of a running Kubernetes cluster from your release pipeline.

One or more Kubernetes endpoints are available.

1. In a release, create an automatic task as described in Create Automatic Tasks.
2. Configure the following input parameters:

- **Namespace**
  (Optional) Specify the Kubernetes virtual cluster namespace. For more information about namespaces, see Kubernetes documentation.
- **Branch**
  Specify the source control branch.
- **Manifest File Path**
  Specify the file path to a YAML file in the source control repository.
- **YAML Settings**
  Specify a list of key/value pairs to update in the deployment YAML manifest. Example: To update the image.tag element of a manifest file, specify: `image.tag: saas-dev-1.6.0.7` . Start a new line for each keys/value pairs you specify.

3. Click **Create**.

Delete Deployment

This task lets you delete a Kubernetes deployment from your release pipeline.

One or more Kubernetes endpoints are available.

1. In a release, create an automatic task as described in Create Automatic Tasks.
2. Configure the following input parameters:
   - **Namespace**
     (Optional) Specify the Kubernetes virtual cluster namespace. For more information about namespaces, see Kubernetes documentation.
   - **Branch**
     Specify the source control branch.
   - **Manifest File Path**
     Specify the file path to a YAML file in the source control repository.
3. Click **Create**.

Set Image

This task lets you identify which builds Kubernetes has deployed.

One or more Kubernetes endpoints are available.

TIP
Add the build ID to the docker image as a tag to enable this plug-in to read the tag and return that tag as the build ID. This action allows tasks and reports to display the build ID.

1. In a release, create an automatic task as described in Create Automatic Tasks.
2. Configure the following input parameters:
   - **Namespace**
     Specify the Kubernetes virtual cluster namespace. For more information about namespaces, see Kubernetes documentation.
   - **Deployment Name**
     Specify the Kubernetes deployment name.
   - **Container Name**
     Specify an image container name.
   - **Image Name**
     Specify an image name.
3. Click **Create**.

Import Files from AWS S3 (Kubernetes)

The Kubernetes plug-in lets you use AWS S3 as your file source, a connection to JSON format representations of releases.

You have been granted **Can create file source** permissions.

1. Open the **CREATE FILE SOURCE** dialog as described in File Sources.
2. In **Select Source Control**, choose **Import from AWS S3**.
3. Configure the following input parameters:
   - **Namespace**
     Specify the Kubernetes virtual cluster namespace. For more information about namespaces, see Kubernetes documentation.
   - **Releases Created On Behalf Of (API Key)**
     Specify the API key of the user on whose behalf future releases will be created.
   - **Send Error Notifications To**
     Specify recipient/s for error notifications.
4. Click **Create**.

Maven Testing Plug-in

This plug-in lets you import and execute tests of a Maven-based Java project supporting TestNG and JUnit test framework in your release pipeline.

The Maven Testing plug-in is containerized and supports Adaptive Testing functionality. This plug-in is available as a Docker image on the customer support portal which has specific requisites and installation steps.

Plug-in Version 1.5

Download Options

Use one of the following options to download the latest plug-in version:

Method	Info
wget	`wget -O cdd-maventesting-plugin-v1.5b124.tar.gz https://cspdl.broadcom.com/shared/static/0xi7f65bq4ezm4tugcs2v07vyu8sfntl.gz?LCK=ent.box.com`
MD5	`aa0b5693c1c3006f8c46b7384fe6c8cc`
Click Download Button	
Download Docker Image from the Customer Support Portal	Yes
Download TAR file from the Customer Support Portal for customers who cannot use `docker pull`	Yes

Supported Versions

This plug-in has been tested with the following Maven versions:

- 3.6.2
- 3.6.3

What's New

The following updates were made for plug-in version 1.5:

- The functionality of the **Maven Project** parameter in the **Get Test Assets** (Import Test Suites) task has changed. Previously, you specified the name of a project from which to import test suites. Now you specify one or more relative paths to subprojects separated by commas from which to import test suites.
- The **New or Updated Test Suites** heuristic is now supported for SVN test suites. This metric is a weighting factor when the Test Advisor intelligently selects a subset of test suites to run in subsequent test cycles.

The following updates were made for plug-in version 1.4:

- A **Project Base Directory** parameter was added to the **Get Test Assets** task.

Manifest URL

For plug-in registration, use the following manifest URL:

http://<plugin-server>:<port>/cdd-maventesting-plugin/manifest.json

Configuration

To use this plug-in through the Containerized Manager, add the following lines to the Continuous Delivery Director settings.properties file:

```
cdd.plugins.containerized.maventesting.container.image_name=docker-release-candidate-local.artifactory-
lvn.broadcom.net/com/ca/cdd/trunk/8.0/plugins/maventesting:29
cdd.plugins.containerized.maventesting.container.volumes.artifacts.volumes=dependencies:/home/cdd/.m2
cdd.plugins.containerized.maventesting.container.name_prefix=mt
```

Endpoint Parameters

The following parameters are required to create an endpoint:

- **Version Control System**
  Specify the version control system where your source project resides.
  - **Git/SVN**
    - **Git/SVN Project URL**
      Specify the URL to access the Git/SVN project repository
    - **Git/SVN Username**
      Specify the Git/SVN user name to authenticate to Git/SVN.
    - **Git/SVN Password**
      Specify the password for the Git/SVN user to authenticate to Git/SVN.

To check the connection to Maven and to the version control system, select **Test Connection**. The **Test Connection** action returns the following results:

- **Success**
  The connection was successful
- **Failure**
  The connection failed

Get Test Assets

The Maven plug-in lets you import test suites into the Adaptive Testing Catalog.

Follow these steps:

1. Select **Tests**, then **Adaptive Testing Catalog**.
2. Specify the **Application** and the **Application Version**.
   The menu next to the application name and version is activated.
3. Select **Get Test Assets**. The **Import Test Suites** dialog opens.
4. Fill in the following fields:
   - **Branch**
     Specify the branch name.
   - **Project Base Directory**
     Specify the relative path to the project base directory. This is the location of the project pom.xml.
   - **Maven Project**
     Specify one or more relative paths to subprojects separated by commas from which to import test suites. Leave empty to import from all subprojects.

     NOTE
     Subprojects (submodules) are regular Maven projects that inherit their configuration and dependencies from a parent POM.
   - **Source Set**
     (Optional). Specify the name of a source set from which to import test suites. Leave empty to import from all projects and sub-projects.

     NOTE
     A source set is a collection of Java source files and additional resource files that are compiled and assembled together to be executed. The main idea of source sets is to group files with a common meaning for the project, without the need to separate those files in another project.
   - **Additional Execution Parameters**
     (Optional) Specify comma-separated name: value pairs of parameters to pass on to Maven.
     Example: `HOST:google.com,PORT:8080`
   - **JVM Parameters**
     (Optional) Specify space-separated JVM parameters to customize individual instances.
     Example: `-Dtest.HOST=google.com` Overrides the IP address or host name of URL used by the browser to execute tests.
   - **Tags**
     Select one or more tags to execute test suites tagged with your selection. Leave empty to execute all the test suites under the application version.
     Example: Type `ro` to retrieve all test suites tagged with labels beginning with *ma*, such as *maven.sanity.test*

Micro Focus ALM Plug-in

The Micro Focus Application Lifecycle Management (ALM) plug-in enables you to import and run functional test sets as your applications progress through your CI/CD pipeline.

Plug-in Version 2.4-2

NOTE

Micro Focus Application Lifecycle Management was formerly known as HP Application Lifecycle Management (HP ALM).

This integration allows you to take advantage of all ALM UFT (Unified Functional Test) features while harnessing the power of Continuous Delivery Director. By running functional test sets in the release pipeline, you get real-time execution of functional tests. You also get the test results so you can see the context and status of the testing process.

This page explains how to link an ALM account to Continuous Delivery Director and how to configure ALM-related tasks.

Supported Versions

The ALM plug-in supports Application Lifecycle Management 12.xx.

NOTE

For OnPrem users: The ALM plug-in is not autoregistered. You can only run the ALM plug-in on a Windows server.

For SaaS users: The ALM plug-in is not autoregistered. You can only run the ALM plug-in on an on-prem Windows server connected to Continuous Delivery Director with the plug-in proxy.

For more information, see the ALM documentation at https://software.microfocus.com/en-us/solutions/software-development-lifecycle.

Download Options

Use one of the following options to download the latest plug-in version:

Method	Info
wget	`wget -O cdd-alm-plugin.war https://cspdl.broadcom.com/shared/static/2dlwb4tdpntljqkywxinuuxanp1m5e82.war?LCK=ent.box.com`
MD5	`8f758d44f6e7901da804d1d0463f7efc`
Click Download Button	⬇

Change History

The following update was made for plug-in version 2.4-2:

- Fixed: On the **Folder** field in the **Get Test Assets** task, the tooltip incorrectly states that tokens can be used.

The following update was made for plug-in version 2.4-1:

- Fixed: When importing tests fails, the error message refers to "folder" instead of "test-set-folder" and does not include an instruction to specify the top-level ("Root") folder.

The following update was made for plug-in version 2.4:

- Fixed: When a user stopped a phase while an ALM Adaptive Testing task was running, the plug-in did not abort the run.

The following updates were made for plug-in version 2.2:

- Tests can now run in batch mode. Previously, tests could only run one-by-one.
- The Test Advisor can now run ALM test suites according to the New and Updated tests heuristic.

The following update was made for plug-in version 2.1:

- Support was added for Java 11.

Set Up the Plug-in Server

The ALM plug-in uses ALM client tools which can run only on Windows. Therefore, you must install the plug-in on a Windows server with Tomcat pre-installed. You also install the ALM client tools on the same Windows server and enable the tools to work with the ALM application.

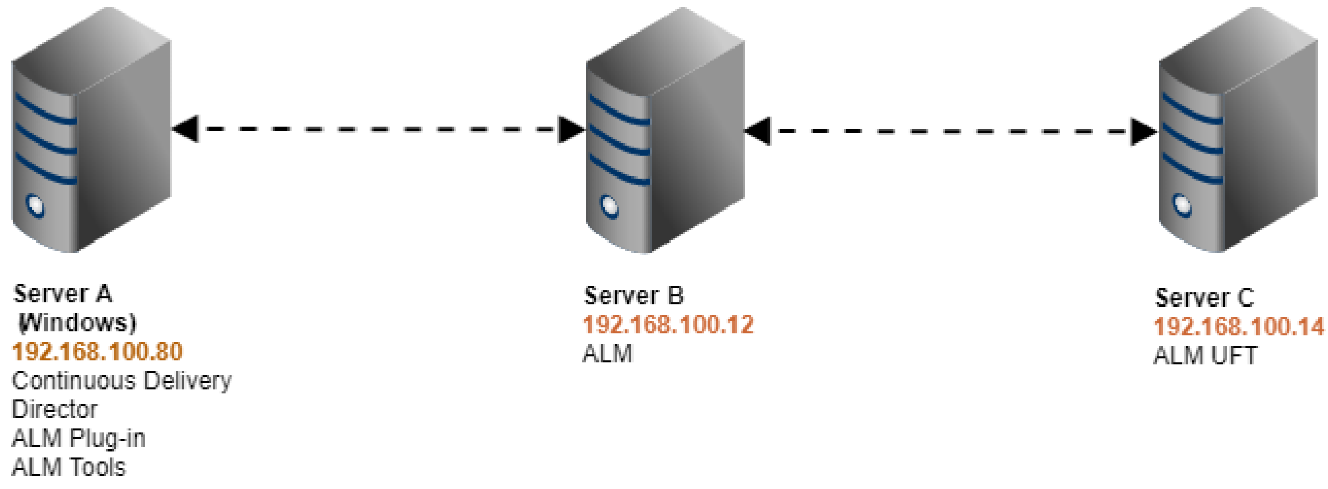
If Continuous Delivery Director is installed on a Windows server, you can install the ALM plug-in on the same Windows server.

If Continuous Delivery Director is **not** installed on a Windows server, install the ALM plug-in on a separate Windows server.

ALM Plug-in System Landscapes

Example 1: Continuous Delivery Director installed on a Windows Server

Figure 9: ALM Plug-in 1



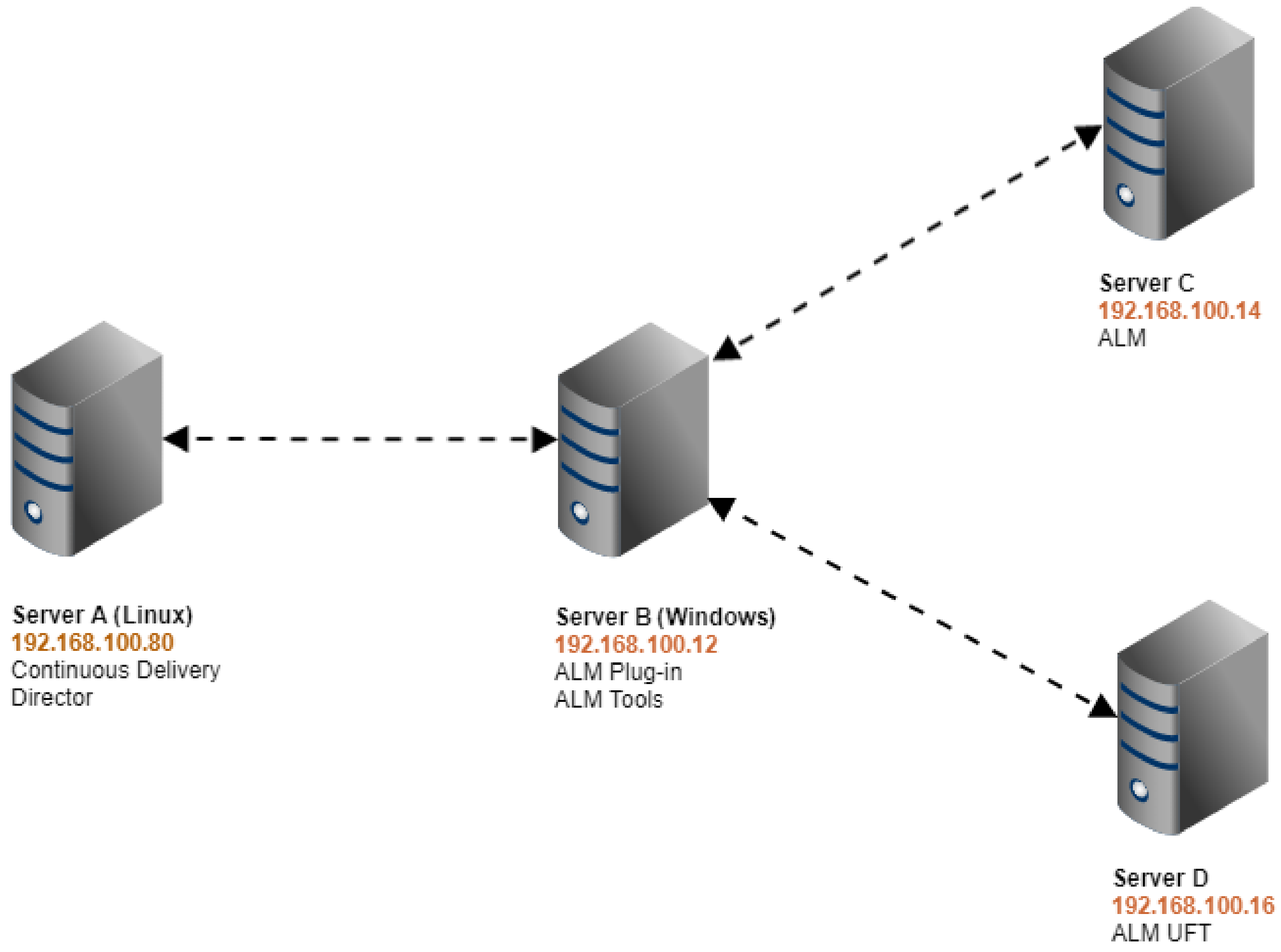
Explanation of Example 1

Three servers are used in this scenario:

- Server A is a Windows server and contains the Continuous Delivery Director, the ALM plug-in, and the ALM client tools installation files.
- Server B contains the ALM installation files.
- Server C contains the UFT (Unified Functional Testing) installation files.

Example 2: Continuous Delivery Director installed on a Linux Server

Figure 10: ALM Plug-in 2



Explanation of Example 2

Four servers are used in this scenario:

- Server A is a Linux server and contains the Continuous Delivery Director installation files.
- Server B is a Windows server and contains the ALM plug-in and the ALM client tools installation files.
- Server B contains the ALM installation files.
- Server C contains the UFT (HP Unified Functional Test) installation files.

Follow these steps:

1. Provision a Windows server for the ALM plug-in.
   Note:
   - If Continuous Delivery Director is installed on a Windows server, you can install the plug-in on the same Windows server.
   - If Continuous Delivery Director is **not** installed on a Windows server, install the plug-in on a separate Windows server.
2. On the Windows server, install Apache Tomcat 8.x.
3. From either the support site https://casupport.broadcom.com or the Continuous Delivery Director Integration Hub, download the ALM packaged plug-in (*.*war file).

4. On the Windows server, copy the ALM plug-in `*.*war` file.
5. Still in the Windows server, open Microsoft Internet Explorer **as an administrator**.
   Note: Continuous Delivery Director supports Microsoft Internet Explorer versions 11 and higher.
6. Enter the URL: `http://<ALM-Server>:<ALM-Port>/qcbin/start_a.jsp?common=true.` The ALM Management web page opens.
7. Follow the instructions in the tools section in the ALM management web page and deploy the following ALM client tools on this server:
   – HP ALM Connectivity
   – HP ALM Client Registration
   – Shared Deployment for Virtual Environments
8. On the UFT server, verify that the DCOM configuration properties for that computer give you the proper permissions to launch and configure the UFT COM server.

Configuration

Register the plug-in and create endpoints as described in Manage Plug-ins.

Manifest URL

For plug-in registration, use the following ALM manifest URL:

http://<plugins-server>:<port>/cdd-alm-plugin/manifest.json

Endpoint Parameters

To create endpoints, provide the following parameters:

- **URL**
  Specify the ALM URL
  Syntax: http://<ALM server name>[<:port number>]/
- **Username**
  Specify the ALM account user name
- **Password**
  Specify the ALM account password

To check the connection to ALM, use the endpoint **Test Connection** option. The **Test Connection** option returns the following results:

- ***S*uccess**
  The connection was successful
- **Failure**The connection failed

Tasks

The following task types are available in the ALM plug-in:

Run Functional Test Set

The Run Functional Test Set task lets you schedule automated tests that are preconfigured in ALM. Tests in this test set use server-side execution. This task contains the following fields:

Input Parameters

- **Domain**

Specify the ALM domain that contains the group of ALM projects where the required test set resides. Type an at sign @ to get a list of domains for which you are authorized.

- **Project**
  Specify the ALM project where the required test set resides. Type an at sign @ to get a list of domain projects that you are authorized to access.
- **Folder**
  Specify the name of the folder where the required test set resides.
  Syntax: `Root\Folder1\Folder2`
- **Test Set Name**
  (Optional) Specify the name of the test set to run. If left empty, all test sets in the specified folder run. Type an at sign @ to get a list of all the test sets of the specified folder.
- **Test Name**
  (Optional) Specify a single test to run. If left empty, all the tests in the specified test are set to run. Type an at sign @ to get the list of all the tests of the specified test set.
- **Host Name**
  Specify the hostname of the UFT server.
- **Timeout**
  (Optional) Specify the number of seconds allowed to pass before the test execution fails.

When the tests run, you can view the status of the current test by hovering over the status icon of the task. The tasks fail if one or more tests have failed during the run.

Import Functional Test Sets

The Import Functional Test Sets task lets you import preconfigured automated tests that are stored in ALM. This task contains the following fields:

Input Parameters

- **Domain**
  Specify the ALM domain that contains the group of ALM projects where the required test sets reside. Type an at sign @ to get a list of domains for which you are authorized.
- **Project**
  Specify the ALM project where the required test sets reside. Type an at sign @ to get a list of domain projects that you are authorized to access.
- **Folder**
  Specify the name of the folder where the required test sets reside.
  Syntax: `Root\Folder1\Folder2`
- **Host Name**
  Specify the host name of the UFT server.
- **Timeout**
  (Optional) Specify the number of seconds allowed to pass before the import job fails.

Microsoft Teams Plug-in

Use this plug-in to integrate Microsoft Teams real-time messaging with your release pipeline.

The messages that are posted are in the form of Teams message cards.

Plug-in Version 1.2

What's New

The following changes were added for plug-in version 1.2:

- You can now send messages to different teams and channels using the same webhook which saves you unnecessary effort. To support this change, a new parameter, **Webhook Suffix** has been added to the **Post Message** task. This parameter overrides the endpoint webhook suffix.
- **Additional Facts**
  You can now specify additional facts in the **Post Message** task in addition to the facts you specify in the **Fact 1-3 Name** and **Fact Value 1-3** parameters. Previously, you could only define up to three facts.

The following changes were added for plug-in version 1.1:

- You can now use a proxy server for the Teams plug-in. To support this functionality, a checkbox, **Use Proxy**, was added to the endpoint parameters. If selected, the following fields appear:
  - **Proxy Server URL**
  - **Proxy Server Username**
  - **Proxy Server Password**

Download Options

Use one of the following options to download the latest plug-in version:

Method	Info
wget	`wget -O cdd-msteams-plugin.war https://cspdl.broadcom.com/shared/static/yjcpq436eiasaui0c61zvwcskjrdo5wj.war?LCK=ent.box.com`
MD5	`c64d62b260e249a3303daa000b6050d5`
Click Download Button	

Supported Versions

The Teams plug-in supports the core Teams SaaS solution.

For more information, see the Teams documentation at https://teams.microsoft.com/.

Configuration

Register the plug-in and create endpoints as described in Manage Plug-ins.

Manifest URL

For plug-in registration, use the following Teams manifest URL:

```
http://<plugin-server>:<port>/cdd-msteams-plugin/manifest.json
```

Endpoint Parameters

The following parameters are required to create an endpoint:

- **Webhook URL**
  Copy and paste the URL of an incoming Webhook connector as defined in the channel settings.
- **Use Proxy**
  Select this option to connect to a remote endpoint through a proxy server

  NOTE
  If selected, the **Proxy Server URL**, **Proxy Server Username**, and**Proxy Server Password** fields appear.
- **Proxy Server URL**
  Specify the proxy URL including protocol, domain name/IP and port. Syntax: <protocol>://<hostname>:<port>. Ex.: \"http://192.168.0.101:8080\".
- **Proxy Server Username**
  Specify a user name to authenticate to the proxy server. Leave empty if authentication is not needed (the proxy server is public).
- **Proxy Server Password**
  Specify a password to authenticate to the proxy server. Leave empty if authentication is not needed (the proxy server is public).

To check the connection to Teams, use the endpoint **Test Connection** option. The **Test Connection** option returns the following results:

- `Success`
  Both connections were successful.
- `Failure`
  One or more connections failed.

Tasks

The following task types are available in the Teams plug-in:

Post Message

To send a message through your Teams incoming webhook, you post a JSON payload to the webhook URL. This payload is in the form of a Teams message card. The Post Message task requires the following fields:

Input Parameters

TIP

You can use tokens in input parameters. To select from a list of available tokens, enter the percent sign (%) in the task field.

- **Webhook Suffix**
  Specify a webhook suffix to override the value in the Webhook URL endpoint parameter. This parameter lets you send messages to different teams and channels using the same webhook which saves you unnecessary effort.
- **Title**
  Specify a title to be displayed at the very top of the card.
- **Text**
  Specify text to be displayed in a normal font below the card title. Use text to display content, such as the description of the entity being referenced, or an abstract of a news article. You can use simple Markdown, such as bold or italics to emphasize words, and links to external resources.
- **Theme Color**
  Specify a custom brand color for the card in Hex code, for example, FF0000 for red and 00FF00 for green.
- **Additional Facts**

(Optional) Specify facts as name/value pairs in JSON format, in addition to the facts you specify in the **Fact 1-3 Name** and **Fact Value 1-3** parameters. Facts are presented in a two-column layout - Name, and Value. The fact name is rendered in a slightly more prominent font. Keep fact names short.

- **Fact 1 Name**
  Specify a fact name. Facts are presented in a two-column layout - Name, and Value. The fact name is rendered in a slightly more prominent font. Keep fact names short.
- **Fact 1 Value**
  Specify the fact value. You can use Teams message card Markdown formatting.
- **Fact 2 Name**
  Specify a fact name. Facts are presented in a two-column layout - Name, and Value. The fact name is rendered in a slightly more prominent font. Keep fact names short.
- **Fact 2 Value**
  Specify the fact value. You can use Teams message card Markdown formatting.
- **Fact 3 Name**
  Specify a fact name. Facts are presented in a two-column layout - Name, and Value. The fact name is rendered in a slightly more prominent font. Keep fact names short.
- **Fact 3 Value**
  Specify the fact value. You can use Teams message card Markdown formatting.

Nolio Release Automation Plug-In

This plug-in lets you leverage core Nolio application modeling and deployment capabilities.

Plug-in Version 5.5.9

NOTE

Formerly CA Release Automation

The Nolio Release Automation (Nolio) plug-in lets Continuous Delivery Director use Nolio applications and deployment plans in release deployments.

Note: This plug-in is only available for on-premise installations.

Download Options

Use one of the following options to download the latest plug-in version:

Method	Info
wget	`wget -O cdd-ra-plugin.war https://cspdl.broadcom.com/shared/static/ovfua95yb6qsfqx1re02zaocpqvnxdz4.war?LCK=ent.box.com`
MD5	`16921f7d27f1baff3cdc3b955ae1019b`
Click Download Button	⬇

Supported Versions

The Nolio plug-in supports Nolio 5.5.1 and above.

Capabilities

The Nolio plug-in lets you do the following tasks:

- Import a full application model from a Nolio instance. You can include all Nolio applications models and their environments in releases, phases, tasks, reports, and widgets.
- Run a deployment plan in Nolio from a task in a release.
- Run a deployment plan.

What's New

The following updates were made for plug-in version 5.5.9:

- Support was added for Java 11.

Configuration

Register the plug-in and create endpoints as described in Manage Plug-ins.

The URL of the Nolio manifest for plug-in registration is http://<plugin-server>:<port>/cdd-ra-plugin/manifest.json.

Select the **Release Automation** Endpoint Type in the **ADD ENDPOINT** dialog to create an endpoint for the Nolio plug-in. The following Nolio information is required when you create an endpoint:

- **URL**
  Enter a valid access URL for the Nolio instance. The URL can be specified as http or https. The default Nolio management server port is 8080.
  Example: http://<ra-server>:8080
- **Username/Password**
  Enter the credentials of a Nolio user. The user must be authorized to view applications or create/execute a deployment on the remote Nolio instance.

Tasks

The Nolio plug-in provides the following tasks:

- Run Deployment
- Run Process

Run Deployment Task

Release automation is a key component of your continuous delivery pipeline. The **Run Deployment** Task lets you run a Nolio deployment plan in the context of Continuous Delivery Director phases and releases. This task lets you orchestrate core Nolio activities at a high level. For example, a Continuous Delivery Director release might include multiple applications that you can deploy through the applications Nolio deployment plans.

The Run Deployment task requires the following information, which must match the corresponding Nolio deployment plan values:

> **TIP**
>
> Tokenize these values to enter them only once per release across phases and insulate yourself from changes during the release execution process.

- **Application**
  Specifies the Nolio application name. Find application names in the Applications pane if you imported the Nolio application model and assigned the relevant applications to the release.
  Note: In Nolio, the application name on most Release Operations Center screens are in the top menu bar.

TIP

Type the @ symbol into the Application field to select from a list of applications in the Nolio instance. After you populate the Application field, you can use the @ symbol in other fields to select from dynamic parameters based on the application name. For example, the Project field provides a list of all projects associated with the selected application.

- **Deployment Plan**
  Specifies the Nolio deployment plan name. Find the deployment plan name in the **Deployment Plans by Projects** page in Release Operations Center. Select the relevant project for your application to see all deployment plans in a table.
- **Build**
  Specifies the build number associated with the selected deployment plan. Every deployment plan requires a build number. Find the build number on the **Deployment Plans by Project** page in the **Deployment Plans** table.
  Note: For a list of available builds depending on application, project, and deployment plan, type the at symbol (@) in the **Build** field.
- **Project**
  Specifies the project name under which you created the deployment plan. Find the project name in the left pane on the Deployment Plans by Project page in Release Operations Center.
- **Environment**
  Specifies the Nolio environment on which to perform the deployment. If you imported the application model from Nolio, you can find the environments associated with that application on the **Applications and Environments** page on the **ADMINISTRATION** tab of the Continuous Delivery Director UI. You can also find the environments associated with the application on the **Environments**, **Environments and Tags** page of the Release Operations Center UI.
- **Deployment**
  Specifies the name of the deployment created by the **Run Deployment** task when you have chosen not to use a manifest.
- **Manifest**
  Defines the XML with deployment parameters. You can also add values to the manifest using Continuous Delivery Director tokens. At runtime, Continuous Delivery Director uses the manifest values when creating the release. **Note:** Each process has its own unique manifest. To get the manifest:
  a. In Nolio, select the relevant deployment tag.
  b. From the right-click menu, select **Generate Manifest**. Your browser downloads the manifest file.
  c. Using a text editor, open the manifest and specify the required values.
  d. Copy and paste the updated manifest text into the **Manifest** field for the **Run Deployment** task.

  Format: Free text
  Limits: 10240 characters
  Example:

```
<?xml version="1.0" encoding="UTF-8"?
>
<DeploymentManifest name="CounterWebApp-DeploymentPlan" project="CounterWebApp-
Project" build="1.0">
  <properties></properties>
  <Initialization>
    <step name="STEP">
      <PRE-PROCESS></PRE-PROCESS>
    </step>
  </Initialization>
  <Deployment>
    <step name="STEP 2">
      <SampleProcess>
```

```
          <Application_Parameters>
            <DELAY_PARAMETER templateProperty="false">60</DELAY_PARAMETER>
          </Application_Parameters>
        </SampleProcess>
      </step>
    </Deployment>
    <Post-Deployment></Post-Deployment>
  </DeploymentManifest>
```

- **Fail This Task When Step Errors Occur In:**
  Specify that the **Run Deployment** task fails if a step in a selected stage is in **failed paused** status. A task in the failed paused status indicates a problem with the deployment. To resolve the issue, go to the Nolio user interface, locate the error, and select **Resume Error**.

Run Process Task

The Run Process task lets you use the Nolio API to run deployment tasks that are not part of a deployment plan.

This task has the following parameters:
Note: Except for **Manifest**, the following parameters are provided through the dynamic parameters function.

- **Application**
  The application in Nolio that contains the process that you want to run
- **Environment**
  The Nolio environment that contains the process that you want to run
- **Process**
  The process that you want to run
- **Tag**
- **Manifest**
  Defines the XML with release scope parameters and values for process execution. **Note:** Each process has its own unique manifest. To get the manifest:
  a. In Release Automation, select the relevant process tag.
  b. From the right-click menu, select **Generate Manifest**. Your browser downloads the manifest file.
  c. Using a text editor, open the manifest and specify the required values.
  d. Copy and paste the updated manifest text into the **Manifest** field for the **Run Process** task.
  Format: Free text
  Limits: 10240 characters

The task shows the process status and progress.

To stop the task and the process execution, select **Stop task**.

The task succeeds when the process succeeds, and the task fails if the process fails.
Note: If the task fails, select the failed status to show the error details.

A task in the **failed paused** state indicates a problem with the process. To resolve the issue either:

- Stop or skip the task.
- Go to the Nolio UI, locate the error, and select Resume Error.

Application Model Import

During product configuration, you can import the application and environment models from Nolio. Using Nolio application models lets you tie release activities and content to real applications and environments.

For more information about application model import, see Applications and Environments.

Playwright Plug-in

This plug-in lets you execute Playwright test suites as part of your release pipeline.

Plug-in Version 1.0

This plug-in integrates with Playwright, a node.js tool to automate end-to-end web testing. Playwright is an open-source, JavaScript-based, cross-browser automation library. The goal of Playwright is to provide a single API to developers and testers to automate their web applications across three major browser engines:

- Chromium
- Firefox
- WebKit

The Playwright plug-in is containerized and supports Adaptive Testing functionality. You can import tests from Playwright to run as test suites within release pipelines.

Download Options

Use one of the following options to download the latest plug-in version:

Method	Info
wget	`wget -O cdd-playwright-plugin-v1.0b25.tar.gz https://cspdl.broadcom.com/shared/static/50flr34slofoltg3t3yj8pkfil34o3ds.gz?LCK=ent.box.com`
MD5	`6b03cb462b0b86560940ff84b37c094b`
Click Download Button	⬇
Download Docker Image from Customer Support Portal	Yes
Download TAR file from Customer Support Portal for customers who cannot use `docker pull`	Yes

Configure a Playwright Endpoint

You are familiar with Playwright.

You have been granted the **Can create endpoints** permission.

1. Register the plug-in as described in Manage Plug-ins.
   The manifest for the Playwright plug-in is `http://<host>:<port>/cdd-playwright-plugin/manifest.json`
   .
2. From the **Administration** menu, click **Endpoints** > **Add Endpoint**.
3. In the **ADD ENDPOINT** dialog, select the **Playwright** plug-in.
4. Configure the following endpoint parameters:
   - **Version Control System**
     Specify the version control system where your source project resides. Default: Git.
   - **Git Repository URL**

Specify the URL to access the Git project repository.

- **Git Username**
  Specify the user name to access GitHub.
- **Git Password**
  Specify the password to access GitHub.

5. Click **Test Connection** to check the connection to Playwright.
6. Click **Add**.

Get Test Assets (Playwright)

The Playwright plug-in lets you import test suites into the Adaptive Testing Catalog.

1. Select **Tests**, then **Adaptive Testing Catalog**.
2. Specify the **Application** and the **Application Version**. The menu next to the application name and version is activated.
3. Select **Get Test Assets**.
4. Fill in the following fields:

   TIP
   Open your Playwright instance so that you can check input values.

   NOTE
   Use the @ symbol in the following fields to select from a dynamic list of entities associated with the selected project.

- **Test Source Name**
- **Plug-in**
  Select **Playwright** and **Import Test Suites (Playwright).**
- **Endpoint**
  Select a Playwright endpoint.
- **Branch**
  Specify the branch name in your source control system.
- **Project Base Directory**
  Specify the relative path to the folder containing the test suites from which you want to import. When left empty, tests will be imported from the root folder.
- **Additional Execution Parameters**
- **Environment Variables**
  Specify environment variables to be used during test execution as name:value pairs in JSON format.
- **Tags**
  Select or create one or more tags to label the imported tests.

5. Click **Create**.

Rally® Plug-In

This plug-in integrates with project tracking and change management capabilities

NOTE

Formerly CA Agile Central

Plug-in Version 2.18-1

Agile management tools, like Rally, enhance release and application communication and insight across the continuous delivery pipeline.

Download Options

Use one of the following options to download the latest plug-in version:

Method	Info
wget	`wget -O cdd-rally-plugin.war https://cspdl.broadcom.com/shared/static/pdrsurlym97oc1e17hat864t3b4zvkgg.war?LCK=ent.box.com`
MD5	`e58354c73ebfbedec36d9ec51a5d98e2`
Click Download Button	⬇

Supported Versions

The Rally plug-in supports the core Rally SaaS solution.

The plug-in supports version 2.0 of the Rally API.

Capabilities

The Rally plug-in lets you perform the following tasks:

- Import content from a Rally instance into an application version
- Update application content in Rally from a task in a release

What's New

The following updates were made for plug-in version 2.18-1

- Bugfix: The Rally plug-in rejected work items with a non-standard tag prefix. In Rally, work item IDs consist of a tag prefix and a numerical value. The tag can be customized by system administrators to reflect a differentiating prefix for each work item defined in a project, for example, a user story has the ID S198355 instead of US198355.

The following updates were made for plug-in version 2.18

- Bugfix: Work items in Rally with Released status are not treated in Continuous Delivery Director as completed work items. A green checkmark indicating Complete status is not assigned to any associated work items with the Rally statuses Accepted and Released.

The following updates were made for plug-in version 2.17

- Bugfix: Multiple duplicate copies of "actual" work items were generated when applications were shared with multiple releases.

The following updates were made for plug-in version 2.16

- You can now import and execute manual test suites

The following updates were made for plug-in versions 2.12-2.15

- Assorted bug fixes

The following updates were made for plug-in version 2.11

- A new field, **Success Rate**, has been added to the **Check Test Case Results** task. Users can enter the percentage of tests that are required to pass for the task to succeed.
- Support has been added for the Multi-Value Dropdown List, a Rally custom field type.

The following updates were made for plug-in version 2.5:

- Support was added for Java 11.

The following updates were made for plug-in version 2.4:

- Two new input parameters have been added, **Additional Filters**, and **Import from Child Projects**.

Configuration

Register the plug-in and create endpoints as described in Manage Plug-ins.

The URL of the manifest for Rally plug-in registration is http://<plugin-server>:<port>/cdd-rally-plugin/manifest.json

Select the **Rally Platform** Endpoint Type in the **ADD ENDPOINT** dialog to add an endpoint for the Rally plug-in. The following Rally information is required when you create an endpoint:

- **URL**
  Specifies the URL to access the Rally instance.
  Example: https://rally1.rallyserver.com
- **Workspace Name**
  Specifies the name of the workspace that contains the project information to include as content for release application. To see available workspaces in the Rally interface, click the building icon at the top left next to the project name.
- **API Key**
  Specifies the API Key that provides permission for API-based access to Rally information. To obtain an API key, contact your administrator.

  TIP

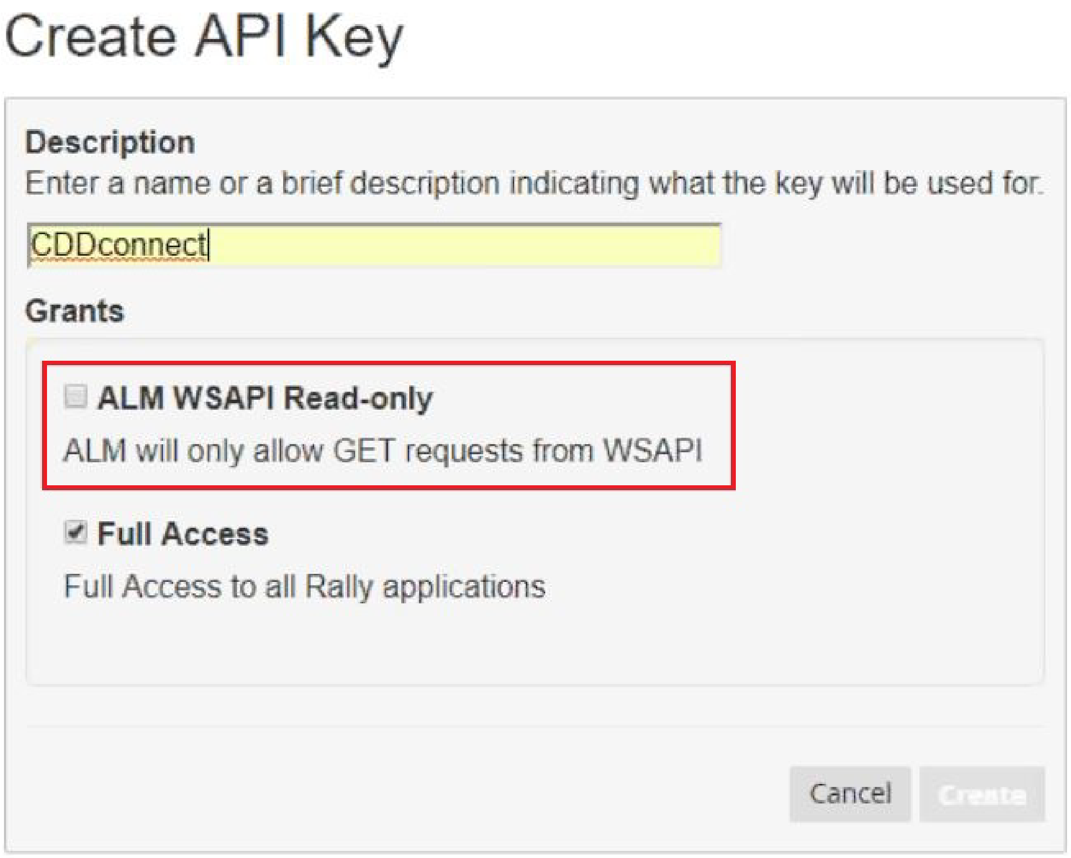
  - To generate an API Key by user in Rally, use the following link when logged in to Rally:

  https://<rallyserver>/login/accounts/index.html#/keys

  - For security purposes, we recommend that you create a user in Rally for Continuous Delivery Director and generate a key specific to that user.

  WARNING

  When you create an API key in Rally, ensure that the ALM WSAPI Read-only check box is cleared. Otherwise, Rally tasks may fail with the error `Update Task - HTTP/1.1 401 Unauthorized`.


Create API Key

Description

Enter a name or a brief description indicating what the key will be used for.

CDDconnect

Grants

☐ ALM WSAPI Read-only

ALM will only allow GET requests from WSAPI

☑ Full Access

Full Access to all Rally applications

For more information, see KB000106976.

Tasks

The Rally plug-in provides the following tasks:

- Update Content Item Status
- Check Test Case Results

TIP

For task fields where you can select a value from the Rally instance, type the @ symbol to receive a list of available values to choose from.

Update Content Item Status

This task is named **Rally Update** in the UI. The task lets you dynamically update the status of a Rally work item from a task.

Example: If you cannot close a story until the release deployment, this task closes the story after the deployment is complete.

This task requires the following information:

- **Project Name**

Specifies the name of the Rally project that contains the work item to update. The project name appears in the upper left corner of the Rally interface.

- **Type**
  Specifies the work item type (Defect or Task).
- **Rally Item ID**
  Specifies the ID number of the specific work item to update.
  Example: DE143243
- **New Item Status**
  Specifies the new status of the work item.
  Example: Select Completed to close the work item when the task completes.

Check Test Case Results

This task allows you to view test case results for specific Rally stories and defects. The plug-in retrieves the results of all test cases for the specified user stories and defects.

This task requires the following information:

- **Project Name**
  Specify the name of the Rally project that contains the test cases to query. The project name appears in the upper left corner of the Rally interface.
- **Work Item IDs**
  Specify a list of user stories, test sets, and defect ID numbers for which you want to check test case results. Separate the ID numbers with commas.
- **Test Case Type**
  Select the appropriate test case type from the drop-down list.
- **Success Rate**
  Specify the percentage of successful tests required for this **Check Test Case Results** task to succeed.
  This field is mandatory, and the default value is 100%.
  Example: If you enter 80 and less than 80% of the tests pass, the task fails.

Import Work Items

The Rally plug-in lets you import Rally work items into an application. Use this capability when you deploy applications in a release to see information about related stories, tasks, and defects.

Follow these steps:

1. In a release, click the **Work Items** tab on the left menu.
2. Select **Add Work Items**.
   The **ADD WORK ITEMS** window opens.
3. Enter a name for the work items source.
   Example: *Rally Feed*
4. Under **Work Items Source**, select the Rally plug-in and a configured Rally endpoint.
5. Provide information in the required parameter fields. The following fields let you filter the work item import results:
   - **Project Name**
     Specifies the name of the Rally project that contains the content you want to import. The project name appears in the upper left corner of the Rally interface. Use the @ symbol to select from a list of projects in the Rally endpoint. Use the @ symbol in other fields to select from a dynamic list of entities associated with the selected project.
   - **Release Name**
     Specifies the name of the release to import from. For a list of release names, select **Portfolio**, **Release Planning** on the Rally interface.
   - **Iteration Name**

Specifies the iteration name. Populate this field to limit the imported content to a specific iteration. Select **Track**, **Iteration** on the Rally interface to access a list of iteration names.
Example:
Deploy a release for Iteration 4 and show only Iteration 4 content.

- **Type**
  Specifies the type of work item you want to import.
- **Item Status**
  Specifies the item status types to import. This field lets you filter what is imported based on status.
  Example:
  Import only work items that are in the *Done* state.
- **Tags**
  Specify one or more tags to filter work items. Separate tags with commas.
- **Additional Filters**
  Specify one or more "field name":"value" pairs in JSON format to filter the imported work items. You can specify either built-in or custom fields. The values set here override matching field values in the import dialog.
  Syntax:
  - Date: {"field_name":"yyyy-mm-dd"}
  - Boolean: {"field_name":"true or false"}

  List of standard Rally fields that support the Additional Filters parameter, including usage examples.

    - Accepted Date: {"Accepted Date":"2020-01-09"}
    - Attachments: {"Attachments":["Bill.jpg"]}
    - Blocked: {"Blocked":"true"}
    - Blocked Reason: {"Blocked Reason":"blocked"}
    - Children: {"Children":["Fix the problem with the test criteria"]}
    - Creation Date: {"Creation Date":"2020-01-09"}
    - Defects: {"Defects":["Defect name"]}
    - Defect Status: {"Defect Status":["Some closed"]}
    - Description: {"Description":"description text"}
    - Display Color: {"Display Color":"#21a2e0"}
    - Expedite: {"Expedite":"true"}
    - Feature: {"Feature":"F94042"}
    - Flow State: {"Flow State":"New"}
    - Formatted ID: {"Formatted ID":"US643202"}
    - In Progress Date: {"In Progress Date":"2020-01-08"}
    - Iteration: {"Iteration":"CDD 7.2-7"}
    - Last Update Date: {"Last Update Date":"2020-01-23"}
    - Milestones: {"Milestones":["milestone1"]}
    - Name: {"Name":"Execute - Java Test Frameworks (Maven)"}
    - Notes: {"Notes":"notes text"}
    - Owner: {"Owner":"ym00@broadcom.net"}
    - Plan Estimate: {"Plan Estimate":"21"}
    - Ready: {"Ready":"true"}
    - Release: {"Release":"CDD7.2"}
    - Risks {"Risks":["risk1"]}
    - Schedule State: {"Schedule State":"New"}
    - Submitted by: {"Submitted by":"ym00@broadcom.net"}
    - Tags: {"Tags":["tag1","tag2"]}
    - Task Actual Total: {"Task Actual Total":"32"}
    - Task Estimate Total: {"Task Estimate Total":"32"}
    - Task Remaining Total: {"Task Remaining Total":"32"}
    - Task Status: {"Task Status":["In progress","Completed"]}
    - Tasks: {"Tasks":["Coding"]}
    - Test Case Status: {"Test Case Status":["None"]}
    - Test Cases: {"Test Cases":["Testcase1","Testcase3"]}
    - User: {"field_name":"e-mail address"}
  - **Import from Child Projects**
    Select this option to import work items from projects that are children of the parent project specified in the **Project** parameter.
6. Select **Create**.

Tutorial Videos

The following video shows an overview of how Continuous Delivery Director integrates with Rally, and how to use the integration to manage and monitor multi-application release content:

The following video shows how to configure Continuous Delivery Director integration with Rally:

Get Test Assets (Rally)

The Rally plug-in lets you import test suites into the Adaptive Testing Catalog.

1. Select **Tests**, then **Adaptive Testing Catalog**.
2. Specify the **Application** and the **Application Version**. The menu next to the application name and version is activated.
3. Select **Get Test Assets**.
4. Fill in the following fields:

   TIP
   Open your Rally instance so that you can check input values.

   NOTE
   Use the @ symbol in the following fields to select from a dynamic list of entities associated with the selected project.

- **Test Source Name**
- **Plug-in**
  Select **Rally** and **Import Test Suites (Rally).**
- **Endpoint**
  Select a Rally endpoint.
- **Project Name**
  Specify the name of a Rally project that contains the test suites that you want to import. The project name appears in the upper left corner of the Rally interface. Use the @ symbol to select from a list of projects in the Rally endpoint.
- **Release Name**
  Specify the name of the required release. For a list of release names, on the Rally interface, select **Portfolio**, then **Release Planning**.
- **Iteration Name**
  Specify the iteration name. Populate this field to limit the imported test sets to a specific iteration. To access a list of iteration names, on the Rally interface, select **Track**, then **Iteration**.
- **Test Case Type**
  Select a Rally Test Case Type, such as Regression.
- **Tags**
  Select one or more tags to import manual tests. For example, type `tst01` to retrieve all test suites tagged with labels beginning with *tst01*, such as *tst01.regression.test*.
- **Additional Filters**
  Specify one or more "field name":"value" pairs in JSON format to filter the imported test suites items. You can specify either built-in or custom fields. The values set here override matching field values in the import dialog.
  Syntax:
  – Date: {"field_name":"yyyy-mm-dd"}
  – Boolean: {"field_name":"true or false"}
  List of standard Rally fields that support the Additional Filters parameter, including usage examples.

  - Accepted Date: {"Accepted Date":"2020-01-09"}
  - Attachments: {"Attachments":["Bill.jpg"]}
  - Blocked: {"Blocked":"true"}
  - Blocked Reason: {"Blocked Reason":"blocked"}
  - Children: {"Children":["Fix the problem with the test criteria"]}
  - Creation Date: {"Creation Date":"2020-01-09"}
  - Defects: {"Defects":["Defect name"]}
  - Defect Status: {"Defect Status":["Some closed"]}
  - Description: {"Description":"description text"}
  - Display Color: {"Display Color":"#21a2e0"}
  - Expedite: {"Expedite":"true"}
  - Feature: {"Feature":"F94042"}
  - Flow State: {"Flow State":"New"}
  - Formatted ID: {"Formatted ID":"US643202"}
  - In Progress Date: {"In Progress Date":"2020-01-08"}
  - Iteration: {"Iteration":"CDD 7.2-7"}
  - Last Update Date: {"Last Update Date":"2020-01-23"}
  - Milestones: {"Milestones":["milestone1"]}
  - Name: {"Name":"Execute - Java Test Frameworks (Maven)"}
  - Notes: {"Notes":"notes text"}
  - Owner: {"Owner":"ym00@broadcom.net"}
  - Plan Estimate: {"Plan Estimate":"21"}
  - Ready: {"Ready":"true"}
  - Release: {"Release":"CDD7.2"}
  - Risks {"Risks":["risk1"]}
  - Schedule State: {"Schedule State":"New"}
  - Submitted by: {"Submitted by":"ym00@broadcom.net"}
  - Tags: {"Tags":["tag1","tag2"]}
  - Task Actual Total: {"Task Actual Total":"32"}
  - Task Estimate Total: {"Task Estimate Total":"32"}
  - Task Remaining Total: {"Task Remaining Total":"32"}
  - Task Status: {"Task Status":["In progress","Completed"]}
  - Tasks: {"Tasks":["Coding"]}
  - Test Case Status: {"Test Case Status":["None"]}
  - Test Cases: {"Test Cases":["Testcase1","Testcase3"]}
  - User: {"field_name":"e-mail address"}
- **Import from Child Projects**
  Select this option to import test sets from projects that are children of the parent project specified in the **Project** parameter.
- **Build Number**
  Enter the tested build number.
- **Execution Duration in Hours**
- **Polling Period in Minutes**
- **Tags**
  Select or create one or more tags to label the imported tests.

  NOTE
  To import manual test results from Rally, enter the tag `Manual`.

The test results for the specified build appear on the Adaptive Testing Results page, together with links to the associated reports in Rally.

Red Hat Ansible Plug-in

This plug-in connects Continuous Delivery Director to Ansible, allowing you to run playbooks.

Plug-in Version 2.0

Ansible is an open-source automation engine that automates IT tasks such as software provisioning, configuration management, and application deployment.

The main components of Ansible are playbooks, written in YAML format. Playbooks can be used to manage configurations of and deployments to remote machines. Playbooks are stored in the project base path for each project.

Download Options

Use one of the following options to download the latest plug-in version:

Method	Info
wget	`wget -O cdd-ansiblecore-plugin-v2.0b137.tar.gz https://cspdl.broadcom.com/shared/static/9frqtmepmw6ueqfwo83hdj1bsewfwh6h.gz?LCK=ent.box.com`
MD5	`e1aa60e3bce027e375795067da91e0ca`
Click Download Button	⬇
Download Docker Image from Customer Support Portal	Yes
Download TAR file from Customer Support Portal for customers who cannot use `docker pull`	Yes

Supported Versions

The Ansible plug-in supports Ansible 2.7.5 and higher.

For more information, see the Ansible documentation at https://www.ansible.com/

What's New

The following updates were made for plug-in version 2.0:

- This plug-in now supports the capability to add multiple applications to tasks and to assign different build numbers to each application. To support this capability, the **Build** input parameter for the **Run Playbook** task is now optional; previously this parameter was mandatory.

The following updates were made for plug-in version 1.3:

- A new **Build** parameter was added to the input parameters for the **Run Playbook** task.

The following updates were made for plug-in version 1.1:

- Support was added for Java 11.

Capabilities

Runs Ansible playbooks according to specified input parameters.

Prerequisites

- A Docker Engine machine is provisioned.
- The containerized-manager plug-in is deployed on a Docker Engine machine.
- The required Docker images have been pulled and enabled on the Docker Engine machine.
- The Ansible Core plug-in is registered in your Continuous Delivery Director system.

    NOTE

    - Set Up Containerized Plug-ins

Manifest URL

For plug-in registration, use the following Ansible manifest URL:

http://<plugin-hostname>:<port>/containerized/plugins/cdd-ansiblecore-plugin/manifest.json

Endpoint Parameters

The following parameters are required to create an endpoint:

- **Git Project URL**
  Specify the URL to access the Git project repository where the Ansible playbooks are located.
- **Git Username**
  Specify the username to authenticate to the Git project repository.
  Note: Required only when the Git repository is not a public repository.
- **Git** Password
  Specify the password to authenticate to the Git project repository.
  Note: Required only when the Git repository is not a public repository.
- **Target Machine Authentication Type**Specify the method to authenticate to the target machine.
  – **None**
  – **SSH**
    - **Username**
      Specify the username to authenticate to the target machine.
    - **Private Key**
      Specify the SSH private key to authenticate to the target machine.
    - **Private Key Passphrase**
      Specify the passphrase if the SSH private key is protected.

  – **Credentials**
    - **Username**
      Specify the username to authenticate to the target machine.
    - **Password**
      Specify the password to authenticate to the target machine.
- **Vault ID**
  Specify an Ansible vault identifier.
- **Vault Password**
  Specify the Ansible vault password.
- **Use Become (Privilege Escalation)**
  Select this option to enable the login/remote user to execute tasks and create resources with the identity and permissions of another user.

NOTE

To enable the **Use Become (Privilege Escalation)** option:

1. Ensure that the following lines are configured in the inventory file. This file (by default, Ansible uses a simple INI format) describes hosts and groups in Ansible and should be located in the Git project repository where the Ansible playbooks are located.

2. Replace `<password>` with a suitable Ansible password:

```
[all:vars]
          ansible_become_method=su
          ansible_become_pass=<password>
```

- **Run As User**
  Run operations as this user. If left empty, `root` is used.

To check the connection, select **Test Connection**.

Tasks

The Ansible plug-in provides the following task:

- Run Ansible Playbook

Run Ansible Playbook

This task requires the following information:

Input Parameters

- **Playbook Branch**
  Specify the branch with which to work.
- **Playbook Path**
  Specify the path to the folder inside the remote project that contains the playbook you want to run.**Example**:
  `playbooks/myplaybook.yml`
- **Inventory Path**
  (Optional) Specify the path to the folder inside the remote project that contains the inventory.
  Example: `inventory/myinventory`
- **Tags To Run**
  (Optional) Only run plays and tasks whose tags do not match the specified tags (comma-separated).
- **Build**
  (Optional) Specify an Ansible build/change number to mark a change as deployed and to promote as a successful build/change to the next phase. You can use tokens such as last_successful_build.
- **Tags To Skip**
  (Optional) Only run plays and tasks whose tags do not match the specified tags (comma-separated).
- **Task To Start At**
  (Optional) Start the playbook at the task matching the specified name.
- **Number Of Parallel Processes (Forks)**
  (Optional) Specify the number of parallel processes to use (default=5).
- **Hosts Limit**
  (Optional) Run the playbook only against one or more members of the host group. You can specify single or multiple hostnames (comma-separated), a group or a negated limit.

Example: `all:!host1`

- **Extra Variables**(Optional) A list of {\"field name\":\"value\"} pairs. You can provide multiple fields in the following format: {\"field1\":\"value1\",\"field2\":\"value2\"...}.
- **Verbosity**(Optional) Determine the level of detail of the debug output Ansible produces as the playbook executes.**Values:** Normal, Verbose, More Verbose, Debug, Connection Debug

Red Hat Ansible Tower Plug-in

This plug-in connects Continuous Delivery Director to Red Hat Ansible Tower, allowing you to execute jobs and view the job output details.

Plug-in Version 2.3-3

This plug-in downloads and stores job outputs in the artifacts folder under the plug-in home directory: `({cdd-home-folder}/artifacts/{current-date-yyyymmdd}/{tenant-id}/plugins/ansibletower/{executionId})`. You must mount the home directory on a shared file system to enable user access.

When a job is run, the plug-in generates a URL to the job output file. In the Continuous Delivery Director user interface, users can click a link to view or download the file. Users who do not have permission to access the shared folder will not be able to download the file.

REMEMBER
To free up disk space, if you download output files, purge the old output files.

Download Options

Use one of the following options to download the latest plug-in version:

Method	Info
wget	`wget -O cdd-ansibletower-plugin.war https://cspdl.broadcom.com/shared/static/2r5wsby1sjglzzvd5j5z23kg4r3sc6xe.war?LCK=ent.box.com`
MD5	`a84c766dfc72ab7d473c55654574e72d`
Click Download Button	

Supported Versions

The Ansible Tower plug-in supports Red Hat Ansible Tower 3.x.

For more information, see the Ansible Tower documentation at https://www.ansible.com/

Capabilities

Runs Ansible Tower jobs, according to templates and template parameters.

Change History

The following update was made for plug-in version 2.3-3:

- You can now connect to an Ansible Tower endpoint through a proxy server. To support this change, a **Use Proxy** checkbox was added to the endpoint configuration parameters.

The following update was made for plug-in version 2.3-2:

- Bugfix: Connection timeout issues to on-premise hosted plug-ins.

The following update was made for plug-in version 2.3-1:

- Bugfix: Entering a build number in the **Run Job Template task** is now optional, because builds are not relevant in user scenarios such as hardware provisioning and network configuration.

The following update was made for plug-in version 2.3:

- Bugfix: When a **Run Job Template task** fails, the job ID token value is not saved in Continuous Delivery Director.

The following update was made for plug-in version 2.2:

- The **Build/Change ID** field in the **Run Job Template** task was renamed to **Build Number (Deprecated)**. This field is deprecated; you can now specify the build number per application in the **Builds For Applications** section of this task.

The following update was made for plug-in version 2.1:

- Fixed:**Template Name** field. Entering a value which included a colon ":" generated an error.

The following update was made for plug-in version 2.0:

- You can now retrieve Ansible Tower log files.

The following update was made for plug-in version 1.0.5:

- Support was added for Java 11.

The following update was made for 1.0.4:

- A new **Authentication Method** endpoint parameter has been added. In addition to **Basic** authentication, a new method, **Bearer**, is now available. This method allows the Ansible Tower plug-in to interface with systems that allow authentication with an API token.

The following update was made for 1.0.2:

- A new **Build/Change ID** field was added to the **Run Job Template** task.

Configuration

Follow these steps:

1. Install the Ansible Tower application according to Red Hat Ansible Tower requirements.

   NOTE
   For more information about how to install and configure Ansible Tower, see the Ansible Tower installation documentation at https://www.ansible.com/.
2. Register the plug-in and create endpoints as described in Manage Plug-ins.
3. Ensure that the plug-in home folder is mounted to a shared file system.

Manifest URL

For plug-in registration, use the following Ansible Tower manifest URL:

http://<plugin-hostname>:<port>/cdd-ansibletower-plugin/manifest.json

Endpoint Parameters

The following parameters are required to create an endpoint.

- **Ansible Tower Server URL**

Enter the URL of the remote Ansible Tower instance to be used for connection purposes. For example: https://example.testansibleserver.com:443/

- **Authentication Method**
  Select an authorization method to use to establish the connection to Ansible Tower. Values: **Basic**, **Bearer**
  – **Basic**
    - **Username/Password**
      Specify valid credentials to authenticate to Ansible Tower.
  – **Bearer** is used to interface with systems that allow authentication with API keys.
    - **API Token**Specify an Ansible Tower API token.
- **Use Proxy**
  {Optional} Determines whether a proxy server is used. If selected, the **Proxy URL**, **Proxy Username**, and **Proxy Password** fields appear:
  – **Proxy URL**
    {Optional} Specifies the web address that is used to access the proxy server
  – **Proxy Username**
    {Optional} Specifies the username that is used to authenticate to the proxy server
  – **Proxy Password**
    {Optional} Specifies the password that is used to authenticate to the proxy server
- **Trust Any SSL Certificate**
  Select this option if you want to allow untrusted and unsigned SSL/TLS certificates.

  CAUTION
  Use at your own risk! Selecting this option can expose your environment to "man in the middle" attacks. CA does not accept responsibility for security vulnerabilities that are caused by the selection of this option.
- **Store Job Output**
  Select this option to download and store the output file in the plug-in shared home folder: `({cdd-home-folder}/artifacts/{current-date-yyyymmdd}/{tenant-id}/plugins/ansibletower/{executionId})`

  CAUTION
  Use at your own risk! Selecting this option can expose your environment to "man in the middle" attacks. CA does not accept responsibility for security vulnerabilities that are caused by the selection of this option.
- **Shared File System Location**
  This field appears only if the **Store Job Output** option is selected.
  Provide the shared file system path. Continuous Delivery Director will concatenate the file location and will provide an accessible link. For example, if the base URL is: `\\fs01\cdd\`, the task displays the URL `\\fs01\cdd\artifacts\20190428\00000000-0000-0000-0000-000000000000\plugins\ansibletower\45797_825_5cadd64cf3b92918903sc0da\job_5107.txt`. If you do not enter a value, the task displays the local path on the plug-in server machine.

To check the connection to Ansible Tower, use the endpoint **Test Connection** option.

NOTE
The connectivity test enables a registry scan from the Defender (specified in the **Defender Host Name** endpoint parameter).

Tasks

The Ansible Tower plug-in provides the following task:

- Run Job Template

Run Job Template

The task lets you run an Ansible Tower job.

This task requires the following information:

Input Parameters

- **Template name**
  Specify the name of an existing Ansible Tower job template.
- **Template Parameters**
  Specify the Ansible Tower job parameters in JSON format. **Example**:
  ```
    {
   "extra_vars": {"message":"A message to be passed", "pauseInSec":1}
   }
  ```
  "message" and "pauseInSec" are both extra variables to be passed to the Ansible Tower job.
- **Build Number (Deprecated)**
  This field is deprecated; you can now specify the build number per application in the **Builds For Applications** section of this task.

Output Parameters

- **Job Id**
  Specify the Ansible Tower job ID to be returned as a response from the Ansible Tower job. You can create a token parameter that contains this value. Value: An integer

  NOTE

  How to Integrate Ansible Tower with CA Continuous Delivery Director.pdf

Red Hat OpenShift Plug-in

This plug-in lets you control your Kubernetes environment from your CI/CD pipeline.

Plug-in Version 2.2-2

OpenShift is an open-source container application platform based on the Kubernetes container orchestrator for enterprise application development and deployment. You can use this integration to containerize and manage your existing applications and automate routine configuration tasks.

Use this plug-in to link a source control system, such as Bitbucket or GitHub to Continuous Delivery Director. When connected to Continuous Delivery Director, any updates to containers that are managed by OpenShift are seamlessly referenced in your CD/CI pipeline. This plug-in allows Continuous Delivery Director to display information about your OpenShift development activity in the corresponding release.

This section explains how to link a source control system and an OpenShift project to Continuous Delivery Director and how to configure OpenShift-related tasks.

Download Options

Use one of the following options to download the latest plug-in version:

Method	Info
wget	`wget -O cdd-openshift-plugin.war https://cspdl.broadcom.com/shared/static/32iadcx3c7odcoeabu9xl07yu3dsgm91.war?LCK=ent.box.com`
MD5	`4152cbf741aa25acf3a8d9158dc50757`

Click Download Button	●

Supported Versions

The OpenShift plug-in supports the core OpenShift solution.

For more information, see the OpenShift documentation at https://docs.openshift.com

What's New

The following updates were made for 2.2-2

- The Fabric8 software component used by this plug-in has been upgraded to version 5.1.1.

The following update was made for 2.2-1:

- Bugfix (DE490722): The log bridge from Catalina to `cdd-server` log files now records fabric8 HTTP traffic only. Previously, idle Kubernetes and OpenShift plug-in activities were recorded, resulting in very large log files.

The following updates were made for 2.2

- Support was added for the following source control systems: GitLab, AWS S3, Web Services.
- Basic authentication using a username and password was added.
- A **Branch** parameter was added to the GitHub endpoint parameters.
- A **Trust Any SSL Certificate** option was added to the endpoint parameters.
- A **YAML Settings** field was added to the **Create Deployment** task.

The following updates were made for 2.1

- Multiple bug fixes.

The following updates were made for 2.0

- Namespace support changes.

The following updates were made for 1.3

- Minor fix for connectivity testing.

The following updates were made for 1.1

- Support was added for Kubernetes versions 1.9 and higher.
- Support was added for Java 11.

Release Tasks

Tasks

The OpenShift plug-in supports the following task types in your Continuous Delivery Director release pipeline:

- Create Deployment
- Delete Deployment
- Edit BuildConfig
- Set Image
- Start Build

Configure an OpenShift Endpoint

You are familiar with OpenShift.

You have the **Can create endpoints** permission.

1. Register the plug-in as described in Manage Plug-ins.
   The manifest for the OpenShift plug-in is `http://<host>:<port>/cdd-openshift-plugin/manifest.json` .
2. From the **Administration** menu, click **Endpoints** > **Add Endpoint**.
3. In the **ADD ENDPOINT** dialog, select the **OpenShift** plug-in.
4. Configure the following input parameters:
   - **URL**
     Specify the URL of the OpenShift repository. Example: `http://ec2-17-04-196-us-east-6.compute.amazonaws.com/openshift`
   - **Namespace**
     Specify the OpenShift project to use.
     NOTE
     In OpenShift, a project is a Kubernetes namespace with additional annotations.
   - **Username**
     Specify a user name to authenticate to your cluster.
   - **Password**
     Specify a password to authenticate to your cluster.
   - **Source Control**
     Select the required source control system to connect to your file repository.
     GitHub
     – **GitHub API URL**
     – **GitHub Owner**
     – **GitHub Repository**
     – **GitHub Branch**
     – **GitHub Username**
     – **GitHub Password**
     GitLab
     – **GitLab API URL**
     – **Authentication Method**
     Select either **OAuth2 Token** or **Personal Access Token**.
     – **GitLab Owner**
     – **GitLab Repository**
     – **GitLab Branch**
     Bitbucket
     – **Bitbucket API URL**
     – **Account Name/Project Key**
     Specify the Bitbucket account name or project key.
     – **Bitbucket Repository**
     – **Bitbucket Branch**
     – **Bitbucket Username**
     – **Bitbucket Password**
     AWS S3

  - **Service API URL**
  - **Region**
  - **Access Key**
  - **Secret Key**
  - **Bucket Name**

  Web Service
  - **Web Service API URL**
  - **Web Service Username**
  - **Web Service Password**
- **Trust Any SSL Certificate**
  Select this option if you want to allow untrusted and unsigned SSL/TLS certificates.
  WARNING
  Use at your own risk! Selecting this option can expose your environment to "man in the middle" attacks. CA Technologies does not accept responsibility for security vulnerabilities that are caused by selecting this option.

5. To check the connection to OpenShift and to the source control system, click **Test Connection**.
6. Click **Add**.

Create Deployment (OpenShift)

This task lets you create an OpenShift deployment to run in the context of Continuous Delivery Director phases and releases.

One or more OpenShift endpoints are available.

This task creates a deployment package upon the arrival of a build notification. Each time a deployment is triggered, a deployer pod is started and manages the deployment

1. In a release, create an automatic task as described in Create Automatic Tasks.
2. Configure the following input parameters:

   TIP

   Values: To define a value, do one of the following actions:

   - To select from a list of possible values, type an at sign "@" in the field
     Example: *Deploy Tomcat*
   - To select from a list of built-in tokens (reusable placeholders that are used to create generic workflows), type a percent sign "%" in the field
   - Type free text
   - Enter a combination of free text and tokens

- **Namespace**
  (Optional) Specify the OpenShift virtual cluster namespace. For more information about namespaces, see the OpenShift documentation at https://docs.openshift.com.
  Values: If not specified, the plug-in checks that the YAML file indicated in the **Manifest File Path** field for the namespace. If no other namespace is found, the plug-in uses the OpenShift `default` namespace.
- **Branch**
  (Optional) Specify the source control branch with which you want to work.
- **Manifest File Path**
  Specify the file path to a YAML file in the source control repository. **Example:** app/deployment.yaml
- **YAML Settings**

Specify a list of key/value pairs to update in the deployment YAML manifest. For example: in order to update the image.tag element of a manifest file, specify `image.tag: saas-dev-1.6.0.7` . You can specify multiple key/value pairs separated by lines.

3. Click **Create**.

Delete Deployment (OpenShift)

One or more OpenShift endpoints are available.

1. In a release, create an automatic task as described in Create Automatic Tasks.
2. Configure the following input parameters:

   TIP

   Values: To define a value, do one of the following actions:

   - To select from a list of possible values, type an at sign "@" in the field
     Example: *Deploy Tomcat*
   - To select from a list of built-in tokens (reusable placeholders that are used to create generic workflows), type a percent sign "%" in the field
   - Type free text
   - Enter a combination of free text and tokens

- **Namespace**
  (Optional) Specify the OpenShift virtual cluster namespace. For more information about namespaces, see the OpenShift documentation at https://docs.openshift.com.
  Values: If not specified, the plug-in checks that the YAML file indicated in the **Manifest File Path** field for the namespace. If no other namespace is found, the plug-in uses the OpenShift `default` namespace.
- **Branch**
  (Optional) Specify the source control branch with which you want to work.
- **Manifest File Path**
  Specify the file path to a YAML file in the source control repository. **Example:** app/deployment.yaml

3. Click **Create**.

Edit BuildConfig (OpenShift)

This task lets you modify an existing OpenShift build configuration.

One or more OpenShift endpoints are available.

In OpenShift, a build configuration describes a single build definition and a set of triggers for when a new build should be created. A build configuration is defined by a BuildConfig, which is a REST object that can be used in a POST to the API server to create a new instance.

1. In a release, create an automatic task as described in Create Automatic Tasks.
2. Configure the following input parameters:

   TIP

   Values: To define a value, do one of the following actions:

   - To select from a list of possible values, type an at sign "@" in the field

Example: *Deploy Tomcat*
  - To select from a list of built-in tokens (reusable placeholders that are used to create generic workflows), type a percent sign "%" in the field
  - Type free text
  - Enter a combination of free text and tokens

- **Namespace**
  (Optional) Specify the OpenShift virtual cluster namespace. For more information about namespaces, see the OpenShift documentation at https://docs.openshift.com.
  Values: If not specified, the plug-in checks that the YAML file indicated in the **Manifest File Path** field for the namespace. If no other namespace is found, the plug-in uses the OpenShift `default` namespace.
- **BuildConfig Name**
  Specify a unique ID of an OpenShift build configuration.
- **Dockerfile**
  (Optional) Specify the container name in the OpenShift deployment. Example: `docker.bintray.io/jfrog/ca-cdd:8.2.0`
- **Image Stream Name**
  Specify the name of an image stream.
- **Image Stream Tag**
  (Optional) Specify the tag or tags that are associated with the image stream

3. Click **Create**.

Set Image (OpenShift)

This task lets you update existing container image(s) of resources.

One or more OpenShift endpoints are available.

1. In a release, create an automatic task as described in Create Automatic Tasks.
2. Configure the following input parameters:

TIP

Values: To define a value, do one of the following actions:

  - To select from a list of possible values, type an at sign "@" in the field
    Example: *Deploy Tomcat*
  - To select from a list of built-in tokens (reusable placeholders that are used to create generic workflows), type a percent sign "%" in the field
  - Type free text
  - Enter a combination of free text and tokens

- **Namespace**
  (Optional) Specify the OpenShift virtual cluster namespace. For more information about namespaces, see the OpenShift documentation at https://docs.openshift.com.
  Values: If not specified, the plug-in checks that the YAML file indicated in the **Manifest File Path** field for the namespace. If no other namespace is found, the plug-in uses the OpenShift `default` namespace.
- **Deployment Name**
  Specify the OpenShift deployment name.
- **Container Name**
  Specify the container name in the OpenShift deployment.
- **Image Name**

Specify the name of the image to set.

3. Click **Create**.

Start Build (OpenShift)

Automatically start a new build from an existing build configuration in your current OpenShift project.

One or more OpenShift endpoints are available.

1. In a release, create an automatic task as described in Create Automatic Tasks.
2. Configure the following input parameters:

   TIP

   Values: To define a value, do one of the following actions:

   - To select from a list of possible values, type an at sign "@" in the field
     Example: *Deploy Tomcat*
   - To select from a list of built-in tokens (reusable placeholders that are used to create generic workflows), type a percent sign "%" in the field
   - Type free text
   - Enter a combination of free text and tokens

   - **Namespace**
     (Optional) Specify the OpenShift virtual cluster namespace. For more information about namespaces, see the OpenShift documentation at https://docs.openshift.com.
     Values: If not specified, the plug-in checks that the YAML file indicated in the **Manifest File Path** field for the namespace. If no other namespace is found, the plug-in uses the OpenShift `default` namespace.
   - **BuildConfig Name**
     Specify a unique ID of an OpenShift build configuration.
   - **Build Number**
     Specify an OpenShift build number. You can use tokens such as *`last_successful_build`* to promote applications across environments.
3. Click **Create**.

REST Plug-In

This plug-in provides an interface to perform REST operations in a release.

Plug-in Version 2.6-2

The REST plug-in provides a way to interact with REST-enabled remote components that do not have a packaged plug-in. Use the REST plug-in to perform HTTP operations on any web-based remote application that has a REST API.

NOTE

We recommend that you test your REST API calls before you set up generic RESTful tasks.

Download Options

Use one of the following options to download the latest plug-in version:

Method	Info
wget	`wget -O cdd-rest-plugin.war https://cspdl.broadcom.com/shared/static/uedpcbfuccu0iyv13wqkoe0z6n13dph6.war?LCK=ent.box.com`
MD5	`ddd5af891ef6c70deb83e6b737d3e838`
Click Download Button	⬇

Capabilities

The REST plug-in lets you execute a REST (HTTP) call in a task. This plug-in supports REST 2.0.

Change History

The following updates were made for plug-in version 2.6-2:

- Bugfix: If an error occurred when a REST task was run, unhandled exceptions and property classes were displayed in the task status.

The following updates were made for plug-in version 2.6:

- You can now use top-level domain names that do not appear in a list of valid generic top-level domains. To support this capability, a new property was added to the `settings.properties` file of the REST plug-in:
  `cdd.plugins.rest.url_validator.valid_generic_top_level_domain=`
  By default, this property is empty. You can enter multiple top-level domains separated by commas. For example:
  `cdd.plugins.rest.url_validator.valid_generic_top_level_domain=broadcom,testca,caqa`
  You can also add this property to your custom on-premise settings.properties file (`/home/cdd/.cdd/conf/settings.properties`)

The following updates were made for plug-in version 2.5:

- A new **Authentication Method** endpoint parameter has been added. In addition to **Basic** authentication, a new method, **Bearer**, is now available. This method allows the REST plugin to interface with systems that allow authentication with an API token.
- Support was added for Java 11.

Configuration

Register the plug-in and create endpoints as described in Manage Plug-ins.

The URL of the REST manifest for plug-in registration is http://<plugin-server>:<port>/cdd-rest-plugin/manifest.json.

The following information is required when you create an endpoint:

- **Base URL**
  Specify the base URL of the REST API. The base URL is common to all REST task instances that use the endpoint. Include in the base URL the remote component address and port, and the http schema (http or https).
  Example: https://www.googleapis.com/gmail/v1/users
  Each REST task specifies a specific URL postfix to append to the base URL of the endpoint.
- **Authentication Method**

  Select an authorization method to use to establish the connection to the REST API.
  Values: Basic, Bearer
  - **Basic**
    - **Username/Password**
      Specify valid credentials for accessing the REST API that you want to call.
  - **Bearer** is used to interface with systems that allow authentication with API keys.
  - **API Token**Specify an API token to authenticate to the API.
- **Proxy Server URL**
  Specify the proxy server URL. This URL must contain the protocol, domain name or IP, and the port (if the port is not standard).
  Example: https://192.168.0.1:8443
- **Proxy Server Username/Proxy Server Password (Optional)**
  Specify access credentials for the proxy server. If your proxy server does not require any authorization credentials, leave this field empty.

Tasks

The REST plug-in provides the following task:

- REST

REST Task

The REST task lets you execute a REST API call within a release. The task has the flexibility to interface with any remote component that has a REST interface.

The REST task requires the following information:

Input Parameters

- **URL**
  Specifies the URL postfix for the REST call you make. The URL postfix is appended to the base URL that you enter when you configure the base endpoint.
  Example: /userId/drafts/id
  In this case, the complete URL is: https://www.googleapis.com/gmail/v1/users/userId/drafts/id.
  Note: The URL task field only requires the postfix value.
  Warning: Do not specify tokens in the URL field.
- **Method**
  Specifies the method of the REST call.
  Values: GET, POST, PUT, PATCH, DELETE, HEAD
- **JSON Body**(Optional)
  Specifies the full JSON body of the request.
  Limits: 1024 characters
- **Post Script** (Optional)
  Specifies a JavaScript snippet (with a limit of 1024 characters) that runs after the REST call executes. It should process its response to determine the task result and status. It can contain the following parameters:
  - **REST JSON response code**
    The "responseCode" JavaScript variable holds the HTTP response status code that the remote REST endpoint returns.
  - **REST JSON response**
    The "response" JavaScript object holds the JSON response that the remote REST endpoint returns.
  - **Task status text**
    The "status" JavaScript variable defines the expected task status text that is displayed on the UI.
  - **Task state**

The returned JavaScript Boolean code controls the task state.
Values: true (success), false (failure)
Note: Set the JavaScript snippet source code inline as the value of this task parameter.
Example: A REST call may return a response like the following:

```
{
    "data": [
        {
            "state": "Failed Verification"
        }
    ]
}
```

Here is an example post-script to handle this type of response:

```
if (responseCode == 200){
status=response.data[0].state; // The task status displays the state field of the
 first data element of the JSON response.
if (status=="Failed Verification") return false; // If the state equals "Failed
 Verification" the task fails.
} else {
status="Operation Failed";
return false;
}
```

Note: The format of the response object is different for each REST call. In this example, the response.**data[0].state** shows a case where the returned response JSON has an array type data field that contains a **state** field.

You can embed tokens in the JavaScript snippet as input parameters to this post script. In the preceding example, you can use a token name to hold the Failed Verification string.
Note: You cannot use tokens as output parameters of this post script. You can only use tokens as input parameters, and you cannot set the token values.

Note: If you do not supply a post script, any REST call is considered successful, even if, for example, its status code is 401 Unauthorized. This allows you to make the decision on how to handle any type of condition, including mixed conditions whose state may be unclear.

- **Headers**
  Specifies a list of HTTP headers of the request. The list contains header name and header value pairs that are separated by colons.
  Example:

```
accept:*/*
accept-encoding:gzip, deflate
accept-language:en-GB,en;q=0.8,en-US;q=0.6,he;q=0.4
authorization:SAPISIDHASH 64219e71abad
content-length:300
content-type:application/x-www-form-urlencoded;charset=UTF-8
cookie:NID=76=zn-Jcx6; SID=DQQ-n-rc; APISID=xHX/AsO0
origin:https://www.google.co.uk
referer:https://www.google.co.uk/
user-agent:Mozilla/5.0 (Windows NT 6.1) Chrome/48.0.2221.27
x-client-data:CKJjKAQ==
```

- **Status Check**
  Activates a status check for this task.
  Note: The following fields appear only if the Status Check checkbox is selected.
- **Status URL**

Specifies the REST call to run for the status check.

- **Status Post Script**
  Specifies a script to determine the status of the task using the returned JSON.
  Example:

```
if (responseCode == 200) {
status = response.data[0].state; // The task status displays the state field of the
 first data element of the JSON response.
if (status == "Failed Verification") {
return false;
} else {
return true;
} // If the state equals “Failed Verification” the task fails.
} else {
status = "Operation Failed";
return false;
}
return true;
```

- **Polling Interval**
  Specifies the interval in milliseconds in which the status is checked by the user in milliseconds.
- **Task Timeout**
  Specifies the timeout for the entire task execution in milliseconds.

Output Parameters

- **Output Parameter**
  Specifies the output format for the response.
  Note: The output parameter returns a value only if the JavaScript snippet in the Post Script field is configured to support an output value.
  Example: To set the value of the output parameter, use the following syntax in the post script:

```
“output=response.data[0].something;”
```

  The code in the plug-in sets the output value of **Output Parameter** to be the value that is returned in the JSON path that is specified in the post script.

Example: Integrate with a Third Party REST API

The following scenario shows how to use the Continuous Delivery Director CA REST plug-in to integrate with third-party REST APIs. The Jenkins integration tool is used in this example.

Prerequisites

To integrate with a third-party REST API, first configure the Continuous Delivery Director REST plug-in.

Methods

- **Create a New Jenkins Build**
  This API creates a build of *Project-Name* project with the project parameters.
  Type: POST
  URL: /job/Project-Name/buildWithParameters?Param1=value1
- **Get the Status of the Last Jenkins Build**

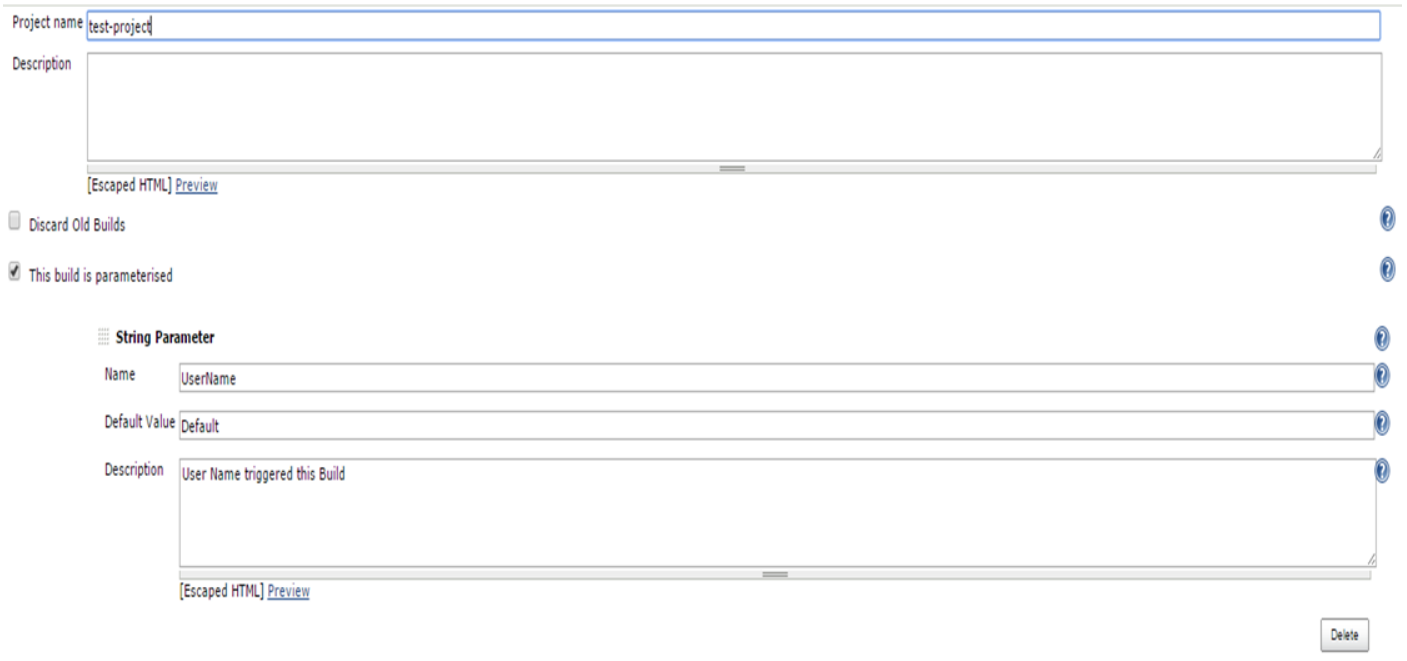
This API gets the status of the last build of the *Project-Name* project.
Type: GET
URL /job/Project-Name/lastBuild/api/json

Configuration

This example invokes Jenkins Build jobs that are based on the Jenkins build status. The Continuous Delivery Director task is updated to take the next logical action.

Follow these steps:

1. Log in to Jenkins and create a project. Name the project *test-project*, and provide the following build definition:
   Note: This definition accepts the parameter **UserName**:



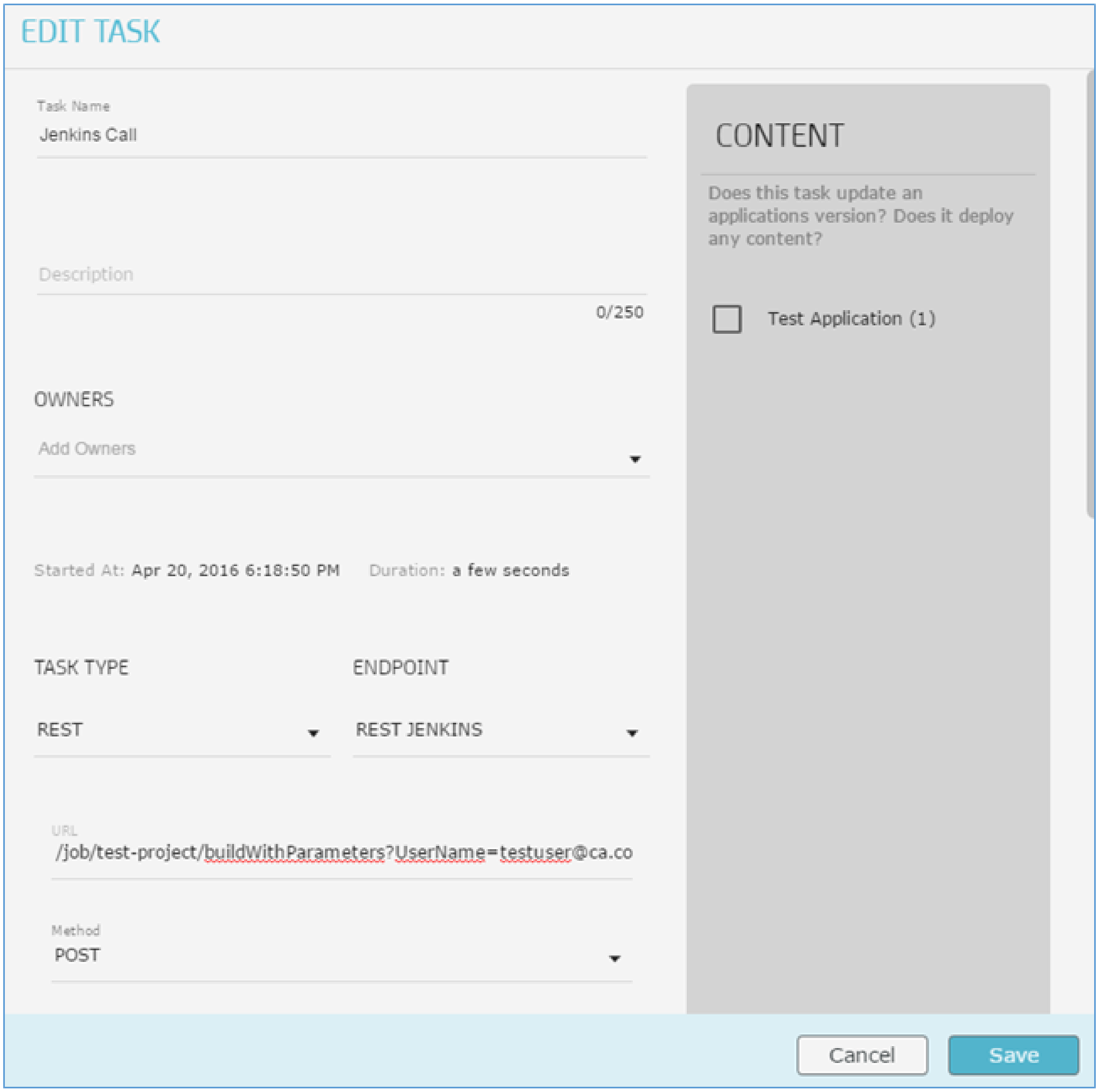
Project name: test-project
Description:
[Escaped HTML] Preview
Discard Old Builds
This build is parameterised
String Parameter
Name: UserName
Default Value: Default
Description: User Name triggered this Build
[Escaped HTML] Preview

2. Log in to Continuous Delivery Director.
3. Go to **Administration**, **Endpoints, and** click **Add Endpoint**.
4. Complete the fields in the **ADD ENDPOINT** box.
   Note: To integrate with Jenkins, the following fields are required for an endpoint.
   – **Endpoint Type**
     Specify a REST Endpoint to use
     Example: CDE REST Plugin
   – **Base URL**
     Specify the base URL that is used to access Jenkins
     Format: http://<Jenkins-Server-IP/Hostname>:<PORT>
     Example: http://jenkins-dev:8080
5. Navigate to **RELEASES** and add an application and a phase, for example, DEV-phase.

   NOTE

   For more information, see Design and Create Releases
6. Create and configure two REST plug-in tasks in the phase:
7. a. Provide the following details for the **Jenkins Call** task:

- **Task Name**
- **Description**
- **OWNERS**
- **TASK TYPE**
  Value: REST
- **ENDPOINT**
  Name of the endpoint that is created in step 3.
- **URL**
  Value: /job/Project-Name/Jenkins-Action-To-Perform
  Example: /job/test-project/buildWithParameters?UserName=testuser@ca.com
  Note: The UserName parameter is configured in the Jenkins test-project. Refer to step 1.
- **Method**
  Value: POST


EDIT TASK

Task Name
Jenkins Call

Description
0/250

OWNERS
Add Owners

Started At: Apr 20, 2016 6:18:50 PM Duration: a few seconds

TASK TYPE
REST

ENDPOINT
REST JENKINS

URL
/job/test-project/buildWithParameters?UserName=testuser@ca.co

Method
POST

CONTENT
Does this task update an applications version? Does it deploy any content?

☐ Test Application (1)

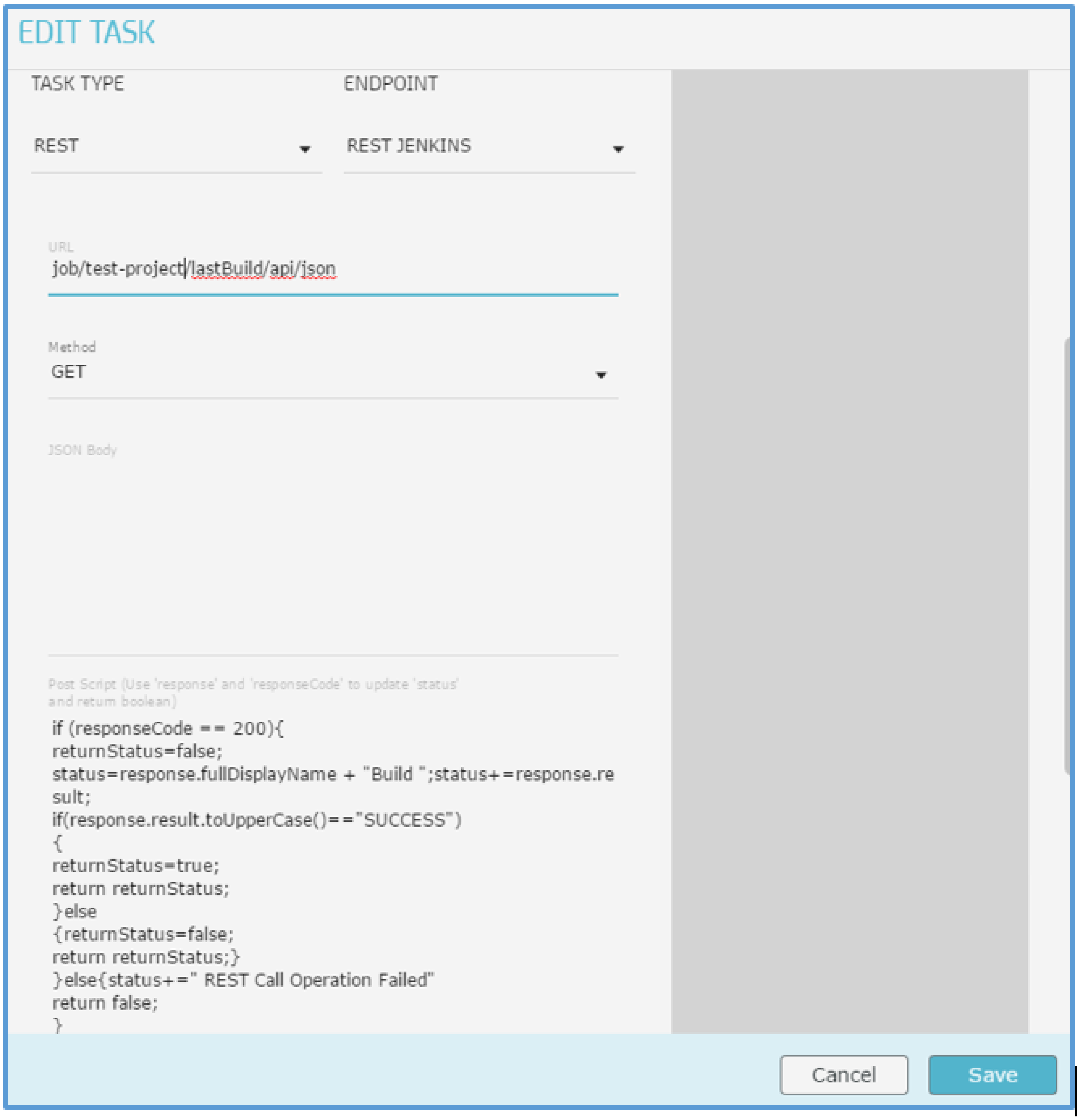
b. Provide the following details for the **Get Last Output** task:

- **Task Name**
  Example: Get Last Output
- **Description**
- **Owners**
- **TASK TYPE**
  Value: REST
- **ENDPOINT**

Name of the endpoint that is created in step 3.

- **URL**
  Value: job/Project-Name/Jenkins-Action-To-Perform
  Example: job/test-project/lastBuild/api/json
- **Method**
  Value: GET
- **Postscript**
  Defines the JavaScript script to run to process the JSON response.
  Value: see the following example
  Example:

```
if (responseCode == 200){
returnStatus=false;
status=response.fullDisplayName + "Build ";status+=response.result;
if(response.result.toUpperCase()=="SUCCESS")
{
returnStatus=true;
return returnStatus;
}else
{returnStatus=false;
return returnStatus;}
}else{status+=" REST Call Operation Failed"
return false;
}
```



TASK TYPE: REST

ENDPOINT: REST JENKINS

URL: job/test-project/lastBuild/api/json

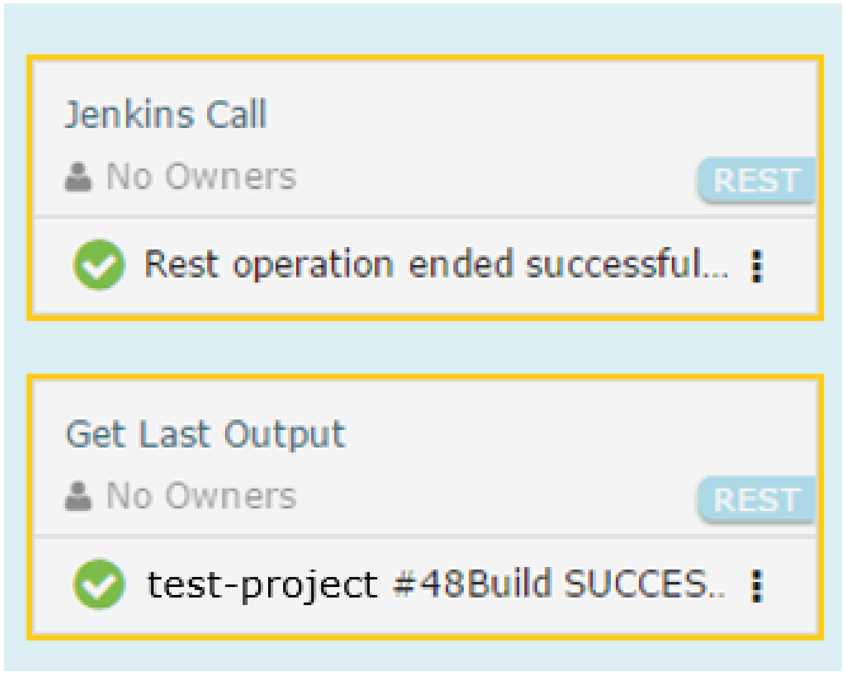
Method: GET

JSON Body

Post Script (Use 'response' and 'responseCode' to update 'status' and return boolean)

```
if (responseCode == 200){
returnStatus=false;
status=response.fullDisplayName + "Build ";status+=response.re
sult;
if(response.result.toUpperCase()=="SUCCESS")
{
returnStatus=true;
return returnStatus;
}else
{returnStatus=false;
return returnStatus;}
}else{status+=" REST Call Operation Failed"
return false;
}
```

The following screen capture shows the two tasks

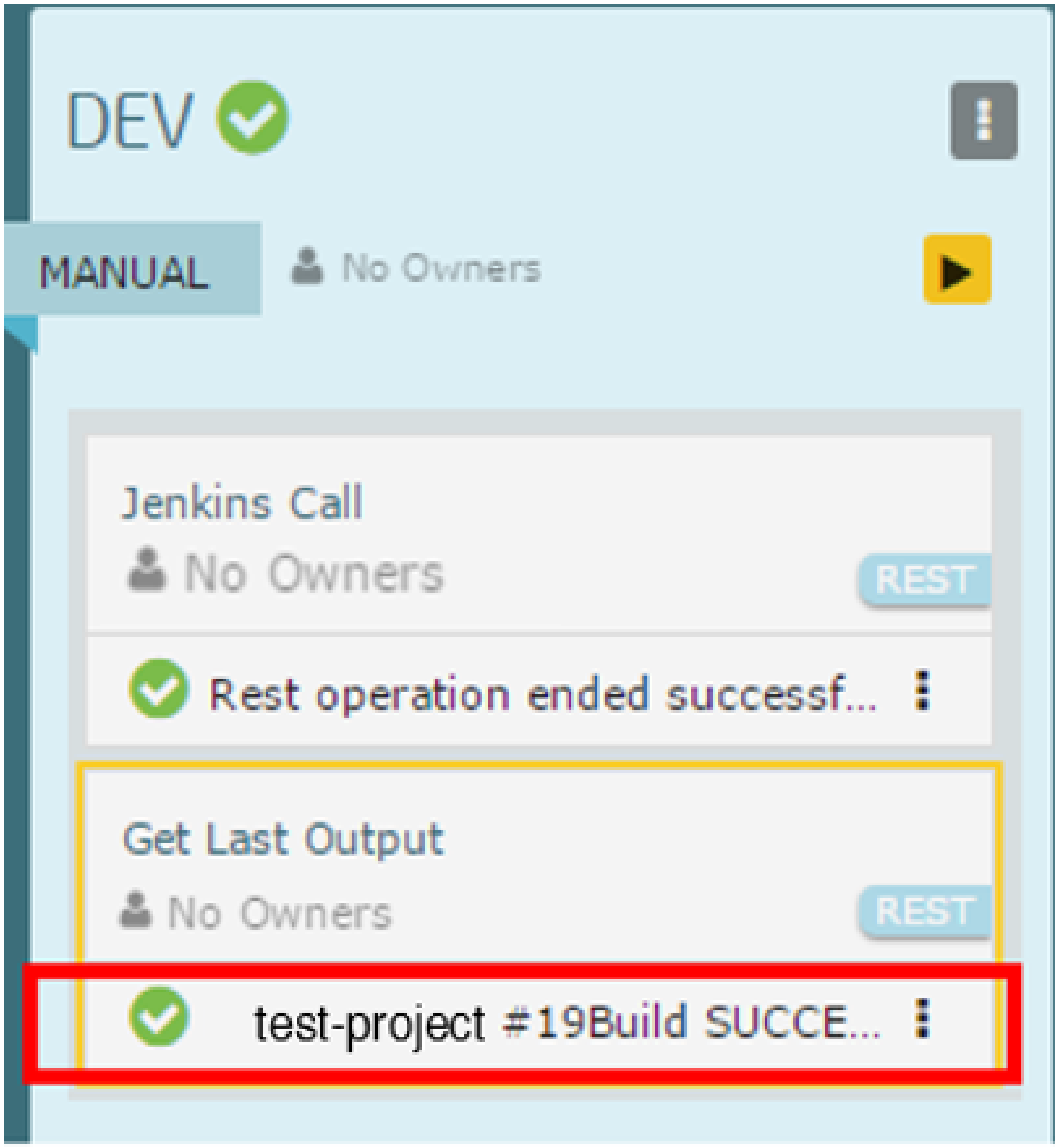


Rest operation ended successful...

test-project #48Build SUCCES..

Note: The **status** is the keyword that is used by Continuous Delivery Director to show the task status.

8. Save the tasks and run the phase.
   The Continuous Delivery Director REST plug-in is integrated with Jenkins.
   In the following screen capture, the task status text is highlighted in Red:



NOTE

Each API that the JSON object return is different. Modify the preceding JavaScript example to parse the returned JSON object.

Robot Framework Plug-in

This plug-in provides you with a test automation framework for Git and SVN builds that is open-source and application-independent. The Robot Framework plug-in is containerized and supports Adaptive Testing functionality.

Plug-in Version 1.7-2

This plug-in is available as a Docker image on the customer support portal which has specific requisites and installation steps.

Download Options

Use one of the following options to download the latest plug-in version:

Method	Info
wget	`wget -O cdd-robot-plugin-v1.7-2b97.tar.gz https://cspdl.broadcom.com/shared/static/67lp6vlivr6eiygto8ytkomi4a3hxmdn.gz?LCK=ent.box.com`
MD5	`2fafb17f43e8be0e39ba19ba806c4fac`
Click Download Button	⬇
Download Docker Image from Customer Support Portal	Yes
Download TAR file from Customer Support Portal for customers who cannot use `docker pull`	Yes

Change History

The following update was made for plug-in version 1.7-2:

- To improve readability, the **Extra Execution Parameters** field in the **Get Test Assets** (**Test Source**) task was changed to a textarea field.

The following update was made for plug-in version 1.7-1:

- Bugfix: Tests that were skipped and therefore were not associated with reports were reported as failures

The following update was made for plug-in version 1.7:

- The **New or Updated Test Suites** heuristic is now supported for SVN test suites. This metric is a weighting factor when the Test Advisor intelligently selects a subset of test suites to run in subsequent test cycles.

Manifest URL

For plug-in registration, use the following manifest URL:

http://<plugin-server>:<port>/containerized/plugins/cdd-robot-plugin/manifest.json

Configuration

You configure the Robot Framework plug-in either for the initial setup, or whenever a change to the test build configuration is required.

Endpoint Parameters

The following parameters are required to create an endpoint:

- **Version Control System**
  Specify the version control system where your source project resides.
- **Git/SVN Project URL**
  Specify the URL to access the Git or SVN project repository.
- **GitHub/SVN Username**

  Specify the user name to access GitHub or SVN. Only required if the Git or SVN repository is not a public repository.
- **GitHub/SVN Password**
  Specify the password to access GitHub or SVN.

To check the connection to the Robot Framework and to the version control system, select **Test Connection**. The **Test Connection** action returns the following results:

- **Success**
  The connection was successful
- **Failure**
  The connection failed

Tasks

The Robot Framework plug-in supports the **Run Adaptive Testing** task type.

Prerequisites:

- One or more application versions are specified.
- One or more Robot Framework test suites exist for the application versions specified.

Tags

Specify one or more tags to find possible test suite matches.

Example: Type `ro` to retrieve all test suites tagged with labels beginning with *ro*, such as *robot.sanity.test*

Build/Commit id

Specify the commit ID (Git) of the code to test.

TIP

To select from a list of available tokens, enter the percent sign (%) in the task field.

Get Test Assets

The Robot Framework plug-in imports test suites into the Adaptive Testing Catalog.

Follow these steps:

1. Select Tests, then Adaptive Testing Catalog.
2. Specify the Application and the Application Version.
   The menu next to the application name and version is activated.
3. Select **Get Test Assets**.
4. Fill in the following fields:
   – **Test Source Name**
   – **Plug-in**
     Select Robot Framework and Import Test Suites.
   – **Endpoint**
     Select a Robot Framework endpoint.
   – **Branch**
     Specify the name of the Git branch where the test suites you want to import are located.
   – **Root Folder**
     Specify a path to the folder where the test suites you want to import are located. If left empty, test suites will be imported from the entire repository.
   – **Extra Execution Parameters**

Specify additions to the robot framework execution command. You can write multiple commands to run before the tests are executed. You can include shared tokens. Separate the commands with a semi-colon ";".
Example: -v SUT_HOST:sut.com

– **Tags**
Select one or more tags to execute test suites tagged with your selection. Leave empty to execute all the test suites under the application version.
Example: Type `ro` to retrieve all test suites tagged with labels beginning with *ro*, such as *robot.sanity.test*

Runscope Plug-in

This plug-in lets you can add an Adapting Testing task to your release pipeline that executes a Runscope API test.

Plug-in Version 1.0

You add this task after your API has been deployed and is ready for testing. After the Runscope API is triggered, the plug-in waits for the test run to finish (or time out). If the API test task is successful, your pipeline will continue to the next task in your pipeline; however, if the task fails (or times out), the build is marked as failed.

Download Options

Use one of the following options to download the latest plug-in version:

Method	Info
wget	`wget -O cdd-runscope-plugin.war https://cspdl.broadcom.com/shared/static/t3z9fhq4rroynzqqp8ifjuv9t0fknbz6.war?LCK=ent.box.com`
MD5	`abf9edbf33624e7d02f99077ffe7c583`
Click Download Button	⬇

Configuration

Register the plug-in and create endpoints as described in Manage Plug-ins

The URL of the Runscope manifest for plug-in registration is https://<plugin-server>:<port>/cdd-runscope-plugin/manifest.json.

Select the **Runscope** plug-in in the **ADD ENDPOINT** dialog to create an endpoint for the Runscope plug-in. The following Runscope information is required when you create an endpoint:

- **URL**
  Specify the URL of the Runscope instance to use for connection purposes.
  Syntax: `https://[Runscope server]:443/`
  Note: The URL can be specified either as `http` or `https`
- **Access Token**
  Specify an access token to authenticate to Runscope.

Get Test Assets

This plug-in lets you import test suites into the Adaptive Testing Catalog.

Follow these steps:

1. Select **Tests**, then **Adaptive Testing Catalog**.
2. Specify the **Application** and the **Application Version**. The menu next to the application name and version is activated.
3. Select **Get Test Assets**.
4. Fill in the following fields:
   - **Test Source Name**
   - **Plug-in**
     Select **Runscope** and **Import Test Suites.**
   - **Endpoint**
     Select a Runscope endpoint.
   - **Bucket Name**
     Specify the name of the Runscope bucket (project) where the test suites you want to import are located.
   - **Environment Name**
     Specify the name of the Runscope environment to use when running test suites. An environment is a group of configuration settings (initial variables, locations, notifications, integrations, and so on).

     NOTE
     There are two types of environments you can define in Runscope: test-specific environments and shared environments. The former can be applied to a single test; the latter can be applied across multiple tests. This plug-in supports shared environments only.
   - **Tags**
     Select one or more tags to execute test suites tagged with your selection. Leave empty to execute all the test suites under the application version.
     Example: Type `ru` to retrieve all test suites tagged with labels beginning with *ru*, such as *runscope.api.test*

<u>**Tasks**</u>

This plug-in supports the **Run Adaptive Testing** task type.

Prerequisites:

- One or more application versions are specified.
- One or more Runscope test suites exist in the **Adaptive Testing Catalog** for the application versions specified.

Tags

Specify one or more tags to find possible test suite matches.

Example: Type `ru` to retrieve all test suites tagged with labels beginning with *ru*, such as *runscope.api.test*

Build/Commit id

Specify the commit ID (Git) of the code to test.

TIP

To select from a list of available tokens, enter the percent sign (%) in the task field.

ServiceNow Plug-in

This plug-in helps you to automate the approval process and to reduce manual steps that delay delivery to production.

Plug-in Version 2.3-2

The ServiceNow plug-in helps you to automate the approval process and to reduce manual steps that delay delivery to production. The plug-in matches tickets that are defined in ServiceNow with their appropriate release and creates visualizations. These features help you to see the ticket status, and act accordingly.

This plug-in also optimizes and fully automates the information flows between the different systems. Tickets are therefore updated based on the progress of the release.

Download Options

Use one of the following options to download the latest plug-in version:

Method	Info
wget	`wget -O cdd-servicenow-plugin.war https://cspdl.broadcom.com/shared/static/s083tni6mq07c51jg0rkmnbsdpphs451.war?LCK=ent.box.com`
MD5	`eeb34d586215cf4e9af72fad7a7ec807`
Click Download Button	⬇

Supported Versions

The ServiceNow plug-in supports the core ServiceNow SaaS solution.

For more information, see the ServiceNow documentation at http://wiki.servicenow.com

What's New

The following update was made for plug-in version 2.3-2:

- The success message generated after a **Create Change Request** task executes now contains a URL linking to the newly-created change request in ServiceNow.

The following update was made for plug-in version 2.3-1:

- Bug fix: - Unclear error message when work item import fails.

The following update was made for plug-in version 2.3:

- Commas in JSON definitions in task input parameter fields generated task failures.

The following update was made for plug-in version 2.2:

- Support was added for Java 11.

Configuration

Register the plug-in and create endpoints as described in Manage Plug-ins.

Manifest URL

For plug-in registration, use the following ServiceNow manifest URL:

http://<plugin-server>:<port>/cdd-servicenow-plugin/manifest.json

Endpoint Parameters

The following parameters are required to create an endpoint:

- **Server URL**
  Specifies the URL that is used to access the ServiceNow instance
- **Username**
  Specifies the user name that is used to authenticate to the ServiceNow instance
- **Password**
  Specifies the password that is used to authenticate to the ServiceNow instance
- **Use Proxy**
  {Optional} Determines whether a proxy server is used
  Note: If selected, the **Proxy URL**, **Proxy Username**, and **Proxy Password** fields appear
- **Proxy URL**
  {Optional} Specifies the web address that is used to access the proxy server
- **Proxy Username**
  {Optional} Specifies the username that is used to authenticate to the proxy server
- **Proxy Password**
  {Optional} Specifies the password that is used to authenticate to the proxy server

To check the connection to ServiceNow, use the endpoint **Test Connection** option.

Import Work Items

The ServiceNow plug-in lets you sync work items between ServiceNow and Continuous Delivery Director releases. Use this capability when you create a release to see the related ServiceNow information.

Follow these steps:

1. In a release, click the **Work Items** tab on the left menu.
2. Select **Add Work Items**.
   The **ADD WORK ITEMS** window opens.
3. Enter a name for the work items source.
   Example: *ServiceNow Feed*
4. Under **Work Items Source**, select the ServiceNow plug-in and a configured ServiceNow endpoint.
5. Provide information in the required parameter fields. These fields let you build a query that searches ServiceNow for work items that match the criteria.

   TIP
   Values: To select from a list of possible values, type an at sign "@" in the field. You cannot combine values with free text or tokens.

   – **Item**
     Specifies the type of content to import.
     Example: *Incident*
   – **Category**
     Specifies the category to which the item belongs.
     Example: For an *Incident*, the category is *Software*.
   – **Priority**
     Specifies how quickly the service desk should handle the item.
   – **Assignment Group**
     Specify an assignment group, from which an individual agent or vendor is selected to complete a work item.
   – **Tags**

  Specifies the work item tags stored in ServiceNow. This field lets you filter what work items are imported provided that the items contain at least one specified tag.
- **Custom Fields**
  Specifies a list of custom field names and values.
  Values: You can update multiple values in the following JSON format: {"field1":"value1","field2":"value2"...}

6. Select **Create**.
   The work item source is saved and a list of the returned work items is displayed under the application in the left menu. These work items are now available to assign to tasks in phases to associate with the release.

Tasks

The following task types are available in the ServiceNow plug-in:

Create Change Request

You typically create change requests when you determine that fixing issues or incidents requires a change to the environment. The Create Change Request task creates a change request and returns the ID of the request for future use. This task requires the following fields:

Input Parameters

- **Short Description**
  Provides enough information for a user to complete the change request
- **Change Request Content**
  Specifies a list of ServiceNow field names and values.
  Values: The field name must be Identical to the name in the ServiceNow change request table. You can update multiple values in the following JSON format: {"field1":"value1","field2":"value2"...}
  Examples: {"Name":"myName","Category":"my Category","Type":"myType"}

Output Parameters

- **Change Request ID**
  Specifies the ID or name of the request that is created

Update Ticket

The **Update Ticket** task updates an existing ticket with a new status or updates a ticket with a customized field. This task requires the following fields:

Input Parameters

- **Ticket Type**
  Select one of the following types of ticket:
  - **Change Request-**
    A proposal to add, modify or remove an IT service-related item. If selected, the following fields appear:
    - **Change Request ID**
      Specifies the ID or the name of the change request you want to update.
    - **Change Request Content**
      Specifies a list of ServiceNow field names and values
      Values: The field name must be Identical to the name in the ServiceNow change request table. You can update multiple values in the following JSON format: {"field1":"value1","field2":"value2"...}
      Examples: {"Name":"myName","Category":"my Category","Type":"myType"}
  - **Request -**
    A request for an IT support service. If selected, the following fields appear:

  - **Request ID**
    Specifies the ID or the name of the request you want to update
  - **Request Content**
    Specifies a list of ServiceNow field names and values
    Values: The field name must be Identical to the name in the ServiceNow change request table. You can update multiple values in the following JSON format: {"field1":"value1","field2":"value2"...}
    Examples: {"Name":"myName","Category":"my Category","Type":"myType"}

Create Task

You create a task to organize and track the work that is required to complete an existing service request. Create Task creates a task under a service request and returns the task ID for future use. This task requires the following fields:

Input Parameters

- **Ticket Type**
  Select one of the following types of ticket:
  – **Change Request -** A proposal to add, modify or remove an IT service-related item. If selected, the following fields appear:
    - **Change Request ID**
      Specifies the ID or the name of the change request you want to update
    - **Change Task Content**
      Specifies a list of ServiceNow field names and values
      Values: The field name must be Identical to the name in the ServiceNow change request table. You can update multiple values in the following JSON format: {"field1":"value1","field2":"value2"...}
      Examples: {"Name":"myName","Category":"my Category","Type":"myType"}

  – **Request Item -** Add an item to a request. If selected, the following fields appear:
    - **Request Item ID**
      Specifies the ID or the name of the request you want to update
    - **Request Item Task Content**
      Specifies a list of ServiceNow field names and values
      Values: The field name must be Identical to the name in the ServiceNow change request table. You can update multiple values in the following JSON format: {"field1":"value1","field2":"value2"...}
      Examples: {"Name":"myName","Category":"my Category","Type":"myType"}

Output Parameters

- **Task ID**
  Specifies the ID or the name of the task that is created

Update Task

Update Task updates a ServiceNow task. This task requires the following fields:

Input Parameters

- **Task Type**
  Select one of the following types of task:
  – **Change Request -** A proposal to add, modify or remove an IT service-related item. If selected, the following fields appear:
    - **Change Request ID**
      Specifies the ID or the name of the change request you want to update
    - **Change Task Content**
      Specifies a list of ServiceNow field names and values

    Values: The field name must be Identical to the name in the ServiceNow change request table. You can update multiple values in the following JSON format: {"field1":"value1","field2":"value2"...}
    Examples: {"Name":"myName","Category":"my Category","Type":"myType"}
  - **Request Item -** Add an item to a request. If selected, the following fields appear:
    - **Request Item ID**
      Specifies the ID or the name of the request you want to update
    - **Request Item Task Content**
      Specifies a list of ServiceNow field names and values
      Values: The field name must be Identical to the name in the ServiceNow change request table. You can update multiple values in the following JSON format: {"field1":"value1","field2":"value2"...}
      Examples: {"Name":"myName","Category":"my Category","Type":"myType"}

Wait for Approval

The Wait for Approval task specifies that the next task starts upon the completion and approval of the specified ServiceNow change request. This task requires the following fields:

Input Parameters

- **Ticket Type**
  Select one of the following types of ticket:
  - **Change Request -** A proposal to add, modify or remove an IT service-related item. If selected, the following fields appear:
    - **Change Request ID**
      Specifies the ID or the name of the change request you want to update
    - **Status Field**
      Specifies the name of the field you want to check the status of
    - **Required Status**
      Specifies the required status of the field you want so that the task can continue
    - **Poll Interval**
      Specifies the interval in seconds in which the status is checked
  - **Request -** A request for an IT support service. If selected, the following fields appear:
    - **Request ID**
      Specifies the ID or the name of the request you want to update
    - **Status Field**
      Specifies the name of the field you want to check the status of
    - **Required Status**
      Specifies the required status of the field you want so that the task can continue
    - **Poll Interval**
      Specifies the interval in seconds in which the status is checked

Slack Plug-in

This plug-in provides your team with powerful, real-time messaging capabilities.

Plug-in Version 2.0

Supported Versions

The Slack plug-in supports the core Slack SaaS solution.

For more information, see the Slack documentation at https://slack.com/.

Download Options

Use one of the following options to download the latest plug-in version:

Method	Info
wget	`wget -O cdd-slack-plugin.war https://cspdl.broadcom.com/shared/static/e6ogxcerwe973pe029oqifp175m2jhjv.war?LCK=ent.box.com`
MD5	`ef5d397c7271ac38908e31d43c073dd0`
Click Download Button	⬇

Change History

The following update was made for plug-in version 2.0:

- Support was added for slack-api-client 1.4.2.

  WARNING
  This plug-in update is not backward compatible.

The following update was made for plug-in version 1.1:

- Support was added for Java 11.

Configuration

Register the plug-in and create endpoints as described in Manage Plug-ins.

Manifest URL

For plug-in registration, use the following Slack manifest URL:

http://<plugin-server>:<port>/cdd-slack-plugin/manifest.json

Endpoint Parameters

The following parameters are required to create an endpoint:

- **Webhook URL**
  The URL that contains the integration token. To copy this URL, go to your Slack account, search for incoming webhooks, and create a new incoming webhook configuration. Copy and paste the incoming webhook URL into the **Webhook URL** field.
  Example: `https://hooks.slack.com/services/T4TAH927P/B4T7VLH0A/VuUOyuAs6j8Uks9namGQCHK`

  IMPORTANT
  Before syncing this plug-in to the latest update, copy the webhook URL from the endpoint. After syncing the plug-in, re-add the webhook URL.

To check the connection to Slack, use the endpoint **Test Connection** option. The **Test Connection** option returns the following results:

- **Success**

Both connections were successful
- **Failure**
  One or more connections failed

Tasks

The following task types are available in the Slack plug-in:

> **TIP**
>
> To select from a list of available tokens, enter the percent sign (%) in the task field.

Post Message

The Post Message task requires the following fields:

Input Parameters

- **Post to Channel**
  Specifies a channel, or a direct message, to which to publish.
  Values: For channels, use #[channel name]. For Direct messages, use @[direct name].
  Note: Empty channel messages are posted to the channel that is defined in the endpoint
- **Sender**
  Specifies the name of the message sender
- **Message**
  Defines the message text

SonarQube Plug-in

This plug-in lets you check the health of your project against quality gates.

Plug-in Version 1.1

SonarQube quality gates contain a set of Boolean conditions based on metrics such as code coverage on new code, no new blocker issues, and so on.

Download Options

Use one of the following options to download the latest plug-in version:

Method	Info
wget	`wget -O cdd-sonarqube-plugin.war https://cspdl.broadcom.com/shared/static/u13owcv95con41c2iswpz4rdosg41fr0.war?LCK=ent.box.com`
MD5	`55b0a4058aa3970e2c4d369af0839bd0`
Click Download Button	⬇

Supported Versions

The SonarQube plug-in supports SonarQube 6.7.5 and higher.

For more information, see the SonarQube documentation at https://docs.sonarqube.org/latest/.

What's New

The following update was made for plug-in version 1.1:

- Support was added for Java 11.

Configuration

Register the plug-in and create endpoints as described in Manage Plug-ins and Manage Endpoints.

Manifest URL

For plug-in registration, use the following SonarQube manifest URL:

http://<plugin-server>:<port>/cdd-sonarqube-plugin/manifest.json

Endpoint Parameters

To create endpoints, provide the following parameters:

- **Url**
  Specify the URL to connect to the SonarQube instance
- **Authentication Type**
  Select an authentication type
- **User Token**
  - **User Token**Specify the SonarQube-generated token to access the SonarQube instance
- **Basic Authentication**
  - **SonarQube Username**
    Specify the username to authenticate to the SonarQube instance.
  - **SonarQube Password**
    Specify the password to authenticate to the SonarQube instance.
- **Use Proxy**
  {Optional} Determines whether a proxy server is used
  Note: If selected, the **Proxy URL**, **Proxy Username**, and **Proxy Password** fields appear
  - **Proxy URL**
    {Optional} Specifies the web address that is used to access the proxy server
  - **Proxy Username**
    {Optional} Specifies the username that is used to authenticate to the proxy server
  - **Proxy Password**
    {Optional} Specifies the password that is used to authenticate to the proxy server

To check the connection, select **Test Connection**.

Tasks

The following task types are available in the SonarQube plug-in:

Check Project Status

The Check Project Status task contains the following fields:

Input Parameters

- **Project Key**

Specify the SonarQube project key.

- **Fail on "Warning"**
  Select this option to fail this task if the status of the project quality gate is WARN.

Output Parameters

- **Quality Gate**
  Specify the quality gate identifier.

TestCafe Plug-in

This plug-in lets you execute TestCafe test suites as part of your release pipeline.

Plug-in Version 1.0

This plug-in integrates with TestCafe, a node.js tool to automate end-to-end web testing. The TestCafe plug-in is containerized and supports Adaptive Testing functionality. You can import tests from TestCafe to run as test suites within release pipelines.

TestCafe allows you to write tests using TypeScript, JavaScript, or CoffeeScript. To create a test, you create a new .js or .ts file. TestCafe test files are organized into categories called fixtures. A JavaScript, TypeScript file with TestCafe tests can contain one or more fixtures.

Download Options

Use one of the following options to download the latest plug-in version:

Method	Info
wget	`wget -O cdd-testcafe-plugin-v1.0b104.tar.gz https://cspdl.broadcom.com/shared/static/8tgunq0lzfqhhnvl8lqfu0fp4wc2d0or.gz?LCK=ent.box.com`
MD5	`b1d864aa4f4f764734440dff1b60a0cc`
Click Download Button	⬇
Download Docker Image from Customer Support Portal	Yes
Download TAR file from Customer Support Portal for customers who cannot use `docker pull`	Yes

Configure the TestCafe Plug-in

You configure the TestCafe plug-in either for the initial setup, or whenever a change to the test build configuration is required.

Register the new plug-in using the following manifest URL: `http://<plugin-server>:<port>/containerized/plugins/cdd-testcafe-plugin/manifest.json`.

Endpoint Parameters

The following parameters are required to create an endpoint:

- **Version Control System**

Specifies the version control system where your source project resides.

- **Git Repository URL**
  Specify the URL of the Git project repository.
- **Git Username**
  Specify the Git user name. This action is only required when the repository you specified is not a public repository.
- **Git Password**
  Specify the Git password. This action is only required when the repository you specified is not a public repository.

To check the connection to TestCafe and to the version control system, select **Test Connection**. The **Test Connection** action returns the following results:

- **Success**
  The connection was successful
- **Failure**
  The connection failed

Tasks

The TestCafe plug-in supports Adaptive Testing functionality. You can import test suites from the Adaptive Testing Catalog through the **Get Test Assets** command.

For more information, see Setting Up the Test Module

Prerequisites:

- One or more application versions are specified.
- One or more TestCafe test suites exist for the application versions specified.

Fill in the following input parameters to import TestCafe test suites:

Branch

Specify the version control branch name.

Tests Folder

(Optional) Specify the relative path to the folder where the required tests are located. When left empty, tests will be imported from the root folder.

Browser

(Optional) Specify the web browser name. For example, `chromium:headless; firefox:headless`.

For the list of browsers supported by TestCafe, see TestCafe documentation: https://devexpress.github.io/testcafe/documentation.

Additional Execution Parameters

(Optional) Specify additional execution parameters in JSON format where the key is the command line argument. For example: `{\"--speed\": \".05\",\"--page-load-timeout\": \"5\" }`.

For more information, see TestCafe documentation: https://devexpress.github.io/testcafe/documentation.

Environment Variables

(Optional) Specify the environment variables to be used during test execution in JSON format. Syntax: `{\"environment1\": \"value1\",\"environment2\": "value2\" }`

Start Node Package Manager?

Select this option to start the node package manager for this project before running the TestCafe tests. You can use this option to set up the application you are going to test.

Node Package Manager Initialization Delay

(Optional) Specify the time (in milliseconds) allowed for an application to initialize. For example, `60000`.

Twistlock Plug-in

This plug-in lets you run a static registry scan for Common Vulnerabilities and Exposures (CVE) on an application image that is hosted on a given registry.

Plug-in Version 1.1

You can scan your applications as early as the development phase to avoid or resolve potential issues before you commit your code. You can view the scan results in Continuous Delivery Director or Twistlock.

Download Options

Use one of the following options to download the latest plug-in version:

Method	Info
wget	`wget -O cdd-twistlock-plugin.war https://cspdl.broadcom.com/shared/static/c1po4926fbh17umiq4zzbyfu7rapnlmn.war?LCK=ent.box.com`
MD5	`112a6c5687124078c7d9a16e7de0760a`
Click Download Button	⬇

Supported Versions

The Twistlock plug-in supports the core Twistlock SaaS solution.

For more information, see the Twistlock documentation at https://twistlock.desk.com/

Capabilities

Runs a static registry scan for vulnerabilities on an application image that is hosted on a given registry.
Example: JFrog Artifactory

What's New

The following update was made for plug-in version 1.1:

- Support was added for Java 11.

Configuration

Follow these steps:

1. Install the Twistlock components (Console and Defender). You can use two options for installation:
   - onebox - Install both Console and Defender onto your host machine
   - Separate - Install Console and Defender on separate machines
     For more information about how to install and configure Twistlock, see the Twistlock installation documentation at https://twistlock.desk.com/

2. Register the plug-in and create endpoints as described in Manage Plug-ins.

Manifest URL

For plug-in registration, use the following Twistlock manifest URL:

http://<plugin-hostname>:<port>/cdd-twistlock-plugin/manifest.json

Endpoint Parameters

The following parameters are required to create an endpoint:

- **Address**
  Specifies the URL to connect to Console, the Twistlock management interface
  Value: http://domain-name:port
  Example: http://example.test.com:8081/
- **Twistlock Username**
  Specifies the user name to authenticate to Twistlock
- **Twistlock Password**
  Specifies the password that is used to authenticate to Twistlock
- **Registry**
  Specifies the registry that contains the images you want Twistlock to scan
  Example: repo.com:5000
- **Registry Username**
  Specifies the user name to authenticate to the registry
- **Registry Password**
  Specifies the password to authenticate to the registry
- **Defender Host Name**
  (Optional) Specifies the host name of the Defender that performs the registry scan
  Note: If this parameter is empty, a registry scan is enabled by default. The scan originates from the Defender that is installed on the same machine as Console (onebox).

To check the connection to Twistlock, use the endpoint **Test Connection** option.
Note: The connectivity test enables a registry scan from the Defender (specified in the **Defender Host Name** endpoint parameter).

Tasks

The Twistlock plug-in provides the following task:

- Run Static Scan

Run Static Scan

The task lets you run a static scan.

This task requires the following information:

- **Repository**
  Specifies the image repository on which to run the scan.
  Example: com/example/test/1.2
- **Tag**
  Specifies the label that is applied to an image in a repository. Tags are how various images in a repository are distinguished from each other.
  Example: latest
- **Severity**

Specifies the severity level of the CVE that trigger alerts
Example: Medium

- **CVSS**
  Specifies the the score of the option that is specified in the **Severity** drop-down list according to the CVSS (Common Vulnerability Scoring System)
  Value: An integer between 0 to 10
  Example: You specify a severity level of **Medium** in the **Severity** drop-down list, and a score of **4** in the **CVSS** field. When a scan is run, threats of a severity level of Medium trigger alerts, as long as the CVSS score is 4 or higher. Threats of a security level higher than Medium automatically trigger alerts.
- **Task Timeout**
  Specifies the number of minutes before the static scan stops
  Value: An integer
  Default: 30

Veracode Plug-in

This plug-in lets you run a dynamic security scan for a deployed web application.

Plug-in Version 1.0.2

Download Options

Use one of the following options to download the latest plug-in version:

Method	Info
wget	`wget -O cdd-veracode-plugin.war https://cspdl.broadcom.com/shared/static/kpag3br1y1xal7evmk4240r4rckkx48v.war?LCK=ent.box.com`
MD5	`3ffffc62f1648ecb5fa0c5de8faa77f1`
Click Download Button	●

Supported Versions

The Veracode plug-in supports the following Veracode API versions:

- summaryreport.do – version 3.0
- getappbuilds.do – version 4.0
- getdynamicstatus.do – version 5.0
- rescandynamicscan.do – version 5.0
- submitdynamicscan.do – version 5.0
- getapplist.do – version 5.0

For more information, see the Veracode documentation at https://www.veracode.com/.

Manifest URL

For plug-in registration, use the following Veracode manifest URL:

http://<plugin-server>:<port>/cdd-veracode-plugin/manifest.json

What's New

The following update was made for plug-in version 1.0.2:

- Support was added for Java 11.

Configuration

You configure the Veracode plug-in either for the initial setup, or whenever a change to the dynamic scan configuration is required. To use the Veracode API, you must first generate API credentials.

Follow these steps:

1. Navigate to the Veracode platform (https://analysiscenter.veracode.com, and create an application profile.
2. In the application profile, click **Start a Dynamic Scan**.
   The Dynamic Scan wizard opens.
3. Complete each step to configure the dynamic scan: **Scan Configuration**, **Login Instructions**, **Crawl Instructions**, **Advanced Options**, and **Scan Options**. On the **Scan Options** page, click **Run Prescan now**.
4. Submit your first dynamic scan.
   Note: After the scan is finished and results are ready, you can create and run a task to automate this scan in Continuous Delivery Director. Once the scan completes, the results are available in the Veracode platform. You can run the Continuous Delivery Director task repeatedly without the need to configure the Veracode platform again.
5. Go to the user account menu, select **API Credentials**, and click **Generate API Credentials.** Veracode generates your ID and secret key.
   Important: Copy these strings and keep them secure. You only see these credentials once. If you forget these credentials, you must regenerate a new ID and secret key.
6. In Continuous Delivery Director, register the plug-in and create endpoints as described in Manage Plug-ins.

Endpoint Parameters

The following parameters are required to create an endpoint:

- **API Credentials ID**
  Specifies the Veracode API credentials ID that provides permission to access the Veracode API
- **API Credentials Secret Key**
  Specifies the Veracode API credentials secret key that provides permission to access the Veracode API

To check the connection to Veracode, use the endpoint **Test Connection** option. The **Test Connection** option returns the following results:

- **Success** The connection was successful
- **Failure** The connection failed

Tasks

The following task types are available in the Veracode plug-in:

TIP

To select from a list of available tokens, enter the percent sign (%) in the task field.

Run Dynamic Scan

The Run Dynamic Scan task requires the following field:

Application Specifies the name of the application added to the Veracode application security platform

Develop Custom Plug-ins

Create custom plug-ins to add remote endpoints to your release pipeline that are outside the scope of the plug-ins included in Continuous Delivery Director.

Plug-in Version 3.1.7

Download Options

Method	Info
MD5	`b0f474dcdf98611d09de6d9471f43164`

The effectiveness of Continuous Delivery Director depends on the ability of the product to interact with the remote endpoints in your continuous delivery pipeline. If the library of packaged plug-ins does not contain integration with a key remote endpoint in your continuous delivery pipeline, you have the following options:

- Use manual entities in Continuous Delivery Director to simulate an integration point. For example, you can manually add the stories that are affected by an application release as content if a packaged plug-in is not available for your change management tool. You can also create a manual task for operations in other continuous delivery remote endpoints that simply remind the user to complete the operation manually in the remote endpoint. This is not an ideal solution and can cause high margins for error and a higher release management workload.
- Use the REST task that is provided by the CA REST packaged plug-in to make REST API calls to remote endpoints not supported with a packaged plug-in. As long as the remote endpoint has a REST API, you can instrument operations using the REST plug-in without developing a full custom plug-in.
  This option works for tasks but does not cover content and application import use cases. Therefore, we do not recommend this option for production usage.
- Develop a custom plug-in to integrate with the remote endpoint. **This is the recommended option.** This section describes how to develop a custom plug-in.

Continuous Delivery Director includes a full plug-in framework that supports packaged plug-in integrations and custom plug-in development. The plug-in framework supports the following capabilities:

- Configure and test connectivity to a remote endpoint
- Create automated tasks that instrument operations in the remote endpoint
- Import application and environment models from the remote endpoint
- Import content from the remote endpoint

The architecture of the plug-in framework is intended to allow for quick and flexible development of integrations with remote endpoints in your continuous delivery pipeline.

You can use utilities and helpers to retrieve dynamically a list of possible values from a remote endpoint. You can use dynamic values to enable end users to select values for task and import content item operations.

You can write your custom plug-in code in any programming language and can deliver the custom plug-in code to any Web service container such as Apache Tomcat or IBM WebSphere.

To develop a custom plug-in, you must adhere to the following requirements:

- The plug-in must be an HTTP service that can accept a POST request, instrument the requested operation, and can return a response.
- The plug-in must include a manifest.json file that details the plug-in capabilities.

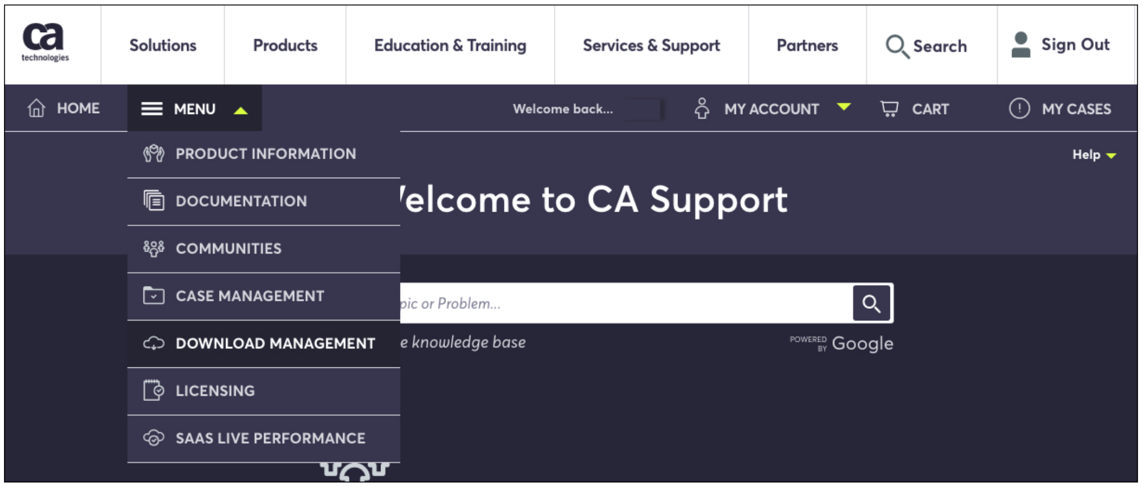
After you finish plug-in development, see Manage Plug-ins for information about how to install and register the plug-in.

Enable Java Custom Plug-in

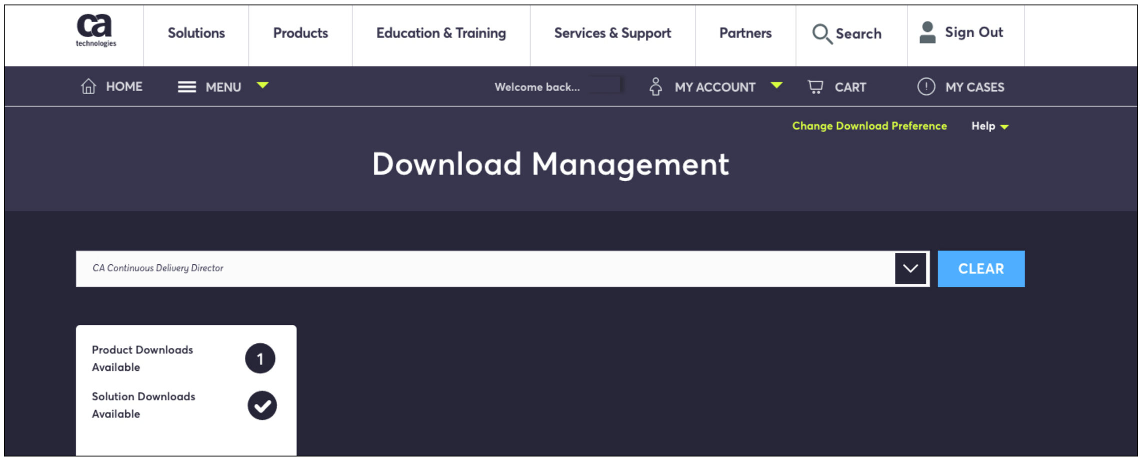
Developers working in Java to develop a custom plug-in need to download a DTO .jar file from the CA Support Web site. This .jar file declares the Java interfaces and input and output arguments required in the sample plugin code to enable the plug-in to integrate with Continuous Delivery Director.

Follow these steps:

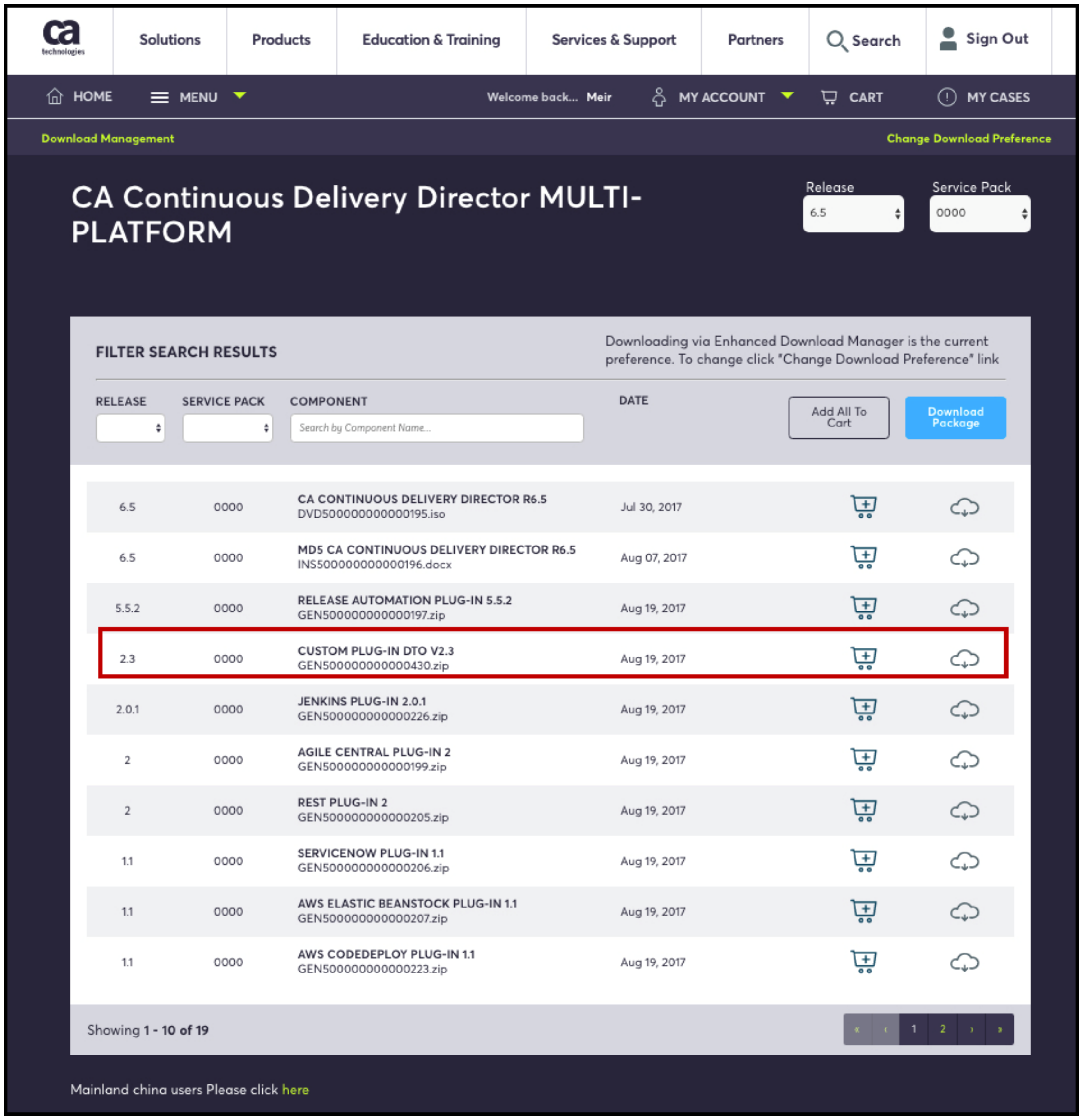
1. Enter the URL https://casupport.broadcom.com/ in a Web browser and log in to CA Support.
2. From the menu, select **Download Management**:



3. Search for Continuous Delivery Director and select **Product Downloads Available**:



4. Click the required Continuous Delivery Director release.
5. Look for CUSTOM PLUG-IN DTO in the results list and download.



CA Continuous Delivery Director MULTI-PLATFORM

Downloading via Enhanced Download Manager is the current preference. To change click "Change Download Preference" link

RELEASE	SERVICE PACK	COMPONENT	DATE
6.5	0000	CA CONTINUOUS DELIVERY DIRECTOR R6.5 DVD500000000000195.iso	Jul 30, 2017
6.5	0000	MD5 CA CONTINUOUS DELIVERY DIRECTOR R6.5 INS500000000000196.docx	Aug 07, 2017
5.5.2	0000	RELEASE AUTOMATION PLUG-IN 5.5.2 GEN500000000000197.zip	Aug 19, 2017
2.3	0000	CUSTOM PLUG-IN DTO V2.3 GEN500000000000430.zip	Aug 19, 2017
2.0.1	0000	JENKINS PLUG-IN 2.0.1 GEN500000000000226.zip	Aug 19, 2017
2	0000	AGILE CENTRAL PLUG-IN 2 GEN500000000000199.zip	Aug 19, 2017
2	0000	REST PLUG-IN 2 GEN500000000000205.zip	Aug 19, 2017
1.1	0000	SERVICENOW PLUG-IN 1.1 GEN500000000000206.zip	Aug 19, 2017
1.1	0000	AWS ELASTIC BEANSTOCK PLUG-IN 1.1 GEN500000000000207.zip	Aug 19, 2017
1.1	0000	AWS CODEDEPLOY PLUG-IN 1.1 GEN500000000000223.zip	Aug 19, 2017

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Develop Custom Plug-in HTTP Service

The plug-in code must be an HTTP service that listens to and processes an incoming HTTP POST request from Continuous Delivery Director. The service executes any type of request at the remote endpoint.

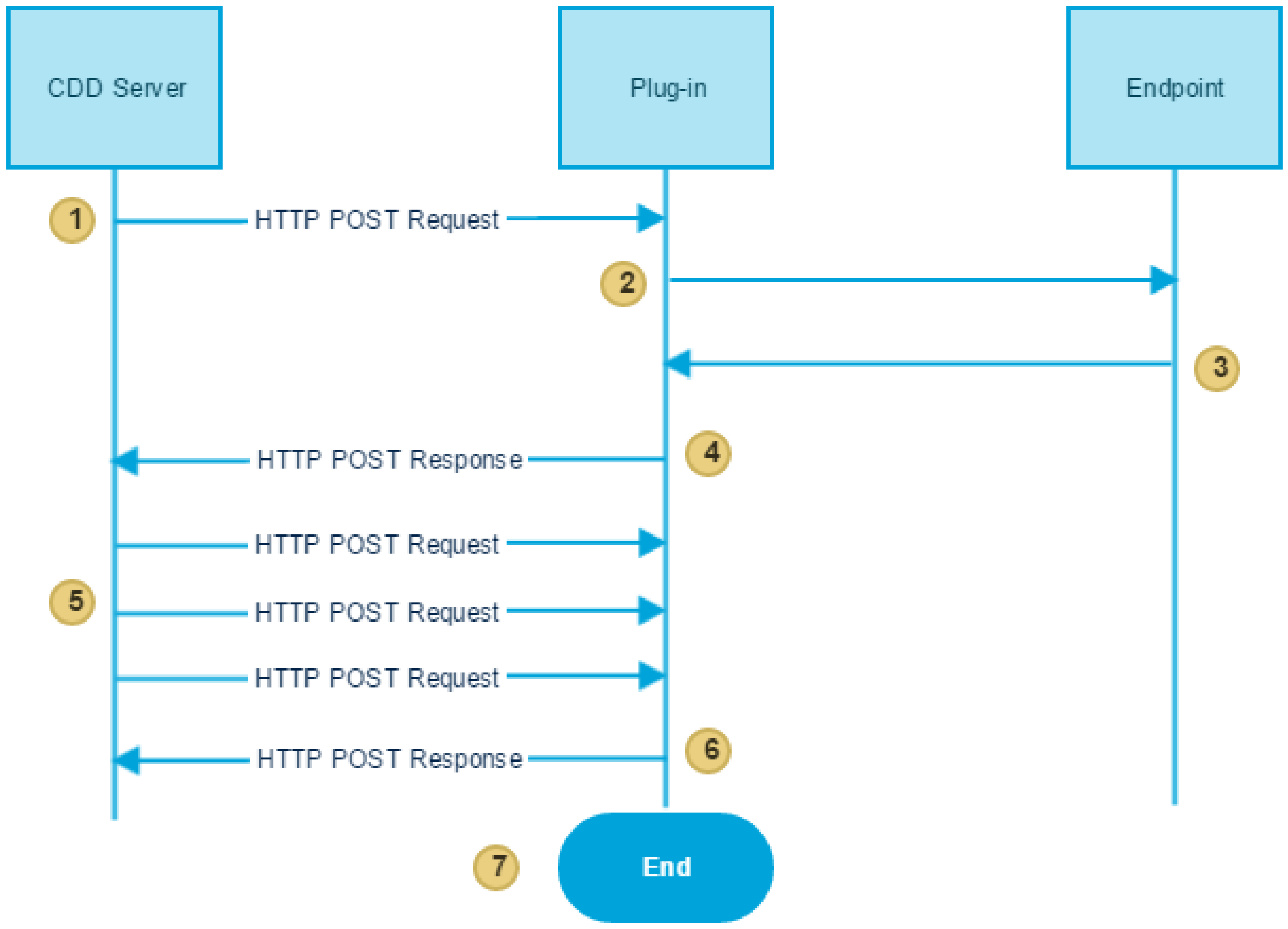
Outside of this requirement, the nature of the plug-in code is flexible in the following areas:

- Programming language
- Network API of the remote endpoint (HTTP, TCP, or other network protocol)
- Packaging

All packaged plug-ins are Java web applications that are packaged as Tomcat 8 WAR files that you deploy locally or remotely from the core product installation. You can also deploy plug-ins on a private or public cloud over the Internet.

The following diagram shows how the interface between the product, the plug-in, and the remote endpoint work:

Figure 11: plugin flow



1. The CDD Server makes an HTTP POST request to the plug-in when the invocation of a plug-in service occurs.
2. The plug-in uses the information in the POST request to format the appropriate call to the remote endpoint.
3. The endpoint may return a response to the plug-in while the operation is still running on the endpoint side (asynchronous operation).
4. The plug-in sends an HTTP POST response to the CDD server asking CDD to poll in x seconds.
5. The CDD Server makes repeated HTTP POST requests for the service querying the status of the operation on the endpoint side.
6. The plug-in sends an HTTP POST response with the operation status to the CDD Server.
7. When the status indicates that the operation has completed, CDD stops polling the plug-in.

The plug-in HTTP service must perform the following functions:

Understand input values from the manifest

Input values from the manifest are typically requested to construct the full request to the remote endpoint. The code must understand the values that are specified by the user when the task or other plug-in service is created. The code must properly use the values to construct the request to the remote endpoint.

Example: The plug-in code uses each of the potential input values to construct the request URL of the remote endpoint.

Use input values to construct a full request to the remote endpoint

The plug-in manifest must contain definitions for each supported plug-in service. Continuous Delivery Director uses these manifest definitions to collect the required input field values from the user and deliver the values to the plug-in. The plug-in uses these input field values to construct and execute the full request that is required for each operation.

Example: The plug-in code can contain a base REST API call with variables to hold the user input values.

Provide a POST response to display in the UI

The plug-in code must produce a POST response that is based on the result of the request to display as status information in the UI. The JSON scheme in the plug-in framework provides the following inputs that you can leverage for this purpose. A CDD plug-in may support one or more of the following plug-in services:

- Execute task (request JSON, response JSON - syntax, description, and an example)
- Import applications
- Import content items
- Test connectivity
- Retrieve dynamic values

externalTaskExecutionStatus

Provides a high-level status for the task. Set this input to one of the following values:

- RUNNING
- FAILED
- FINISHED

executionContent

Provides a field in which to store the service execution content. The task execution context data might include a collection of key/value pairs of runtime information for this specific task execution. CA Continuous Delivery Director persistently stores this context as an opaque data object and delivers the object at the next invocation of this API for this specific task execution.

Type: Map **<**String,Sting>

Context Key Limit: 230 characters

Context Value Limit: 4000 characters

Notes:

- If the response does not include the context element, CA Continuous Delivery Director keeps the context as is.
- If the response includes an empty context element, CA Continuous Delivery Director clears the context for this task execution.

taskState

Provides a summary of the task status. This status appears on the UI next to the task status icon.
The status is returned at the **statusDescription** field of the Task REST API response and displayed on the UI.

Type: String

Limits: 255 characters

Example: Task Failed

detailedInfo

Provides a detailed summary of the task status. The status is returned at the **detailedStatusDescription** field of the Task REST API response. This detailed status appears when you click on the high-level status in the UI.

Type: String

Limits: 10,000 characters

Example: Endpoint value is incorrect. Provide valid endpoint details.

progress

Provides a progress indicator to display.

Type: Float

delayTillNextPoll

Specifies when Continuous Delivery Director initiates the next invocation of this API for this specific task execution (if at all).

Type: Long

Sample Plug-in Requests

Test Connectivity

URL

```
${SCHEME}://${HOST}:${PORT}/cdd-twistlock-plugin/api/connectivity-test/connect
```

Input

```
{ "endPointProperties": { "address": "http://twistlockonesrv:8081", "twistlockUsername": "admin",
 "twistlockPassword": "admin", "registry": "isl-dsdc.ca.com:5000", "registryUsername": "bld_ra_build",
 "registryPassword": "Summer12$" } }
```

Output

```
{success=true, errorMessage='null'}
```

Task Execution

URL

```
${SCHEME}://${HOST}:${PORT}/cdd-twistlock-plugin/api/run-static-scan
```

Input

```
{ "endPointProperties": { "address": "http://twistlockonesrv:8081", "twistlockUsername": "admin",
 "twistlockPassword": "admin", "registry": "isl-dsdc.ca.com:5000", "registryUsername": "bld_ra_build",
 "registryPassword": "Summer12$" }, "taskProperties" : { "repo" : "com/ca/cdd/trunk/6.5/server", "tag" :
 "latest", "Severity" : "low", "CVSS" : "0", "TaskTimeout" : "60" } }
```

Output

```
{

                    "externalTaskExecutionStatus": "FINISHED",

                    "taskState": "Finished",
                    "detailedInfo": "No vulnerability was found",

                    "progress": 100.0,

                    "executionContext": {},

                    "outSystemParameters": {},

                    "delayTillNextPoll": -1

 }
```

Dynamic Values

URL

${SCHEME}://${HOST}:${PORT}/cdd-veracode-plugin/api/**dynamic-values**/applications?max_results=10&filter=myApp

Input

```
{ "endPointProperties": { "apiId": "6a18092e96013b24da2fc52ca2c4782c", "apiSecretKey":
 "7f110a26c3e8dfb7e45861f294cd91362c18a598415226c5e2f4b819a049a81ffcd0e841340b85844d4bb3f0631f6bfcdf8b51623384048d4f619
```

Output

```
{"values":[{"key":"301530","value":"Ahaz First Application"},
{"key":"304580","value":"AppWithConfiguredDS_not_prescanned"},{"key":"312510","value":"CA Modern
 Software Factory - Raffle"},{"key":"299867","value":"CA Raffle"},{"key":"299866","value":"CA Raffle
 Web Site"},{"key":"300118","value":"CA Release Automation 6.4"},{"key":"306471","value":"http://
cdbu.io"},{"key":"320737","value":"http://CDBU.io"  Win site"},{"key":"317208","value":"CDD QA test 1"},
{"key":"317169","value":"CDD QA Yonatan 01"},{"key":"124089","value":"Demo - 3rd Part - Published w/
 Mitigation"},{"key":"155589","value":"Demo - 3rd Party - Request"},{"key":"163261","value":"Demo - 3rd
 Party - Results NOT Published"},{"key":"176640","value":"Demo - Vendor Paid"},{"key":"294705","value":"Demo
 App 17"},{"key":"294707","value":"Demo App 18 - Prescan Complete"},{"key":"186511","value":"Lesley\u0027s
 test application v7.0.9"},{"key":"303216","value":"LironApp3"},{"key":"303018","value":"LironsApp2"},
{"key":"303725","value":"LironsApp4"},{"key":"307128","value":"LironsApp6"},{"key":"321198","value":"Medrec
 Application DOD 0"},{"key":"321193","value":"Medrec Application DOD 1"},{"key":"322165","value":"Medrec
 Application DOD 10"},{"key":"322166","value":"Medrec Application DOD 11"},{"key":"322155","value":"Medrec
 Application DOD 12"},{"key":"322167","value":"Medrec Application DOD 13"},{"key":"322168","value":"Medrec
 Application DOD 14"},{"key":"322169","value":"Medrec Application DOD 15"},{"key":"322170","value":"Medrec
 Application DOD 16"},{"key":"322171","value":"Medrec Application DOD 17"},{"key":"322172","value":"Medrec
 Application DOD 18"},{"key":"322173","value":"Medrec Application DOD 19"},{"key":"321194","value":"Medrec
 Application DOD 2"},{"key":"322174","value":"Medrec Application DOD 20"},{"key":"322158","value":"Medrec
 Application DOD 3"},{"key":"322159","value":"Medrec Application DOD 4"},{"key":"322160","value":"Medrec
 Application DOD 5"},{"key":"322161","value":"Medrec Application DOD 6"},{"key":"322162","value":"Medrec
 Application DOD 7"},{"key":"322163","value":"Medrec Application DOD 8"},{"key":"322164","value":"Medrec
 Application DOD 9"},{"key":"305890","value":"OferApp"},{"key":"302991","value":"ROBOT Application
 With Dynamic Scans"},{"key":"302992","value":"ROBOT Application With Dynamic Scans \u0026 Static
 Scans"},{"key":"302990","value":"ROBOT Application Without Scans"},{"key":"306607","value":"RobotApp1"},
{"key":"306922","value":"RobotApp2"},{"key":"306924","value":"RobotApp3"},
{"key":"307126","value":"RobotApp4"},{"key":"307127","value":"RobotApp5"},
{"key":"307629","value":"RobotApp6"},{"key":"307040","value":"RobotNotReadyApp1"},
{"key":"305538","value":"RonenTest"},{"key":"299127","value":"test for bug"},
{"key":"304569","value":"testApp1"},{"key":"304572","value":"testApp2"},{"key":"316288","value":"Travel App"},
{"key":"261605","value":"wer"}],"numOfResults":59}
```

Import Data

URL

```
${SCHEME}://${HOST}:${PORT}/cdd-jira-plugin/content-source/contents
```

Input

```
{"endPointProperties":{"password":"123456AB","url":"https://
assafshlomi.atlassian.net","username":"shlas01"},"contentSourceProperties":{"query":"type \u003d bug"}}
```

Output

```
{
          "contents": [{
                              "content": "bug for CAW 1",
                              "type": "DEFECT",
                              "displayType": "Bug",
                              "status": "To Do",
                              "id": "NAC-22",
                              "externalId": "15903"
                    }, {
                              "content": "bug for CAW 1",
                              "type": "DEFECT",
                              "displayType": "Bug",
                              "status": "To Do",
                              "id": "NAC-21",
                              "externalId": "15902"
                    }, {
```

```
                                                                       "content": "bug for CAW 1",

                                                                       "type": "DEFECT",

                                                                       "displayType": "Bug",

                                                                       "status": "To Do",

                                                                       "id": "NAC-20",

                                                                       "externalId": "15901"

                                               }

                     ]

 }
```

Import Apps

URL

`${SCHEME}://${HOST}:${PORT}/cdd-awselasticbeanstalk-plugin/api/`**`application-source`**`/applications`

Input

```
{
  "endPointProperties":
  {
    "accessKeyID": "AKIAIGEKPUS7UOKGPHGQ",
    "secretAccessKey": "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",
    "region": "eu-west-1",
    "s3Bucket": "liron.elastic.beanstalk"
  }
}
```

Output

```
{
  "applications":
  [{
    "id": "Twistlock_Robot_App",
    "name": "Twistlock_Robot_App",
    "environments": []
  },
  {
    "id": "EB_PluginRobotApp",
    "name": "EB_PluginRobotApp",
  "environments": [
{
  "id": "e-fzeypxhnt6",
  "name": "EB-RobotEnv-2-1500298217"
},
{
  "id": "e-fphiirivpz",
  "name": "EB-RobotEnv-1-1500298217"
},
{
  "id": "e-dn2vegwnnx",
  "name": "EB-RobotEnv-2-1500297850"
},
{
  "id": "e-cmbx3r8frb",
  "name": "EB-RobotEnv-1-1500297850"
}
]
},
{
  "id": "EB_PluginRobotApp_3",
  "name": "EB_PluginRobotApp_3",
  "description": "Please don\u0027t delete it (used in robot tests) !!!",
  "environments": []
},
{
  "id": "EB_PluginRobotApp_2",
  "name": "EB_PluginRobotApp_2",
  "description": "Please don\u0027t delete this app!!! \nit is used in robot tests...",
  "environments": []
},
{
  "id":
  "mySampleApp",
  "name": "mySampleApp",
  "environments": []
},
{
  "id": "QA01",
  "name": "QA01",
  "environments": []
},
{
  "id": "CDD",
  "name": "CDD",
  "environments": [
{
  "id": "e-zd7chudif3",
  "name": "acceptance",
  "description": "Clone of load"
},
{
  "id": "e-qg3inbp8qq",
      "name": "load",
      "description": ""
    }
    ]
    }
    ]
  }
```

To view and download sample plug-in code, see Sample Plug-in.

Create the Plug-in Manifest

Every plug-in requires a manifest.json file that describes the plug-in capabilities (plug-in services). The manifest.json file requires a specific JSON format that includes the following information:

- Basic plug-in information such as name and version
- An endpoint template that describes the name and required parameters for connecting to a remote endpoint for that plug-in
- Information for each service that the plug-in provides, such as execute task, import content items, import applications, and so on

Always place the manifest.json file at the top level of your plug-in package.

Sample Manifest File

To download a sample manifest file for a reference point and a template for your custom plug-in manifest, see Sample Plug-in.

Basic Plug-in Information

The following basic information is required at the top of the manifest file:

name

Specifies the name of the plug-in, which appears on the UI in the **Administration**, **Plug-ins** page.
Example: BlazeMeter

vendor

Specifies the plug-in vendor, which appears on the UI in the **Administration**, **Plug-ins** page.
Example: CA Technologies

uniqueId

Specifies a unique identifier that distinguishes the plug-in from other plug-ins on the system. The unique ID should be a concatenation of vendor and name
Example: CA Technologies BlazeMeter

description

Specifies a description for the plug-in.

version

Specifies the plug-in version number, which appears on the UI in the **Administration**, **Plug-ins** page. As a best practice, the version should be written in the form [numeric *major version*].[*numeric minor version*], for example, "1.2". Every change in the plug-in implementation and in the manifest should increment the version number, either minor or major. Incrementing the version number facilitates version control, change management, and tracking.

Endpoint Template Information

The following information is required in the manifest file to enable a connection to remote endpoints of that plug-in. A plug-in has only one endpoint template (also known as the endpoint type). This information appears under the `endpointTemplate` section of the manifest. The endpoint template specification includes all parameters that are required for connecting to the remote endpoint. For example, URL, user name, password, and so on. The list of parameters of the endpoint template is specific to each plug-in.

name

Specifies the name of the endpoint template. As a best practice, set this name to the name of the plug-in. The name appears as an Endpoint Type option when you click **Add Endpoint** on the **Endpoints** page in the UI.

uniqueId

Specifies a unique identifier that distinguishes the service information in this section from the other services within your manifest, such as tasks and content import. Set this value to "**ENDPOINT**" as a best practice.

description

Specifies a description for the endpoint type.

servicetype

Specifies the type of plug-in service you are describing. Always specify **ENDPOINT** for this property.

endPointType

Specifies the name of the endpoint type. Always specify **ENDPOINT** for this property.

url

Specifies a URL that is associated with this endpoint. Always specify **ENDPOINT** for this property.

parameters

Specifies the parameters that are required to establish a connection to the remote endpoint, such as URL, user name, password, and so on. These parameters appear on the UI when the **Endpoint Type** is selected in the **ADD ENDPOINT** dialog. The list of parameters holds the data type of each parameter and does not include the concrete values. The concrete values are specified by the user when they create a specific endpoint instance based on this endpoint template definition.

For more information, see Service Parameter Information.

Service Information

The following information is required in the manifest file to enable the services supplied by the plug-in, such as tasks, content import, and application import. A plug-in can have as many services as necessary. This information appears under the `services` section of the manifest.

name

Specifies the name of the plug-in service. This name appears as an option when you select from the available **Task Type** values in the **CREATE TASK** dialog or when you select from the available **Content Source Types** on the **CREATE CONTENT SOURCE** dialog.

uniqueId

Specifies a unique identifier that distinguishes the service information in this section from the other services within your manifest. Set this value to the **name** of this service as a best practice. This value must not change in future versions of this service.

description

Specifies a description for the service.

servicetype

Specifies the type of plug-in service that is described. Specify one of the following service types:

- Task: **"TASK"**
- Content import: **"CONTENT"**
- Application import: **"APPLICATION"**
- **Test connectivity: "CONNECTIVITY_TEST"**

url

Specifies a URL that is used by Continuous Delivery Director when you build the API call to execute this plug-in service using the provided parameter values. Ensure that the URL is relative to the base URL of the plug-in package in the manifest file location. For more information, see Manifest Best Practices.

inputParameters

Specifies the input parameters that are required to execute the plug-in service. These parameters appear on the UI when the Task Type is selected in the **CREATE TASK** or **CREATE CONTENT SOURCE** dialog.

For more information, see Service Parameter Information.

outputParameters

Specifies the output parameters that are returned by the execution of the plug-in service. These parameters appear on the UI when the Task Type is selected in the **CREATE TASK** or **CREATE CONTENT SOURCE** dialog. A user can configure a token in an output parameter, and Continuous Delivery Director will set the token value as the output parameter value that is returned by the execution of the plug-in service. The token can also be used as the input parameter of another plug-in service.

For more information, see Service Parameter Information.

Service Parameter Information

Service parameters are input values that are required for the underlying HTTP request to instrument the service. For endpoint templates, service parameters are typically connection information. For other services, parameters provide the information that is required to instrument task execution, and so on that is based on the requirement for that plug-in service. For example, deployment plan information to run a deployment. Parameters appear as fields when you select the relevant task type, content source type, or endpoint type on the UI.

Input Parameters

name

Specifies a name for the parameter. This value must not change in future versions of this service parameter.

displayName

Specifies the parameter name that appears as the field name for inputs in the UI. This value can be modified without any effect on the plug-in service execution.

uniqueId

Specifies a unique identifier that distinguishes the parameter in this section from the other parameters of this plug-in service.

description

Includes a description of the field that appears when you hover over the field in the UI.

type

Specifies the type of input value. Enter one of the following values:

string

A string value.

textarea

Displays a text box for an input value up to 1024 characters. Use this type for longer values such as code snippets.

password

An encrypted value. Use this type for passwords.

boolean

A boolean value, `true` or `false` . In the UI, the boolean type appears as a checkbox.

isOptional

Specifies whether the value is required or optional.

defaultValue

Specifies the default value that appears in the field before any other value is supplied.

possibleValues

Defines a set of static possible values for the field that are selectable in the UI from a drop-down list for a `string` parameter or checkbox for a `boolean` parameter (`true` or `false`). Each possible value can be associated with a further list of parameters that appear whenever the option associated with this value is selected in the UI.

Output parameters

Output parameters provide the ability to return plug-in values and use the values in a later task and phases

name

Specifies a name for the parameter. This value must not change in future versions of this service parameter.

displayName

Specifies the parameter name that appears as the field name for inputs in the UI. This value can be modified without any effect on the plug-in service execution.

uniqueId

Specifies a unique identifier that distinguishes the parameter in this section from the other parameters of this plug-in service.

description

Includes a description of the field that appears when you hover over the field in the UI.

Manifest Best Practices

Consider the following best practices as you build your manifest file:

Portable Manifest

- Keep the content of the manifest portable and agnostic to the exact location of the plug-in server container.
  A portable manifest lets the administrator relocate and deploy the plug-in on any server. Avoid hard coding specific server addresses and ports inside the plug-in manifest. The plug-in manifest should not be tightly coupled to its server container.

For example, all URL values in the plug-in manifest should use relative values such as tasks/task1.

Sensitive Information

- Store all sensitive information, such as passwords, API keys, and so on, as endpoint parameters.
  Do not store sensitive information in task or content source parameters. The endpoint is a central location that plug-in tasks and content sources share. This best practice prevents the repeated entry of sensitive data. This practice also prevents the replication of sensitive data across release tasks and content sources.
  Example: If a password value is updated for a remote component, you only have to update one location (endpoint details) in Continuous Delivery Director.
  This best practice also lets you implement different security levels for the endpoint creator and the task creator. The endpoint creator can hide the concrete password value from all task creators that use this endpoint.
- Store the network connectivity details of remote components as endpoint parameters.
  Do not store network connectivity information in task or content source parameters. Use this best practice for central management and maintenance of all remote servers that plug-ins access over the system network.
  When you use this best practice, the **ENDPOINTS** page lists all remote servers that the plug-ins access. You do not have to inspect all tasks to detect which network elements Continuous Delivery Director accesses.
  Example: If an IP address of a remote component changes, you would only need to update one location (endpoint details) in Continuous Delivery Director.

Packaging

- Ensure the manifest is part of the plug-in package. We do not recommend that you store the manifest separately from the rest of the plug-in.
- Ensure the manifest resides at the root of the plug-in package.
  If the base URL of the plug-in package is */cdd-ra-plugin/* , the manifest resides directly under the root of the plug-in package: */cdd-ra-plugin/manifest.json*

Naming and Versioning

- Do not create multiple plug-ins with the same name and definitely not for the same vendor..
  Ensure that each plug-in name and plug-in vendor name is globally unique. Using a distinct plug-in name helps to distinguish the plug-ins in the UI.
- Ensure the unique ID of the plug-in is a string that includes the plug-in name and the vendor.
  Example: CA Technologies Continuous Delivery Automation
- After you have published the plug-in to the community, do not change the plug-in name and vendor in subsequent versions.
- Update the plug-in version every time you modify and release the plug-in.

Sample Plug-in

This page presents full sample plug-in materials as a reference example and starting point for plug-in development.

Sample Plug-in Details

This sample plug-in provides basic artifacts to get you familiar with the required format of the manifest file and provide a common way of writing the plug-in code. The plug-in is a blank sample without any capabilities but provides key examples of important concepts in the basic formatting of the manifest and the code.

You can download each of these artifacts from this page and use them as starting points for your own custom plug-in.

Sample Plug-in Manifest

Here is the sample plug-in manifest file:

```
{
  "name": "Sample",
  "vendor": "CA Technologies",
  "uniqueId": "CA Technologies Sample",
  "description": "Sample Plugin for Continuous Delivery Director",
  "version": "1.0",
  "iconUrl": "CA.svg",
  "endpointTemplate": {
    "uniqueId": "Endpoint",
    "name": "Sample Endpoint",
    "description": "A Sample plugin endpoint",
    "serviceType": "ENDPOINT",
    "endPointType": "Endpoint",
    "url": "Endpoint",
    "parameters": [
      {
        "uniqueId": "URL",
        "name": "URL",
        "displayName": "URL",
        "type": "string",
        "isOptional": false,
        "defaultValue": null,
        "description": "URL"
      },
      {
        "uniqueId": "username",
        "name": "username",
        "displayName": "Username",
        "type": "string",
        "isOptional": false,
        "defaultValue": null,
        "description": "Username"
      },
      {
        "uniqueId": "password",
        "name": "password",
        "displayName": "Password",
        "type": "password",
        "isOptional": false,
        "defaultValue": null,
        "description": "Password"
      },
      {
        "uniqueId": "useProxy",
        "name": "useProxy",
        "displayName": "Use Proxy",
        "type": "boolean",
        "isOptional": true,
        "defaultValue": "false",
        "description": "Connect through a proxy",
        "possibleValues": [
          {
            "value": "false"
          },
          {
            "value": "true",
            "parameters": [
              {
                "uniqueId": "proxyUrl",
                "name": "proxyUrl",
                "displayName": "Proxy Url",
                "type": "string",
                "isOptional": false,
                "defaultValue": null,
                "description": "Proxy Url"
              },
              {
                "uniqueId": "proxyUsername",
                "name": "proxyUsername",
                "displayName": "Proxy Username",
                "type": "string",
                "isOptional": true,
                "defaultValue": null,
                "description": "Proxy Username"
              },
              {
                "uniqueId": "proxyPassword",
                "name": "proxyPassword",
                "displayName": "Proxy Password",
                "type": "password",
                "isOptional": true,
                "defaultValue": null,
                "description": "Proxy Password"
              }
            ]
          }
        ]
      }
    ]
  },
  "services": [
    {
      "uniqueId": "Task1",
      "name": "Task1",
      "description": "Description of the first task",
      "serviceType": "TASK",
      "url": "tasks/task1",
      "inputParameters": [
        {
          "uniqueId": "parameter1",
          "name": "parameter1",
          "displayName": "Parameter1",
          "type": "string",
          "isOptional": false,
          "defaultValue": null,
          "description": "Description of the first parameter of the first task",
          "url": "tasks/task1/parameter1/values"
        },
        {
          "uniqueId": "parameter2",
          "name": "parameter2",
          "displayName": "Parameter2",
          "type": "string",
          "isOptional": false,
          "defaultValue": "GET",
          "description": "Description of the second parameter of the first task",
          "possibleValues": [
            {
              "value": "GET"
            },
            {
              "value": "POST"
            },
            {
              "value": "PUT"
            }
          ]
        },
        {
          "uniqueId": "parameter3",
          "name": "parameter3",
          "displayName": "Parameter3",
          "type": "textarea",
          "isOptional": true,
          "defaultValue": null,
          "description": "Description of the third parameter of the first task",
          "url": "tasks/task1/parameter3/values",
          "dependencies": [
            "parameter1"
          ]
        }
      ],
      "outputParameters": [
        {
          "uniqueId": "output_parameter1",
          "name": "output_parameter1",
          "displayName": "output_parameter1",
          "description": "description of output_parameter1"
        }
      ]
    },
    {
      "uniqueId": "Import Application Model",
      "name": "Import Application Model",
      "description": "Description of import application model",
      "serviceType": "APPLICATION",
      "url": "application-sources/application-source",
      "inputParameters": null
    },
    {
      "uniqueId": "Import Content Items",
      "name": "Import Content Items",
      "description": "Description of import content items",
      "serviceType": "CONTENT",
      "url": "content-sources/content-source/content-items",
      "outputParameters": [
        {
          "uniqueId": "parameter1",
          "name": "Parameter1",
          "displayName": "Parameter1",
          "type": "string",
          "isOptional": false,
          "defaultValue": null,
          "description": "Description of the first parameter of the first import content items"
        }
      ]
    },
    {
      "name": "Connectivity Test",
      "description": "Connection Test",
      "serviceType": "CONNECTIVITY_TEST",
      "url": "connectivity-tests/connectivity-test",
      "uniqueId": "Connectivity Test"
    }
  ]
}
```

Download the sample manifest here to use it as a template for your custom plug-in manifest.

This manifest presents the following manifest information in an abstract, sample format:

- Basic plug-in information that you can change for your custom plug-in
- A basic endpoint template with three template parameters: user name, password, and URL. All recommended best practices for endpoint information values are applied.
- Template information for two tasks, content import, and application import. The template services provide examples of several of the parameter types described in Create the Plug-in Manifest.
- The manifest uses relative URLs for all services. For example, tasks/task1 is the URL for the first task. This is simply an identifier that is passed to the plug-in code, which can then use the supplied input values to execute the task. The sample plug-in code shows how the code can interpret the relative URLs to make the appropriate HTTP request.

Configure Plug-in Icons

Plug-in icons appear in the PLUG-INS page and on tasks in the RELEASES page. The source images for plug-in icons are located in the plug-in ***.***war file.

Plug-in manifests contain a JSON declaration that points to the source image in the plug-in ***.***war file.

Example:

```
"iconUrl": "CA.svg",
```

To add or change a plug-in icon, replace the source image in the plug-in ***.***war file and update the plug-in manifest.

Note: You cannot specify an absolute URL in the plug-in manifest to indicate the location of the source image. If you do not add or update a source image, or if the declaration is not correctly formatted, the CA icon "`CA.svg` " is used instead.

Tomcat-Based Java .WAR Sample

Note: For general specifications, see Develop Custom Plug-in HTTP Service.

Java Specific Specifications

A plug-in task might continue to run after the plug-in returns a response to Continuous Delivery Director. In this case, the plugin sets **externalTaskExecutionStatus** to RUNNING.

The plugin might create an execution context. The execution context is a collection of key and value pairs that are dynamically created by the plug-in and hold a plug-in-specific execution context of the plugin task. The execution context might hold a runtime key/value that allows the plug-in to check the execution status/progress.

The plugin sets **delayTillNextPoll** to polling duration (in seconds) to specify when Continuous Delivery Director checks the status/progress again.

Continuous Delivery Director executes the task again after this polling duration has passed to check the task status/ progress. The polling request includes the execution context so the plug-in is aware that this is not a new request for task execution.

The **ExternalTaskResult** Java class represents the JSON response on task execution request.

The **ExternalTaskResult** JSON is returned from a plugin to Continuous Delivery Director and includes the following fields:

externalTaskExecutionStatus

Provides a high-level status for the task. Set this input to one of the following values:

- RUNNING
- FAILED
- FINISHED

executionContent

Provides a field in which to store the service execution content. The task execution context data might include a collection of key/value pairs of runtime information for this specific task execution. Continuous Delivery Director persistently stores this context as an opaque data object and delivers the object at the next invocation of this API for this specific task execution.

Type: Map <String,Sting>

Context Key Limit: 230 characters

Contest Value Limit: 4000 characters

Notes:

- If the response does not include the context element, Continuous Delivery Director keeps the context as is.
- If the response includes an empty context element, Continuous Delivery Director clears the context for this task execution.

taskState

Provides a summary of the task status. This status appears on the UI next to the task status icon.
The status is returned at the statusDescription field of the Task REST API response and displayed on the UI.

Type: String

Limits: 255 characters

Example: Task Failed

detailedInfo

Provides a detailed summary of the task status. The status is returned at the detailedStatusDescription field of the Task REST API response. This detailed status appears when you click on the high-level status in the UI.

Type: String

Limits: 10,000 characters

Example: Endpoint value is incorrect. Provide valid endpoint details.

progress

Provides a progress indicator to display.

Type: Float

delayTillNextPoll

Specifies when Continuous Delivery Director initiates the next invocation of this API for this specific task execution (if at all).

Type: Long

Note: To view and download sample plug-in code, see Sample Plug-in.

Example:

A Java task may use the following to indicate that the task is still running, and ask Continuous Delivery Director to check the status/progress in POLLING_INTERVAL seconds:

```
taskInputs.getExecutionContext().put(OPERATION_ID, operationId);
return ExternalTaskResult.createResponseForRunning("Operation started", description, 0f, POLLING_INTERVAL,
 taskInputs.getExecutionContext());
```

When you stop a task, Continuous Delivery Director calls the task and sets the **action** to the following query parameters:

EXECUTE_ACTION

The standard action specified on task execution.

STOP_ACTION

The standard action specified when the task is stopped.

Example:

```
@POST
@Produces(MediaType.APPLICATION_JSON)
public ExternalTaskResult execute(@QueryParam(TaskConstants.ACTION_PARAM) String action, ExternalTaskInputs
 taskInputs) {
  ExternalTaskResult externalTaskResult;

  if (TaskConstants.EXECUTE_ACTION.equalsIgnoreCase(action)) {
   externalTaskResult = executeTask(taskInputs);
  } else if (TaskConstants.STOP_ACTION.equalsIgnoreCase(action)) {
   externalTaskResult = stopTask(taskInputs);
  } else {
   throw new IllegalArgumentException("Unexpected invalid action '" + action + "' while trying to execute
 task.");
  }

  return externalTaskResult;
}
```

Sample Plug-in Code

The following plugins-dto-1.11.jar file declares the Java interfaces and input and output arguments required in the sample plugin code.

Here is sample code for a single task described in the manifest:

The entry point for this SampleTask file is the execute method (line 40):

```
public ExternalTaskResult execute(@QueryParam(TaskConstants.ACTION_PARAM) String action, ExternalTaskInputs
 taskInputs)
```

This method has two input arguments:

- action of type String
- taskInputs of type ExternalTaskInputs

This method has one output:

- externalTaskResult of type ExternalTaskResult

```
package com.ca.cdd.plugins.sample;


import com.ca.rp.plugins.dto.model.*;
import org.glassfish.jersey.client.authentication.HttpAuthenticationFeature;


import javax.ws.rs.*;
import javax.ws.rs.client.Client;
import javax.ws.rs.client.ClientBuilder;
import javax.ws.rs.client.Entity;
import javax.ws.rs.client.Invocation;
import javax.ws.rs.core.MediaType;
import javax.ws.rs.core.Response;
import java.util.Map;


/**
 * Created by admin on 24/02/2016.
 * A sample task that can be used as a template for Continous Delivery Edition plugin tasks
 */
@Path("tasks/task1")
public class SampleTask {
```

```
private static final String PARAMETER1 = "parameter1";
private static final String PARAMETER2 = "parameter2";
private static final String PARAMETER3 = "parameter3";
private static final String FILTER = "filter";


@POST
@Produces(MediaType.APPLICATION_JSON)
public ExternalTaskResult execute(@QueryParam(TaskConstants.ACTION_PARAM) String action, ExternalTaskInputs
taskInputs) {
 ExternalTaskResult externalTaskResult;


 if (TaskConstants.EXECUTE_ACTION.equalsIgnoreCase(action)) {
  externalTaskResult = executeTask(taskInputs);
 } else if (TaskConstants.STOP_ACTION.equalsIgnoreCase(action)) {
  externalTaskResult = stopTask(taskInputs);
 } else {
  throw new IllegalArgumentException("Unexpected invalid action '" + action + "' while trying to execute
task.");
 }


 return externalTaskResult;
}


@POST
@Path("/parameter1/values")
@Consumes(MediaType.APPLICATION_JSON)
@Produces(MediaType.APPLICATION_JSON)
public DynamicValuesOutput getDynamicValuesForParameter1(DynamicValuesInput dynamicValuesInput,
@DefaultValue("") @QueryParam(FILTER) String filter) throws Exception {


 DynamicValuesOutput dynamicValuesOutput = null;


 dynamicValuesOutput = getDynamicValues(dynamicValuesInput, filter);


 return dynamicValuesOutput;
}


private ExternalTaskResult executeTask(ExternalTaskInputs taskInputs) {
 ExternalTaskResult externalTaskResult;


 try {
  Map < String, String > taskProperties = taskInputs.getTaskProperties();
  Map < String, String > endpointProperties = taskInputs.getEndPointProperties();
  String username;
  String password;
  String url;


  if (endpointProperties != null && !endpointProperties.isEmpty()) {
   username = endpointProperties.get("username");
   password = endpointProperties.get("password");
   url = endpointProperties.get("URL");
  } else {
   externalTaskResult = ExternalTaskResult.createResponseForFailure("Missing endpoint", "Unexpected invalid
empty endpoint while trying to execute task");
   return externalTaskResult;
  }


  // These are the task inputs
  String parameter1 = taskProperties.get(PARAMETER1);
  String parameter2 = taskProperties.get(PARAMETER2);
  String parameter3 = taskProperties.get(PARAMETER3);


  Client httpClient = ClientBuilder.newClient();
  if (username != null && !username.isEmpty()) {
   HttpAuthenticationFeature feature = HttpAuthenticationFeature.basic(username, password);
   httpClient.register(feature);
  }


  // http header support
  Invocation.Builder request = httpClient.target(url).request();
  try {
   addHeaders(request);
  } catch (Exception e) {
   externalTaskResult = ExternalTaskResult.createResponseForFailure("Failed to execute",
    "Could not parse headers " + e.getLocalizedMessage());
   return externalTaskResult;
  }




  Response response;
  String method = "GET";
  String body = null;
  response = request.method(method, Entity.json(body));


  if (response != null) {
   int responseCode = response.getStatus();
   String responseBody = response.readEntity(String.class);
```

```
     return ExternalTaskResult.createResponseForFinished("Rest operation ended successfully", responseBody);
    } else {
     return ExternalTaskResult.createResponseForFailure("Failed to execute",
      "No response");
    }
   } catch (Exception e) {
    externalTaskResult = ExternalTaskResult.createResponseForFailure("Failed to execute",
     e.getLocalizedMessage());
   }


   return externalTaskResult;
  }


  private ExternalTaskResult stopTask(ExternalTaskInputs taskInputs) {
   ExternalTaskResult externalTaskResult;


   externalTaskResult = ExternalTaskResult.createResponseForFailure("Failed to stop task", "Cannot stop");


   return externalTaskResult;
  }


  private void addHeaders(Invocation.Builder request) {
   request.header("Content-Type", "application/json");


   return;
  }


  private DynamicValuesOutput getDynamicValues(DynamicValuesInput dynamicValuesInput, String filter) throws
  Exception {
   return null;
  }


 }
```

Download the sample code here to use it as a template for your custom plug-in code.

The plug-in code does the following:

- Calls the relative URL referenced in the manifest file for the URL, in this case, tasks/task1. This ensures the proper routing of the task execution.
- Constructs the appropriate API call that plugs in task input values to complete the request.
- Builds a POST response to send status back to the UI based on that task state and what issue changed to what status.

Here is sample code for an application import:

```
  package com.ca.cdd.plugins.sample;
```

```
import com.ca.rp.plugins.dto.model.*;


import java.util.List;
import java.util.Map;


import javax.ws.rs.*;
import javax.ws.rs.core.MediaType;


/**
 * Created by admin on 24/02/2016.
 * A sample application source that can be used as a template for Continous Delivery Edition plugin
 application sources
 */
@Path("application-sources/application-source")
public class SampleApplicationSource {




 @POST
 @Path("/application-source")
 @Consumes(MediaType.APPLICATION_JSON)
 @Produces(MediaType.APPLICATION_JSON)
 public ExternalApplicationsResponse execute(ExternalApplicationSourceInput externalApplicationSourceInput)
 throws Exception {
  ExternalApplicationsResponse externalApplicationsResponse;


  externalApplicationsResponse = getApplicationsAndEnvironments(externalApplicationSourceInput);


  return externalApplicationsResponse;
 }




 private ExternalApplicationsResponse getApplicationsAndEnvironments(ExternalApplicationSourceInput
 externalApplicationSourceInput) throws Exception {
  ExternalApplicationsResponse externalApplicationsResponse;
  List < ExternalApplication > externalApplications;


  Map < String, String > endPointProperties = externalApplicationSourceInput.getEndPointProperties();


  externalApplications = getListOfExternalApplications(endPointProperties);
```

```
   for (int i = 0; i < externalApplications.size(); i++) {
    ExternalApplication externalApplication;
    List < ExternalEnvironment > externalEnvironments;


    externalApplication = externalApplications.get(i);


    externalEnvironments = getListOfEnvironmentByApplication(externalApplication, endPointProperties);


    externalApplication.setEnvironments(externalEnvironments);
   }


   externalApplicationsResponse = new ExternalApplicationsResponse();
   externalApplicationsResponse.setApplications(externalApplications);


   return externalApplicationsResponse;
  }


  private List < ExternalApplication > getListOfExternalApplications(Map < String, String > endPointProperties)
  {
   List < ExternalApplication > externalApplications = null;


   return externalApplications;
  }


  private List < ExternalEnvironment > getListOfEnvironmentByApplication(ExternalApplication
  externalApplication, Map < String, String > endPointProperties) {
   List < ExternalEnvironment > externalEnvironments = null;


   return externalEnvironments;
  }
 }
```

Download this sample code here to use it as a template for your custom plug-in application import.

This sample code does the following:

- Calls the relative URL referenced in the manifest file for the application import URL. This ensures the proper routing of an application import request.
- Runs requests to get the applications and environments associated with a specific endpoint.

Here is sample code for a connectivity test:

```
package com.ca.cdd.plugins.sample;

import com.ca.rp.plugins.dto.model.ConnectivityInput;
import com.ca.rp.plugins.dto.model.ConnectivityResult;
import javax.ws.rs.Consumes;
import javax.ws.rs.POST;
import javax.ws.rs.Path;
import javax.ws.rs.Produces;
import javax.ws.rs.core.MediaType;

import java.util.Map;



/**
 * Created by admin
 */
@Path("connectivity-tests/connectivity-test")
public class SampleConnectivityTest {



    @POST
    @Consumes(MediaType.APPLICATION_JSON)
    @Produces(MediaType.APPLICATION_JSON)
    public ConnectivityResult connect(ConnectivityInput connectivityInput) {

        ConnectivityResult connectivityResult = new ConnectivityResult(true, null);
        boolean status = true;
        String errorMessage = null;

        Map < String, String > endpointProperties = connectivityInput.getEndPointProperties();

        if ( status == false )
        {
           connectivityResult.setSuccess(status);
           connectivityResult.setErrorMessage(errorMessage);
       }

        return connectivityResult;
    }

}
```

Download this sample code for a connectivity test here.

This sample code provides a URL that is called to test an endpoint connection.

Sample Tomcat web.xml File

The following web.xml file uses a Jersey servlet container:

For more information, see the jersey.java.net website.

```
<?xml version="1.0" encoding="UTF-8"?>
<!-- This web.xml file is not required when using Servlet 3.0 container,
     see implementation details http://jersey.java.net/nonav/documentation/latest/jax-rs.html -->
```

```
<web-app version="2.5" xmlns="http://java.sun.com/xml/ns/javaee" xmlns:xsi="http://www.w3.org/2001/XMLSchema-
instance" xsi:schemaLocation="http://java.sun.com/xml/ns/javaee http://java.sun.com/xml/ns/javaee/web-
app_2_5.xsd">
    <servlet>
        <servlet-name>CA Technologies Sample Plugin</servlet-name>
        <servlet-class>org.glassfish.jersey.servlet.ServletContainer</servlet-class>
        <init-param>
            <param-name>jersey.config.server.provider.packages</param-name>
            <param-value>com.ca.cdd.plugins.sample</param-value>
        </init-param>
        <load-on-startup>1</load-on-startup>
    </servlet>
    <servlet-mapping>
        <servlet-name>CA Technologies Sample Plugin</servlet-name>
        <url-pattern>/servlet/*</url-pattern>
    </servlet-mapping>
</web-app>
```

Download the sample web.xml File here.

Sample Tomcat Logger Configuration

The following file presents a sample logback configuration for a Tomcat-based Java plug-in:

```
<?xml version="1.0" encoding="UTF-8"?>
<configuration>
    <!--<include resource="org/springframework/boot/logging/logback/base.xml"/>-->
    <!--<jmxConfigurator/>-->
    <property name="LOG_HOME" value="../logs" />
    <appender name="STDOUT" class="ch.qos.logback.core.ConsoleAppender">
        <layout class="ch.qos.logback.classic.PatternLayout">
            <Pattern>
                %d{yyyy-MM-dd HH:mm:ss} [%thread] %-5level %logger{36} - %msg%n
            </Pattern>
        </layout>
    </appender>
    <appender name="FILE-LOG"
              class="ch.qos.logback.core.rolling.RollingFileAppender">
        <file>${LOG_HOME}/cdd_sample_plugin.log</file>
        <encoder class="ch.qos.logback.classic.encoder.PatternLayoutEncoder">
            <Pattern>
                %d{yyyy-MM-dd HH:mm:ss} [%thread] %-5level %logger{36} - %msg%n
            </Pattern>
        </encoder>
        <rollingPolicy class="ch.qos.logback.core.rolling.TimeBasedRollingPolicy">
            <!-- rollover daily -->
            <fileNamePattern>${LOG_HOME}/archived/cdd_sample_plugin.%d{yyyy-MM-dd}.%i.log
            </fileNamePattern>
            <timeBasedFileNamingAndTriggeringPolicy
                    class="ch.qos.logback.core.rolling.SizeAndTimeBasedFNATP">
                <maxFileSize>10MB</maxFileSize>
            </timeBasedFileNamingAndTriggeringPolicy>
        </rollingPolicy>
    </appender>
    <!-- Send logs to both console and file audit -->
    <logger name="com.ca.cdd.plugins.sample"
            additivity="false">
        <appender-ref ref="FILE-LOG" />
        <appender-ref ref="STDOUT" />
    </logger>
    <root level="debug">
        <appender-ref ref="FILE-LOG" />
    </root>
</configuration>
```

Download this sample file here to use it as a template for your logback configuration.

In this file, you should change values in the following lines to reflect the artifacts for your plugin:

- Line 17 specifies the log file name to which to log plugin messages.
- Line 24 specifies archiving behavior.
- Line 37 specifies the Java package for the plugin.

These three locations should be updated based on the artifacts for your plugin.

Should include logback.jar and other third-party files with a logback implementation.

Sample Tomcat WAR Folder and File Structure

When you develop a sample plug-in using a Tomcat-based Java architecture, your WAR folder structure will look like the following:

./WEB-INF

./WEB-INF/classes

./WEB-INF/classes/com

./WEB-INF/classes/com/ca

./WEB-INF/classes/com/ca/cdd

./WEB-INF/classes/com/ca/cdd/plugins

./WEB-INF/classes/com/ca/cdd/plugins/sample

./WEB-INF/lib

./META-INF

The files included in the plug-in are as follows:

# Plugin manifest

./manifest.json

# WAR manifest

./META-INF/MANIFEST.MF

# Tomcat web.xml

./WEB-INF/web.xml

# WAR class files

./WEB-INF/classes/logback.xml

```
./WEB-INF/classes/com/ca/cdd/plugins/sample/SampleTask.class
./WEB-INF/classes/com/ca/cdd/plugins/sample/SampleConnectivityTest.class
./WEB-INF/classes/com/ca/cdd/plugins/sample/SampleApplicationSource.class

# WAR jar files
./WEB-INF/lib/plugins-dto-1.11.jar
./WEB-INF/lib/dtos.jar

./WEB-INF/lib/javax.annotation-api-1.2.jar
./WEB-INF/lib/javax.ws.rs-api-2.0.1.jar
./WEB-INF/lib/javax.inject-2.4.0-b31.jar
./WEB-INF/lib/javax.inject-1.jar

./WEB-INF/lib/jersey-media-json-jackson-2.21.jar
./WEB-INF/lib/jersey-client-2.22.1.jar
./WEB-INF/lib/jersey-media-jaxb-2.22.1.jar
./WEB-INF/lib/jersey-entity-filtering-2.21.jar
./WEB-INF/lib/jersey-server-2.22.1.jar
./WEB-INF/lib/jersey-common-2.22.1.jar
./WEB-INF/lib/jersey-apache-connector-2.21.jar
./WEB-INF/lib/jersey-container-servlet-core-2.22.1.jar
./WEB-INF/lib/jersey-guava-2.22.1.jar

./WEB-INF/lib/logback-core-1.1.3.jar
./WEB-INF/lib/logback-classic-1.1.3.jar
./WEB-INF/lib/log4j-over-slf4j-1.7.12.jar
./WEB-INF/lib/slf4j-api-1.7.12.jar
./WEB-INF/lib/jcl-over-slf4j-1.7.12.jar
./WEB-INF/lib/commons-logging-1.2.jar

./WEB-INF/lib/httpcore-4.4.3.jar
./WEB-INF/lib/httpasyncclient-4.0.2.jar
./WEB-INF/lib/httpcore-nio-4.3.2.jar
./WEB-INF/lib/httpclient-4.5.1.jar
./WEB-INF/lib/httpmime-4.3.6.jar
./WEB-INF/lib/unirest-java-1.4.5.jar

./WEB-INF/lib/jackson-jaxrs-json-provider-2.5.4.jar
./WEB-INF/lib/jackson-jaxrs-base-2.5.4.jar
```

./WEB-INF/lib/jackson-databind-2.5.4.jar

./WEB-INF/lib/jackson-annotations-2.5.4.jar

./WEB-INF/lib/jackson-module-jaxb-annotations-2.5.4.jar

./WEB-INF/lib/jackson-core-2.6.2.jar

./WEB-INF/lib/javassist-3.18.1-GA.jar

./WEB-INF/lib/json-simple-1.1.1.jar

./WEB-INF/lib/json-20140107.jar

./WEB-INF/lib/hk2-api-2.4.0-b31.jar

./WEB-INF/lib/hk2-utils-2.4.0-b31.jar

./WEB-INF/lib/hk2-locator-2.4.0-b31.jar

./WEB-INF/lib/commons-codec-1.9.jar

./WEB-INF/lib/hamcrest-core-1.3.jar

./WEB-INF/lib/junit-4.12.jar

./WEB-INF/lib/validation-api-1.1.0.Final.jar

./WEB-INF/lib/osgi-resource-locator-1.0.1.jar

./WEB-INF/lib/aopalliance-repackaged-2.4.0-b31.jar

./WEB-INF/lib/mockito-all-1.10.19.jar

Integrate with CI Tools

Set up an integration with a third-party Continuous Integration (CI) tool that automatically feeds changes into Continuous Delivery Director.

CI tools provide rapid feedback to help you identify and correct defects as soon as possible. You can use CI tools to automate testing and build a document trail to help prevent integration problems.

Continuous Delivery Director supports integration with the following Continuous Integration tools:

- Jenkins
- JetBrains TeamCity
- Microsoft Team Foundation Server (TFS)

Once the CI tool is successfully building a new build for a specific application version, a notification is sent to Continuous Delivery Director. This notification triggers the execution of the related release for that application version.

Plug-in for Azure DevOps Server

Use this plug-in to send build notifications from Azure DevOps Server to Continuous Delivery Director.

Plug-in Version 1.0

Azure DevOps Server notifies Continuous Delivery Director of any new successful build including application and build information, and Continuous Delivery Director maps the event to the relevant releases.

Download Options

Use one of the following options to download the latest plug-in version:

Method	Info
wget	`wget -O BroadcomCDD.cdd-build-release-task-1.0.0.vsix https://cspdl.broadcom.com/shared/static/bnztgtd0ix3h1d7wyzhnmqf057kdwi9c.vsix?LCK=ent.box.com`
MD5	`ea55548577ba4f42f9f2512e23b1f929`
Click Download Button	⬇

Change History

The following update was made for plug-in version 1.0

- This plug-in was made available to customers.

Related Links

Configure Plug-in for Azure DevOps Server on page 211
Use this procedure to install and configure the plug-in for Azure DevOps Server.

Configure Plug-in for Azure DevOps Server

Use this procedure to install and configure the plug-in for Azure DevOps Server.

- You have a working instance of Azure DevOps Server.
- In Azure DevOps Server, you must be a Project Collection Administrator and have Edit collection-level information permissions.
- You have downloaded the plug-in for Azure DevOps Server`BroadcomCDD.cdd-build-release-task-1.0.0.vsix` file from https://cddirector.io/plugins/ to your local machine.

This plug-in (extension) installs the following components:

- A service endpoint for connecting to the Continuous Delivery Director server.
- A send notification task, to send build notification information to Continuous Delivery Director.

NOTE
This extension is compatible with Azure DevOps Server Version Dev17.M153.5.

NOTICE
The following procedure describes settings in third-party software. CA Technologies is not responsible for any changes the third-party software vendor may make to the user interface described in this procedure.

Add the Extension to a Collection

At least one team project collection is defined in Azure DevOps Server.

To use the extension in Azure projects and build pipelines, you first add the extension to the required team project collection.

1. In Azure DevOps Server, select the required collection, then **Collection Settings**.
2. Click **Extensions**, and from the menu bar, click the extension actions menu, choose **Manage extensions**, then **Browse local extensions**.
3. Click **Manage extensions**, then **Upload extension**.
4. Browse to the extension vsix file and upload to Azure DevOps Server.
   The **Send notification to CDDirector extension** is listed on the **Manage Extensions** page.
5. Right-click the **Send notification to CDDirector extension** row, then click **View Extension**.
   The extension documentation page opens.
6. Click **Get it free**.
7. Select a team project collection from the dropdown menu, then click **Install**.

The Send notification to CDDirector is available for use in projects in the selected collection.

Create a Continuous Delivery Director Server Endpoint

At least one project is configured in the required team project collection.

To send build notifications, Azure DevOps Server requires a service connection to a Continuous Delivery Director server.

1. In Azure DevOps Server, select the required project, then **Project Settings**.
2. Click **Service connections**, then from the **New Service connection** dropdown, select **CDD server**.
3. In the **Add CDD server service connection** dialog, configure, and set values for the following parameters:
   - **Connection name**
     Specify a user-friendly name for the service endpoint such as `CDD SaaS`.
   - **CDDirector Server URL**
     Specify the URL to the required Continuous Delivery Director instance, such as `http://cdd-server:8080/` or `https://cddirectio.io/`.
   - **Tenant ID**
     Specify a Continuous Delivery Director tenant ID.
     - For an on-prem instance of Continuous Delivery Director, the tenant ID is `00000000-0000-0000-0000-000000000000`.
     - For Continuous Delivery Director SaaS, you can find the tenant ID in Continuous Delivery Director under **User Settings**.
   - **CDD API Key**
     Specify the Continuous Delivery Director API key of an authorized user, such as an integration user, release manager, or administrator. You can find the API key in Continuous Delivery Director under **User Settings**.
   - **Azure DevOps Token**
     Specify the personal access token of an Azure DevOps Server user with at least build access permissions.

4. To check the connection., click **Verify Connection**.
5. Select or clear the **Allow all pipelines to use this connection** option according to your preferences.
6. To create the connection, click **OK**.

Send Build Notifications to Continuous Delivery Director

A service connection to a Continuous Delivery Director server is configured for the team project collection.

You can update an existing Azure project to send build notifications to Continuous Delivery Director.

Continuous Delivery Director can automatically create and execute a new release every time a new application (component) version is built by Azure DevOps Server. Continuous Delivery Director can automatically create a release and run any relevant tests on the arrival of a build notification (with a preconfigured *create new release* request).

You can use this extension to update and deploy business applications that contain a subgroup of applications (components). You can also attach DSL files to business applications to use as templates for releases. A build notification that comes from any of the business application child applications (components) can trigger the creation of a release based on a template.

You can use this plug-in to update a test source template, which is a test source that defines the tests to execute for a specific application (component). You can enter the test parameters in Jenkins. On the arrival of a build notification (with a preconfigured *create new test source* request),Continuous Delivery Director can automatically create a release and a test source on the fly without the need for any preconfiguration.

You can also specify source control connection parameters in Azure DevOps Server instead of in Continuous Delivery Director. This specification supports the *Run Relevant Tests* and *Planned vs Actual* features.

1. In Azure DevOps Server, select the required project, then **Project Settings**.
2. Under Pipelines, click **Build**.
   A list of build pipelines displays.
3. Select a build pipeline, then click**Edit**.
   A list of jobs displays.
4. Select the required job and click the icon to add a task.
   A list of tasks that are available to add to the job displays.
5. In the task list, select **Send notification to CDDirector** and click **Add**.
   The extension appears under the selected job.
6. In the extension row, click the round icon.
7. In the **Send notification to CDDirector** dialog, configure, and set values for the following parameters:
   - **Display name**
     Specify a user-friendly name for the task service endpoint such as `sendNotificationToCDD`.
   - **Connection name**
     Select the Continuous Delivery Director endpoint to use. If needed, click **Manage**, and add a new **CDD server connection** type service endpoint.
   - **Application**
     Select one of the following options:.
     – **Use Source Code Repository Name as Application Name**
       NOTE
       Select this option only if the Source Code Management setting in the project is for a single source code repository.
     – **Specify the Application Name**

If you select this option, an **Application Name** field appears.

- **Application Version**

  Select one of the following options:

  - **Use Source Code Branch Name as Application Version**

    NOTE

    Select this option only if the Source Code Management setting in the project is for a single source code repository.

  - **Specify the Application Version Name**

    If you select this option, an **Application Version Name** field appears.

- **Ignore Nonexistent CDD Application?**

  Select this option to pass the Azure build even if the specified application does not exist in Continuous Delivery Director.

- **Update Token Values in CDDirector**

  Enter one or more "field name":"value" pairs. You can update multiple fields using the following format: `{"field1":"value1","field2":"value2"…}` . When a build notification is sent to Continuous Delivery Director, the specified token is updated with the specified value. For example, `{"packageName":"BillingPackage_85"}`.

- **Source Control Connection Parameters**

  Enter one or more "field name":"value" pairs. Enter the field name exactly as the name appears in Continuous Delivery Director when creating a source control connection on the **Application Management** page. You can update multiple fields using the following format: `{"field1":"value1","field2":"value2" ...}` . When a build notification is sent to Continuous Delivery Director, the specified field is updated with the specified value and is used to create or update a test source. For example, `{"Repository":"MyApp"}`.

- **Test Data**

  Enter the name of the test source and then a key:value pair list with the parameters you want to update. For example: `[{"name": "JUnit_Test_Source", "parameters": {"Branch":"myBranch"...}}]`.

- **Notification execution strategy:**

  Select one of the following options:

  - **Execute an existing release**

    Execute an existing release in Continuous Delivery Director.

  - **Create a release**

    Create an existing release in Continuous Delivery Director. If you select this option, the following field appears:

    - **DSL Source**

      Select one of the following options:

      - **Business Application**

        If you select this option, the following field appears:

        - **DSL Parameter**

          Specify parameters to use when creating the release based on the business application DSL file. Enter "field name" and "value" pairs. For example: `"ReleaseVersion":"8.0"`

      - **File Source**

        If you select this option, the following fields appear:

        - **File Source name**

          Specify the file source name to use to create the release.

        - **DSL Filename**

          Specify the DSL file name to use to create the release.

        - **Override Filesource Parameters**

          Specify the file source parameters that are defined in Continuous Delivery Director to override.

        - **DSL Parameter**

Specify parameters to use when creating the release based on the business application DSL file. Enter "field name" and "value" pairs. For example: `"ReleaseVersion":"8.0"`

- **Only run my tests in CDD**
  Select this option to run tests without triggering a build in Continuous Delivery Director.
  - **Run a subset of test suites selected by the Test Advisor**
    Choose this option to run in Continuous Delivery Director only the test suites that the Test Advisor selects. The test advisor selects test suites that are most relevant to recent changes and are likely to fail fast.

Related Links

Plug-in for Azure DevOps Server on page 210
Use this plug-in to send build notifications from Azure DevOps Server to Continuous Delivery Director.

Plug-in for Jenkins

Use this plug-in to send build notifications from Jenkins to Continuous Delivery Director.

Plug-in Version 3.3

Jenkins notifies Continuous Delivery Director of any new successful build including application and build information. Continuous Delivery Director maps this change notification to the relevant releases and triggers the corresponding release executions.

Download Options

Use one of the following options to download the latest plug-in version:

Method	Info
wget	`wget -O cdd-jenkins.hpi https://cspdl.broadcom.com/shared/static/27tdf2kfs0l01lzsmmthsygu3mb9mupm.hpi?LCK=ent.box.com`
MD5	`b450012abc220d245df0f8755814bd9c`
Click Download Button	⬇

Prerequisites

You need JRE 1.8 or JRE 11 to install and configure the Jenkins plug-in.

Change History

The following updates were made for plug-in version 3.3

- In the post-build notification action, a new **Additional Information** section was added. This section contains the **Update Release Token Values**, **Source Control Connection Parameters**, and **Test Data** sections.
- In the post-build notification action, the **Update Token Values in CDDirector** parameter was replaced with the **Update Release Token Values** section. This new section lets you add multiple tokens in the form of `"name":"value"` pairs. Previously, you could only add one token.
- A new **Enable Notifications for Unstable Builds** option was added. In the post-build notification action in Freestyle projects, you can select this option to prevent the plug-in from sending build notification to Continuous Delivery Director if the build status is unstable.

  For Jenkins Pipeline projects, the boolean `sendNotificationOnUnstableBuild` parameter was added.
- In the post-build notification action, a new **Source Control Connection Parameters** section lets you add multiple source control connection parameters in the form of `"name":"value"` pairs.
- In the post-build notification action in Freestyle projects, a new **Specify File Source** option lets you create a release from DSL files in your source control repositories. You specify the file source in the form of a `"name":"value"` pair. After a Jenkins build completes, the release DSL is sent to Continuous Delivery Director. A new release is automatically created according to the release defined in the file.

  A new **Override File Source Parameters** section lets you override the file source parameters that are defined in Continuous Delivery Director. You specify the required file source parameters in the form of a `"name":"value"` pair.

  NOTE
  This capability already existed in Jenkins Pipeline Groovy syntax.
- In the post-build notification action in Freestyle projects, a new **Create from Business Application File Source** option lets you create a release from a business application-related DSL file. You specify the file source using **DSL Parameters** in the form of `"name":"value"` pairs. After a Jenkins build completes, the release DSL is sent to Continuous Delivery Director. A new release is automatically created according to the business application defined in the DSL file.

The following update was made for plug-in version 3.2.14

- Bugfix: A Groovy script missing the `overrideCDDConfig` section did not use the settings in Jenkins from **Manage Jenkins** > **Configure System** > **CDDirector Plugin**.

The following update was made for plug-in version 3.2.13

- You can now use a single global Groovy file (stored in Jenkins global libraries) to support multiple per-project Continuous Delivery Director API keys.

The following update was made for plug-in version 3.2.12

- You can now create releases by specifying a file source in Groovy pipeline syntax. To support this change, you can now specify the following parameters in Groovy for the sendNotificationToCDD step:
  - *`fileSourceName`*
  - *`fileSourceParameters`*
  - *`dslFilename`*
  - *`dslParameters`*

The following update was made for plug-in versions 3.2.9 - 3.2.10

- The order of the input parameters in the **Send notification to CDDirector** post-build action was changed.

The following updates were made for plug-in version 3.2.8:

- Two new options have been added to the **Send notification to CDDirector** post-build action:
  - **Create a release and/or execute an existing one**
    If you select this option, the following parameters display:

    - **Update Token Values in CDDirector** (pre-existing)
    - **Ignore Nonexistent CDD Application** (pre-existing)
    - **DSL Parameter** (new)
  - **Only run my tests in CDD**

    If you select this option, the following parameters display:
    - **Test Data** (new)
    - **Run a subset of test suites selected by the Test Advisor** (new)
- A new field has been added to the **Send notification to CDDirector** post-build action: **Source Control Connection Parameters**.
- Two new section headings have been added to the **Send notification to CDDirector** post-build action:
  - **Set Application Name**
  - **Set Application Version Name**

The following updates were made for plug-in version 3.2.7:

- A new option has been added to freestyle projects, **Ignore Nonexistent CDD Application?** You select this option to prevent the failure of a Jenkins post-build action in any of the following cases:
  - The specified application does not exist in Continuous Delivery Director
  - The specified application version does not exist in Continuous Delivery Director
  - No release exists that is associated with the specified application version

  A similar Boolean parameter, `ignoreNonexistentApplication`, has been added to Jenkins pipeline projects.
- You can now click a link in Jenkins to open a release in Continuous Delivery Director that is triggered by a specific Jenkins Pipeline build. These links appear on the left panel of a Jenkins build in the format **CDD {release-name} Release**.

The following update was made for plug-in version 3.2.4:

- You can now determine whether your Jenkins project uses a repository name as the application name or an application name that you provide. You can also determine whether your project uses a Git branch name as the application version or an application version that you provide. This enhancement applies to Pipeline, Freestyle project, and Multibranch Pipeline projects and is available if you integrate Jenkins with GitHub, GitLab, Bitbucket Server, or Bitbucket (SaaS). To support this enhancement, new radio buttons and fields were added to the **Send notification to CDDirector** post-build action:
  - **Use Source Code Repository Name as Application Name**
  - **Use Application Name**
  - **Use Source Code Branch Name as Application Version**
  - **Use Application Version**

The following update was made for plug-in version 3.1:

- Support was added for Jenkins Pipeline. When a Jenkins Pipeline build ends successfully, a change notification is sent to Continuous Delivery Director with the configured application version and build information.
- You can now configure the notification sending functionality to work with different local settings per project.

  You can now override the global connectivity details of Continuous Delivery Director for any project. To support this feature, an **Override CDDirector Configuration** option has been added. If you select this option, the list of Continuous Delivery Directorconfiguration parameters appears, with the global values as defaults. Any changes to the global Continuous Delivery Director configuration will not affect this project.

The following update was made for plug-in version 2.0.13:

- Support was added for Java 11.

Related Links

Configure Plug-in for Jenkins on page 218

Send Notifications from Jenkins on page 218
You can update an existing Jenkins project or create a new project to send notifications to Continuous Delivery Director.

Configure Jenkins to Send Git Commit IDs on page 222
You can configure the plug-in for Jenkins to automatically send the commit IDs of Jenkins builds to Continuous Delivery Director.

Send Build Notifications from Jenkins Pipeline on page 222
You can configure the plug-in for Jenkins to send build notifications from Jenkins Pipeline to Continuous Delivery Director.

Configure Plug-in for Jenkins

1. Download the `cdd-jenkins-<version>.hpi` file from the https://casupport.broadcom.com site.
2. Upload Continuous Delivery Director plug-in for Jenkins to your Jenkins instance.
3. In your Web browser, open `http://<jenkins-server>:<port>/jenkins/configure`.
4. Configure and set values for the following parameters:
   - **CDDirector Server Name**
   - **CDDirector Server Port**
   - **Is CDDirector Secured Communication?**
   - **Tenant ID**
     – For an on-prem install of Continuous Delivery Director, the tenant ID is 00000000-0000-0000-0000-000000000000
     – For Continuous Delivery Director SaaS, you can find the tenant ID under **User Settings**.
   - **API Key** – you can find the API key under **User Settings**.
   - **Internal Proxy URL** Specify the web address to access the organization web proxy.
   - **Internet Proxy Username**
   - **Internet Proxy Password**
5. Save your configuration.
   The Continuous Delivery Director plug-in for Jenkins is configured and ready for use.

Related Links

Plug-in for Jenkins on page 215
Use this plug-in to send build notifications from Jenkins to Continuous Delivery Director.

Send Notifications from Jenkins on page 218
You can update an existing Jenkins project or create a new project to send notifications to Continuous Delivery Director.

Configure Jenkins to Send Git Commit IDs on page 222
You can configure the plug-in for Jenkins to automatically send the commit IDs of Jenkins builds to Continuous Delivery Director.

Send Build Notifications from Jenkins Pipeline on page 222
You can configure the plug-in for Jenkins to send build notifications from Jenkins Pipeline to Continuous Delivery Director.

Send Build Notifications from a Jenkins Freestyle Project

You can update an existing Jenkins project or create a new project to send notifications to Continuous Delivery Director.

Continuous Delivery Director can automatically create and execute a new release every time a new application (component) version is built by Jenkins. Continuous Delivery Director can automatically create a release and run any relevant tests on the arrival of a build notification (with a preconfigured *create new release* request).

You can use this plug-in to update and deploy business applications that contain a subgroup of applications (components). You can also attach DSL files to business applications to use as templates for releases. A build notification that comes from any of the business application child applications (components) can trigger the creation of a release based on a template.

You can use this plug-in to update a test source template, which is a test source that defines the tests to execute for a specific application (component). You can enter the test parameters in Jenkins. On the arrival of a build notification (with a preconfigured *create new test source* request),Continuous Delivery Director can automatically create a release and a test source on-the-fly without the need for any preconfiguration.

You can also specify source control connection parameters in Jenkins instead of in Continuous Delivery Director. This specification supports the *Run Relevant Tests* and *Planned vs Actual* features.

1. Open the Jenkins project configuration screen and add a post-build action.
2. Select the **Send notification to CDDirector** post-build type and configure the following parameters:
   - **Override CDDirector Configuration**
     Select this option to show the following list of Continuous Delivery Director configuration parameters, with the global values as defaults:
     – **CDDirector Server Name**
       Specify the server name to log into Continuous Delivery Director
     – **CDDirector Port Name**
       Specify the server port to log into Continuous Delivery Director.
     – **Is CDDirector Secured Communication**
       Select this option to use secure communication when logging into Continuous Delivery Director (https)
     – **Tenant ID**
       Specify your tenant ID or leave empty if you are not using multi-tenancy.
       - For an on-prem install of Continuous Delivery Director, the tenant ID is `00000000-0000-0000-0000-000000000000`
       - For Continuous Delivery Director SaaS, you can find the tenant ID under **User Settings**.
     – **API Key**
       Specify the Continuous Delivery Director API key, accessible from the **User Settings** page.
     – **Internal Proxy URL**
       Specify the web address to access the organizational web proxy.
     – **Internal Proxy Username**
       Specify the username to authenticate to the organizational web proxy.
     – **Internal Proxy Password**
       Specify the password to authenticate to the organizational web proxy.
   - **Use Source Code Repository Name as Application Name**
     Select this option only if the **Source Code Management** setting in the project is for a single Git or Bitbucket server.
   - **Use Application Name**
     Select this option to use the application name that you specify.
     – **Application Name**
       Specify an application name.
     – **Ignore Nonexistent CDD Application?**
       Select to pass the Jenkins build even if the specified application does not exist in Continuous Delivery Director.
   - **Use Source Code Branch Name as Application Version**
     Select this option only if the Source Code Management setting in the project is for a single Git or Bitbucket server.
   - **Use Application Version**
     Select this option to use the application version you specify in **Application Version**.

- **Application Version**
  Specify an application version.
- **Update Release Token Values**
  To send values for multiple tokens to Continuous Delivery Director, click **Add Token**. The following fields open:

  NOTE
  You can use parameters from the Jenkins build server in the list of tokens. In every release that gets the notification, if a token with the specified name exists, that token is updated with the value specified for the token.When token values are updated before a change notification triggers a phase, the updated values are used in that phase.

  - **Token Name**
    Specify the name of the release token that you want to add.
  - **Token Value**
    Specify the value of the release token that you want to add.

- **Source Control Connection Parameters**
  To send values for multiple tokens to Continuous Delivery Director, click **Add Source Control Connection Parameters**. The following fields open:
  - **Parameter Name**
    Specify the name of the source control connection parameter that you want to add. The field name is the corresponding name that appears in Continuous Delivery Director when you create a source control connection in the **Application Management** page.
    When a build notification is sent to Continuous Delivery Director, the specified field is updated with the specified value and is used to create or update a test source. For example, `{"Repository":"MyApp"}`.
  - **Parameter Value**
    Specify the value of the source control connection parameter that you want to add.
- **Test Data**
  Enter the name of the test source and then a key:value pair list with the parameters you want to update.
  Example: `[{"name": "JUnit_Test_Source", "parameters": {"Branch":"myBranch","key2":"value2"...}}]`.
- **Execute an existing release**
  Execute an existing release in Continuous Delivery Director.
- **Create a release**
  - **Create from business application File Source**
    Select this option to create a release from a business application-related DSL file. After a Jenkins build completes, the release DSL is sent to Continuous Delivery Director. A new release is automatically created according to the business application defined in the DSL file.
    - **DSL Parameters**
      Specify the file source in the form of `"name":"value"` pairs.
      - **Parameter Name**
        Specify the name of the parameter that you want to add.
      - **Parameter Value**
        Specify the value of the parameter that you want to add.
  - **Specify File Source**
    Select this option to create a release from DSL files in your source control repositories. You specify the file source in the form of a `"name":"value"` pair. After a Jenkins build completes, the release DSL is sent to Continuous Delivery Director. A new release is automatically created according to the release defined in the file.
    - **DSL File Name**
      Specify a relative file path to a DSL file in your source control repository.
    - **Override File Source Parameters**

Select this option to override the file source parameters that are defined in Continuous Delivery Director. You specify the required file source parameters in the form of `"name":"value"` pairs.

- **Add File Source Parameter**
  - **Parameter Name**
    Specify the name of the parameter that you want to add.
  - **Parameter Value**
    Specify the value of the parameter that you want to add.
- **DSL Parameters**
  Specify the file source in the form of `"name":"value"` pairs.
  - **Add DSL Parameter**
    - **Parameter Name**
      Specify the name of the parameter that you want to add.
    - **Parameter Value**
      Specify the value of the parameter that you want to add.

- **Only run my tests in CDD**
  Select this option to run tests without triggering a build in Continuous Delivery Director.
  – **Run a subset of test suites selected by the Test Advisor**
  Choose this option to run in Continuous Delivery Director only the test suites that the Test Advisor selects. The test advisor selects test suites that are most relevant to recent changes and are likely to fail fast.

3. Save your configuration.

When you trigger your Jenkins build, Jenkins shares the `last_successful_build` parameter with Continuous Delivery Director. You can use these parameters within tasks.

You have a business application named *Web Banking* that comprises three applications (components): *WebBank-DBSVC.war*, *WebBank-GUI.war*, and WebBank-BackEnd.war As a developer, you make a change and create a new feature branch for *WebBakGui.war*. When the build is run, you want a Continuous Delivery Director release to be automatically created to perform all of the following actions:

- Deploy all three applications
- Use the new version of *WebBankGui.war*
- Run the relevant tests

When your build is ready, the release is created with the required settings, without the need to set up a new release manually.

To include these parameter values within tasks, make sure to select the relevant **Application Version** content checkbox. The last_successful_build parameter can be used as a token (you simply add the % (percent) prefix and select the relevant token).

Related Links

Plug-in for Jenkins on page 215

Use this plug-in to send build notifications from Jenkins to Continuous Delivery Director.

Configure Plug-in for Jenkins on page 218

Configure Jenkins to Send Git Commit IDs on page 222

You can configure the plug-in for Jenkins to automatically send the commit IDs of Jenkins builds to Continuous Delivery Director.

Send Build Notifications from Jenkins Pipeline on page 222

You can configure the plug-in for Jenkins to send build notifications from Jenkins Pipeline to Continuous Delivery Director.

Configure Jenkins to Send Git Commit IDs

You can configure the plug-in for Jenkins to automatically send the commit IDs of Jenkins builds to Continuous Delivery Director.

Continuous Delivery Director uses these commit IDs to retrieve the related work items that are associated with this Jenkins build. Examples of external work item data sources are Rally, Jira, and so on). This capability is based on Source Code commit IDs.

A Source Code commit ID is an SHA-1 hash that uniquely identifies the source code commit. The source code information includes the list of changed source files, the commit message, the commit date, the committer name, and email address, the ID of the previous commit, and so on.

To enable this capability, install and configure the Git plug-in available in Jenkins.

1. In Jenkins, go to **Manage Jenkins**, then **Manage Plugins**.
2. From the **Available** tab, install the Git plug-in. This plug-in integrates Jenkins with Git.
3. Go back to the **Dashboard** and create or select a project.
4. Select **Configure**.
5. In **Source Code Management**, select **Git**.
6. Configure and set values for the following parameters:
   - **Repository URL**
   - **Credentials**
   - **Branch Specifier**
   - (Optional) **Repository browser**
7. Save your changes.

The Git plug-in is now enabled, and the plug-in for Jenkins can send commit IDs to Continuous Delivery Director.

Related Links

Plug-in for Jenkins on page 215

Use this plug-in to send build notifications from Jenkins to Continuous Delivery Director.

Configure Plug-in for Jenkins on page 218

Send Notifications from Jenkins on page 218

You can update an existing Jenkins project or create a new project to send notifications to Continuous Delivery Director.

Send Build Notifications from Jenkins Pipeline on page 222

You can configure the plug-in for Jenkins to send build notifications from Jenkins Pipeline to Continuous Delivery Director.

Send Build Notifications from Jenkins Pipeline

You can configure the plug-in for Jenkins to send build notifications from Jenkins Pipeline to Continuous Delivery Director.

This plug-in supports three types of project:

- Freestyle project
- Pipeline
- Multibranch Pipeline

The configuration for Pipeline and Multibranch Pipeline involves creating a Jenkinsfile (a Groovy syntax text file). The Jenkinsfile contains the definition of a Jenkins Pipeline which sends build notifications to Continuous Delivery Director that can be checked into your source control system.

1. Create a Jenkinsfile.

   Customize the following sample for the Jenkinsfile syntax:

```
pipeline {
 agent {
  label 'master'
 }
 environment {
  CDD_API_KEY = credentials('CDD_API_KEY')
  CDD_APPLICATION_NAME = "${env.GIT_URL}"
  CDD_APPLICATION_VERSION_NAME = "${env.GIT_BRANCH}"
  CDD_GIT_COMMIT_ID = "${env.GIT_COMMIT}"
  CDD_PREVIOUS_GIT_COMMIT_ID = "${env.GIT_PREVIOUS_SUCCESSFUL_COMMIT}"
  CDD_SERVER_NAME = "ibndev003773.bpc.broadcom.net"
  CDD_SERVER_PORT = "8080"
  CDD_TENANT_ID = "00000000-0000-0000-0000-000000000000"
  CDD_USE_SSL = "false"
  GIT_BRANCH = "${env.GIT_BRANCH}"
  BRANCH_NAME = "${env.BRANCH_NAME}"
  GIT_LOCAL_BRANCH = "${env.GIT_LOCAL_BRANCH}"
 }
 stages {
  stage("Stage Name") {
   steps {
    echo '**** Build ****'
   }
  }
 }
 post {
  success {
   echo '----------Sending Build Notification to CDD--------------'
   echo "Environment variables: GIT_BRANCH: [$GIT_BRANCH], BRANCH_NAME: [$BRANCH_NAME], GIT_LOCAL_BRANCH:
 [$GIT_LOCAL_BRANCH]"
   sendNotificationToCDD useSourceCodeRepositoryNameAsApplicationName: true,
    appName: "${CDD_APPLICATION_NAME}",
    useSourceCodeRepositoryBranchNameAsApplicationVersionName: true,
    appVersion: "${CDD_APPLICATION_VERSION_NAME}",
    gitCommit: "${CDD_GIT_COMMIT_ID}",
    gitPrevSuccessfulCommit: "${CDD_PREVIOUS_GIT_COMMIT_ID}" ,
    overrideCDDConfig: [
     customApiKey: "${CDD_API_KEY}",
     customProxyPassword: '',
     customProxyUrl: '',
     customProxyUsername: '',
     customServerName: "${CDD_SERVER_NAME}",
     customServerPort: "${CDD_SERVER_PORT}",
     customTenantId: "${CDD_TENANT_ID}",
     customUseSSL: "${CDD_USE_SSL}"
    ],
    releaseTokens: '{}',
    ignoreNonexistentApplication: true
    echo '----------CloudBees Jenkins Pipeline completed successfully--------------'
  }
 }
}
```

2. In the Jenkinsfile, customize the following lines as required.

   Change the label `master` to specify the label of the Jenkins nodes to run this pipeline:

   ```
   agent {
    label 'master'
   }
   ```

   Update the following lines as needed:

   ```
   CDD_SERVER_NAME = "ibndev003773.bpc.broadcom.net"
   CDD_SERVER_PORT = "8080"
   CDD_TENANT_ID = "00000000-0000-0000-0000-000000000000"
   CDD_USE_SSL = "false"
   ```

3. In your Jenkins instance (`http://<jenkins-server>:<port>/jenkins/credentials/store/system/domain/_/`), create new credentials of the **Secret text** type with the credential ID `CDD_API_KEY` .

Related Links

Plug-in for Jenkins on page 215

Use this plug-in to send build notifications from Jenkins to Continuous Delivery Director.

Configure Plug-in for Jenkins on page 218

Send Notifications from Jenkins on page 218

You can update an existing Jenkins project or create a new project to send notifications to Continuous Delivery Director.

Configure Jenkins to Send Git Commit IDs on page 222

You can configure the plug-in for Jenkins to automatically send the commit IDs of Jenkins builds to Continuous Delivery Director.

Create Release from File Source in Jenkins Pipeline

You can create releases by specifying a file source in Groovy pipeline syntax.

This plug-in supports three types of project:

- Freestyle project
- Pipeline
- Multibranch Pipeline

The configuration for Pipeline and Multibranch Pipeline involves creating a Jenkinsfile (a Groovy syntax text file). The Jenkinsfile contains the definition of a Jenkins Pipeline which sends a build notification with a command to create a release from a file source to Continuous Delivery Director. This Jenkinsfile can be checked into your source control system, such as GitHub.

Creating a Jenkinsfile and committing that file to source control lets you:

- Automatically create a Pipeline build process for all branches and pull requests
- Establish a single source of truth for the Pipeline, which can be viewed and edited by multiple members of your project

For more information about file sources, see File Sources .

1. Create a Jenkinsfile.

   In your source control, for example, GitHub, customize the following sample for the Jenkinsfile syntax:

```
sendNotificationToCDD useSourceCodeRepositoryNameAsApplicationName: true,
            appName: '',
            useSourceCodeRepositoryBranchNameAsApplicationVersionName: true,
            appVersion: '',
            commitSource: '',
            fileSourceName: 'FS1',
            fileSourceParameters: '{"branch":"testBranch"}',
            dslFilename: 'CDD-FileSource/relWithAppVerBranch.json',
            dslParameters: '{"appName":"cdd-dsl-demo","appVerName":"testBranch","relName":"app scope
 release branch", "envName": "test"}',
            ignoreNonexistentApplication: true,
            onlyIntelligentTestSuites: true,
            overrideCDDConfig: [
                customApiKey:
 'eyJhbGciOiJIUzUxMiJ9.eyJ1c2VybmFtZSI6InN1cGVydXNlckBjYS5jb20iLCJ0ZW5hbnRJZCI6IjAwMDAwMDAwLTAwMDAtMDAwMC0wMDAwLTAwM
WLVogN93LD360UWcKTqt48p5nFKk8yDhdpx1bhQw',
                customProxyPassword: '',
                customProxyUrl: '',
                customProxyUsername: '',
                customServerName: 'lvnapi022959.bpc.broadcom.net',
                customServerPort: 8080,
                customTenantId: '00000000-0000-0000-0000-000000000000',
                customUseSSL: false
            ],

            releaseTokens: '',
            scope: 'APPLICATION',
            testSources: ''

            }
        }
    }
```

2. In the Jenkinsfile, update the following lines as needed and commit:

```
            fileSourceName: 'FS1',
            fileSourceParameters: '{"branch":"testBranch"}',
            dslFilename: 'CDD-FileSource/relWithAppVerBranch.json',
            dslParameters: '{"appName":"cdd-dsl-demo","appVerName":"testBranch","relName":"app scope
 release branch", "envName": "test"}',
```

Plug-in for JetBrains TeamCity

Use this plug-in to send build notifications from TeamCity to Continuous Delivery Director.

Plug-in Version 2.0

TeamCity notifies Continuous Delivery Director of any new successful build including application and build information, and Continuous Delivery Director maps the event to the relevant releases.

NOTE
This plug-in supports TeamCity v2019.2.1.

Download Options

Use one of the following options to download the latest plug-in version:

Method	Info
wget	`wget -O cdd-teamcity-integration-build.zip https://cspdl.broadcom.com/shared/static/mcu03rv0ghuf4zgjj95nfd5y3lmaf2jw.zip?LCK=ent.box.com`
MD5	`0889b6089ca0cb93d2e5253e79492c00`
Click Download Button	

Change History

The following update was made for plug-in version 2.0

- This plug-in was made available to customers.

Related Links

Configure Plug-in for JetBrains TeamCity on page 104
Send Build Notifications from JetBrains TeamCity on page 105

You can configure a build integration to send TeamCity build notifications to Continuous Delivery Director.

Configure Plug-in for JetBrains TeamCity

Use the following procedure to configure global settings for the plug-in for TeamCity. You can override these settings per build configuration. For more information, see Send Build Notifications from JetBrains TeamCity.

1. Download the `cdd-teamcity-integration-build.zip` file from https://cddirector.io/plugins/ or from the https://casupport.broadcom.com site to your local machine.
2. In TeamCity, go to **Administration**, then the **Plugins List** page.
3. Upload the plug-in zip file from your local machine.
   The Continuous Delivery Director plug-in appears on the **Plugins List** page and is listed in the left panel under **Integrations**.
4. Click the **Enable uploaded plugins** option.
   The plug-in is now available for use.
5. In the left panel under **Integrations**, click **Continuous Delivery Director**.
6. Configure and set values for the following parameters:
   - **CDDirector Server URL**
     Specify the URL to the required Continuous Delivery Director instance, such as `cddprod.cdd.com/8080/`
   - **Tenant ID**

  - For an on-prem install of Continuous Delivery Director, the tenant ID is `00000000-0000-0000-0000-000000000000`.
  - For Continuous Delivery Director SaaS, you can find the tenant ID in Continuous Delivery Director under **User Settings**.
- **API Key**
  Specify the Continuous Delivery Director API key of an authorized user, such as an integration user, release manager, or administrator. You can find the API key in Continuous Delivery Director under **User Settings**.

7. Save your configuration.
   The Continuous Delivery Director plug-in for TeamCity is configured and ready for use.

Related Links

Plug-in for JetBrains TeamCity on page 225
Use this plug-in to send build notifications from TeamCity to Continuous Delivery Director.

Send Build Notifications from JetBrains TeamCity on page 105
You can configure a build integration to send TeamCity build notifications to Continuous Delivery Director.

Send Build Notifications from JetBrains TeamCity

You can configure a build integration to send TeamCity build notifications to Continuous Delivery Director.

You have enabled and configured the Plug-in for JetBrains TeamCity.

Continuous Delivery Director can automatically create and execute a new release every time a new application (component) version is built by TeamCity. Continuous Delivery Director can automatically create a release on the arrival of a build notification (with a preconfigured *create new release* request).

You can use this plug-in to update and deploy business applications that contain a subgroup of applications (components). You can also attach DSL files to business applications to use as templates for releases. A build notification that comes from any of the business application child applications (components) can trigger the creation of a release based on a template.

You can also easily edit, override, and delete, existing build integrations.

NOTE
The following procedure shows you how to override the global settings per build configuration. For more information about configuring global settings for the plug-in for TeamCity, see Configure Plug-in for JetBrains TeamCity.

1. In TeamCity, on the **Build** page, click the **CDDirector Plugin** tab, then **Add Build CDD Integrations**.
2. Select **Click to create new CDD integration for this build**.
3. Configure and set values for the following parameters:
   - **CDDirector Server URL**
     Specify the URL to the required Continuous Delivery Director instance, such as `cddprod.cdd.com/8080/`
   - **Tenant ID**
     - For an on-prem install of Continuous Delivery Director, the tenant ID is `00000000-0000-0000-0000-000000000000`.
     - For Continuous Delivery Director SaaS, you can find the tenant ID in Continuous Delivery Director under **User Settings**.
   - **API Key**
     Specify the Continuous Delivery Director API key of an authorized user, such as an integration user, release manager, or administrator. You can find the API key in Continuous Delivery Director under **User Settings**.
   - **Application Name**

Specify the name of your application as it appears in Continuous Delivery Director.

- **Application Version**
  Specify the version number or ID of your application as it appears in Continuous Delivery Director.
- **Create a Release**
  Select this option to create a release from a business application-related DSL file. After a TeamCity build completes, the release DSL is sent to Continuous Delivery Director. A new release is automatically created according to the application defined in the DSL file.
- **DSL Parameters**
  Specify the business application DSL in the form of "name":"value" pairs. For example:

```
{"business_application_name": "Biometric Payment",
"BUSINESSAPPLICATION VERSION NAME": "master"}
```

- **Override File Source Parameters**
  Select this option to override the file source parameters specified in Continuous Delivery Director form of "name":"value" pairs. For example:

```
{"branch": "master"}
```

4. Save your configuration.

When a successful TeamCity build completes, TeamCity sends a build notification to Continuous Delivery Director, and if specified, triggers release creation.

Related Links

Plug-in for JetBrains TeamCity on page 225
Use this plug-in to send build notifications from TeamCity to Continuous Delivery Director.

Configure Plug-in for JetBrains TeamCity on page 104

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