The Sling Feature Model - Revealed!
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Agenda

- What is the Sling Feature Model 1.x
- Tools
- Practical Applications
- Demo
- @OSGi
The Sling OSGi Feature Model

- Bundle
- Bundle
- Bundle
- Bundle
- Config
- Config
- Metadata

Feature
Reusing Features

Maven Repository

Jax-RS

My Web Service

HTTP Service

DB

Aggregate

My Distribution

Analyzers
Running Features

- Additional features
- My Distribution Feature
- My Runtime

Late bound configs

- V dbhost=10.23.1.197
- V apikey=ADH67HH988765BCA100BBAA
Feature Model 1.x world

**Main Components**

- Feature Model
  - Main Model API
- Feature I/O
  - JSON Serialization
- Feature Analyzers
- Feature Launcher
  - Launch feature Runtimes
- slingfeature-maven-plugin
  - Maven Tooling

**Additional Components**

- Feature Model Converter
  - Conversion to Provisioning Model
- Feature Model InventoryPrinter
  - Web Console Integration
- Content Extension
  - Handles Content Packages and RepoInit
- API Regions Model
  - API Regions Resource Generation
- Runtime to Feature
  - Generate Feature representing the Runtime
- Feature Diff
  - Diff Features
- Karaf Conversion
  - Convert into Karaf Feature
- API Regions Extension
  - API Regions Resource Generation
- API Regions Runtime
  - API Regions Runtime Enforcement
Example Model

```json
{
    "id": "org.foo.bar:osgi-http:1.0.2",
    "variables": {
        "http.port": "8080"
    },
    "bundles": [
        "org.apache.felix:org.apache.felix.http.jetty:4.0.0"
    ],
    "configurations": {
        "org.apache.felix.http": {
            "org.osgi.service.http.port": "${http.port}",
            "org.apache.felix.http.https.enable": true
        }
    }
}
```
Maven Tooling: slingfeature-maven-plugin

- Aggregation
  - Assemble a larger feature from others
  - Create runnable, self-contained features
  - Merge custom extensions

- Analyzers
  - Bundle Imports and Exports
  - Requirements and Capabilities
  - OSGi Connect checker
  - API Region based

- Create a repo of all artifacts
  - Docker images without dependencies
Launcher

Simple Java CLI for
- Framework selection
- Variables and Framework properties
- Merging of features
- Artifact handling
- Extensions
  - Launcher Extension
  - Extensions
    - Merge Extensions
    - Launch Extensions
Use It! Practical Applications
In practice

- Use the maven plugin to create repository
  - Include framework, extensions
- Create docker image
  - Based on java11
    - Optional: based on alpine
    - Optional: jlink/jdeps base modules
- Use launcher
  - Optional:
    - Merging of scripts
    - Configadmin in memory
    - Extension
- Layering of images
  - add repositories,
  - add features
Demo

https://github.com/apache/sling-whiteboard/tree/master/it-is-cloudy-here
Feature Model @ OSGi
The Feature Model is proposed as OSGi specification

- Feature model RFP 188 accepted
- Going through the specification process
  - Currently under discussion
- Feature model RFC 241 is in github here:
  https://github.com/osgi/design/tree/master/rfcs/rfc0241
Get Involved!

- Feature Model component in Sling
- OSGi RFP in [https://github.com/osgi/design](https://github.com/osgi/design)
  - OSGi feedback channels
- Directly at OSGi

Q & A
Picture acknowledgements

- Holiday Bow: https://www.maxpixel.net/Bow-Holiday-Bow-Seasonal-Gift-Red-Bow-Ribbon-665067 (CC0 Public Domain)