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Automation

capabilities of the

JFrog Platform

AGENDA

- **JFrog Platform Automation**
  - REST API
  - JFrog CLI
  - Artifactory Query Language
  - File Spec
  - Webhooks
- **Demo**
- **Q&A**

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REST API

REST API

- Extensive and advanced API for all JFrog products.
- Different domains of functionality (repositories, builds, security, etc.)
- Utilized by the UI, CLI and other tools
- Can be used from any automation you might implement
- Fully documented and maintained
- Include new released functionality
- Different options for authentication (basic auth, API key, access token)

REST API - examples

```
# System ping
curl https://jfrog.address/artifactory/api/system/ping

# Using encrypted password
curl -uadmin:AP86Mv9An2neryqDCXQqVexVNhK
https://jfrog.address/artifactory/api/system/service_id

# Downloading a file
curl -I -uadmin:password
"https://jfrog.address/artifactory/docker-stage-local/docker-app/58/manifest.json”

# Create a repo
curl -v -uadmin:password -XPUT
'https://jfrog.address/artifactory/api/repositories/my2proj-docker-dev-us' -H
'Content-Type: application/json' -d @createLocalRepo.json
```

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JFrog CLI

JFrog CLI

- A smart client with a simple interface to JFrog products
- Aimed for automation and for simplifying automation scripts by making your scripts more efficient, reliable and maintainable.
- Advantages:
  - High level functionality (Parallelism, resumability, wildcards, etc.)
  - Checksum awareness
  - Multiple configurations support
  - Simulation mode
  - CLI Plugins supported (https://github.com/jfrog/jfrog-cli-plugins-reg)

JFrog CLI - Syntax

jfrog target command-name global-options command-options arguments

Possible Targets:
rt: Artifactory
rt: Distribution
mc: Mission Control
xr: Xray

Command to execute:
config
upload & download
copy, move, delete
search & properties
build integration
create release bundle
more

Global Options:
--url
--user
--password
--ssh-key-path

Command options:
--props
--recursive
--regexp
--threads
--dry-run
--deb

Command args

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JFrog CLI - Examples 1/2

```
# List version of cli
jfrog -v

# List all env configurations
jfrog config show

# For adding a new artifactory configuration
jfrog config add  --url=http://mydomain/artifactory --user=myuser --password=mypwd
mylogicalname

# Upload a single file to artifactory
jfrog rt u "*file.*" my-repo-name
jfrog rt u "*file.*" my-repo-name/subfolder/anothersubfolder/

# Search artifacts
jfrog rt s “my-repo-name/*.zip”
```

JFrog CLI - Examples 2/2

```
# For downloading all files from a specific folder in a repository with unconfigured
artifactory
jfrog rt dl "my-repo/all-my-frogs/" --url=http://domain/artifactory --user=admin --password=pwd

# For copying some files in a specific path to another repo/path
jfrog rt cp source-frog-repo/rabbit/ target-frog-repo/rabbit/

# For moving specific artifactory based on file spec
jfrog rt mv source-frog-repo/*.zip target-frog-repo

# For deleting some files from a specific repo/path - including interactive confirmation
jfrog rt delete my-other-generic-local/*.png
```

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AQL

Artifactory Query Language

- Proprietary JSON-like syntax
- Very powerful
- Translated to efficient DB queries
- Universal - any repository type is supported
- Can be used as REST API payloads and in JFrog CLI commands

AQL - examples

```
//Find the content of a repo
items.find(
    {"type":"file",
        "size":{"$lt":"1000000"},
        "stat.downloads":{"$eq":null},
        "@uploadedBy":"John",
        "$or":[
            {"name":{"$match":"*.jar"}},
            {"name":{"$match":"*.zip"}}
        ]
    }
).include("name","size")
.sort({"$desc":["size","name"]})
```

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File Spec

File Spec

- Specify the details of files you want to manipulate with Artifactory
- Separation of File Specification from code
- Resolve dependencies
- Download artifacts based on software life cycle maturity
- Upload Third Party software to Artifactory
- Find latest artifacts
- Based on AQL
- Wildcard or regular expression with placeholders

File Spec - Format

```
{
    "files": [
        {
            "pattern" or "aql": "[Mandatory]",
            "props": "[Optional]",
            "excludeProps": "[Optional]",
            "recursive": "[Optional, Default: 'true']",
            "exclusions": ["[Optional, Applicable only when 'pattern' is specified]"],
            "archiveEntries": "[Optional]",
            "build": "[Optional]",
            "bundle": "[Optional]",
            "sortBy" : ["[Optional]"],
            "sortOrder": "[Optional, Default: 'asc']",
            "limit": [Optional],
            "offset": [Optional]
        }
    ]
}
```

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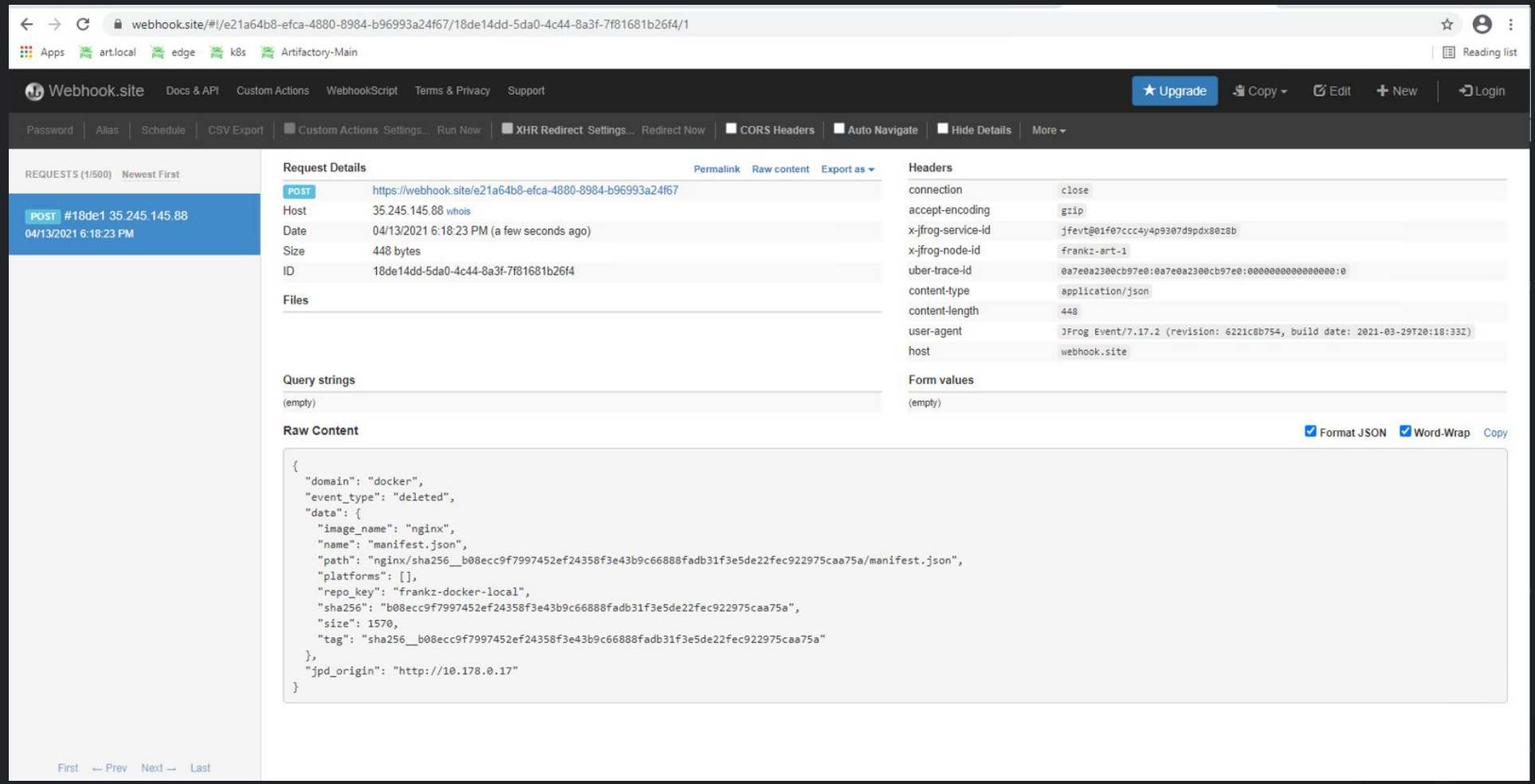
Webhooks

Webhooks

- A Webhook is an automated notification mechanism that is triggered by events that you define.
- When a webhook is triggered, it sends relevant information about the event to a web location that is listening for that specific event notification.
- The webhook is comprised of three simple components
  - triggering event
  - information about the event (the “payload”)
  - web location listening for the event

Webhooks Payload - Testing



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JFrog Automation Tools - Choose as Appropriate

Method	Application
REST API	Full flexibility with custom code. Recommend to use if any of the below does not suffice
JFrog CLI	Can achieve query with one CLI command
FileSpec	Aggregate multiple CLI commands in one FileSpec
AQL	Formulate complex queries that specify any number of search criteria, filters, sorting options and output parameters

Q & A

THANK YOU!

References

- JFrog REST API Documentation

  https://www.jfrog.com/confluence/display/JFROG/REST+API
- JFrog CLI

  https://www.jfrog.com/confluence/display/CLI/JFrog+CLI
- Using File Specs

  https://www.jfrog.com/confluence/display/CLI/CLI+for+JFrog+Artifactory#CLIforJFrogArtifactory-UsingFileSpecs
- JFrog Artifactory Query Language

  https://www.jfrog.com/confluence/display/JFROG/Artifactory+Query+Language
- AQL and JFrog CLI - blog

  https://jfrog.com/blog/aql-cli-a-match-made-in-heaven/