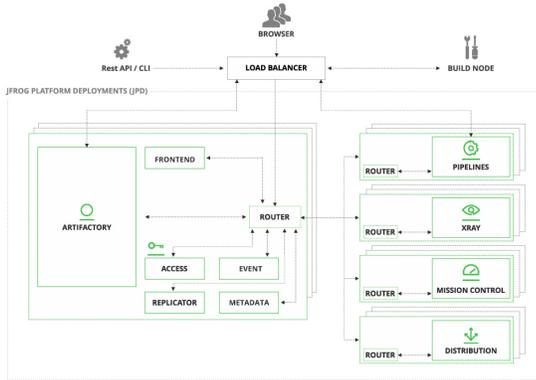


System Architecture

Overview

The **JFrog Platform Deployment (JPD)** defines a single logical unit shared by all JFrog products. It **must** be comprised of one JFrog Artifactory service (standalone or HA) and **optional** additional external services. The below diagram represents a complete JPD containing all services in the [JFrog Enterprise+ platform](#).

Each service should be installed separately according to the [installation guide](#).



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Each JFrog product can be deployed with 1 or more nodes. Each node has its microservices and a local router (service discovery and API gateway). All microservices of the same product are deployed on the same node/host.

The JFrog Artifactory service contains the following microservices:

- **Artifactory** - The application server
- **Router** - The central hub for communication between all the microservices, and cross-product.
- **Access** - The authentication server and service registry. Used to manage Users, Groups, Permissions and Access Tokens for all products in the JPD
- **Event** - The events distribution mechanism for JFrog products. Distributes Webhook events to external systems.
- **Frontend** - The application user interface (UI for the entire JPD)
- **Metadata** - The Components metadata server. Serves the Packages screen in the JPD UI.
- **Replicator** - The replication engine (available with an Enterprise+ license)

Additional external JFrog services are:

- **Xray**
- **Mission Control**
- **Distribution**
- **Pipelines**

Outside the JPD:

- **Load Balancer** - The entry point to the unit, should be set up by the customer and to communicate with Artifactory and Artifactory's Router service (as demonstrated in the diagram above).
- **Browser / JFrog CLI / Other Clients** - External client(s) that interact with JFrog products in the JPD. Set up to only communicate with the LB.

JFrog Xray Service

The Xray service contains the following microservices:

1. **Indexer** - Responsible for the indexing process, including:
 - Recursively extracting artifacts and builds
 - Collecting artifact metadata from accompanying files
 - Building an artifact components graph representation
2. **Persist** - Responsibilities include:
 - Matching the given components graph with the public component information
 - Completing component naming
 - Storing graph data and component metadata in PostgreSQL
3. **Analysis** - Responsible for enriching component metadata such as vulnerabilities, licenses and versions.
4. **Server** - Responsibilities include:
 - Generating violations by matching analysis data with watches and policies
 - Hosting the API and UI endpoints
 - Running scheduled jobs such as the database synchronization process
5. **Router** - Responsible for communication between all the microservices and cross-product.

JFrog Mission Control Service

The Mission Control service contains the following microservices:

1. **Mission Control** - Core Mission Control service
 2. **Insight** - Handles insight related data management and API functions
 3. **Scheduler** - Manages scheduling for different internal Mission Control tasks
 4. **Router** - Responsible for communication between all the microservices and cross-product.
-

JFrog Distribution Service

The Distribution service contains the following microservices:

1. **Distribution** - Responsibilities include:
 - Hosting the API and UI endpoints
 - Sending distribution tasks via Redis to the Distributor
 - Syncing the other Distribution nodes with changes
 2. **Distributor** - Responsibilities include:
 - Processing distribution tasks
 - Communicate with Artifactory edge nodes
 - Communicate with the source Artifactory
 3. **Router** - Responsible for communication between all the microservices and cross-product.
-

JFrog Pipelines Service

The Pipelines service contains the following microservices:

1. **API** - Responsible for hosting the API endpoints.
2. **Cron** - Responsible for running internal jobs on intervals, including timing out steps and calculating statistics.
3. **HookHandler** - Processes resource webhooks received by API.
4. **Logup** - Transfers console logs from steps from the database to Artifactory as steps complete.
5. **Marshaller** - Responsible for starting build nodes in dynamic node pools.
6. **Nexec** - Responsible for running scripts on auto-initialized build nodes.
7. **PipelineSync** - Reads the YML files in the pipeline source and updates the pipelines and resources with any changes.
8. **RunTrigger** - Responsible for creating runs when a run is triggered manually or through a resource update.
9. **StepTrigger** - Determines which waiting steps are able to run and queues them to be picked up by the build nodes.
10. **WWW** - Hosts Pipelines UI pages that are supplemental to the JFrog Platform, including Pipeline History and Run Logs.
11. **Router** - Responsible for communication between all the microservices and cross-product.