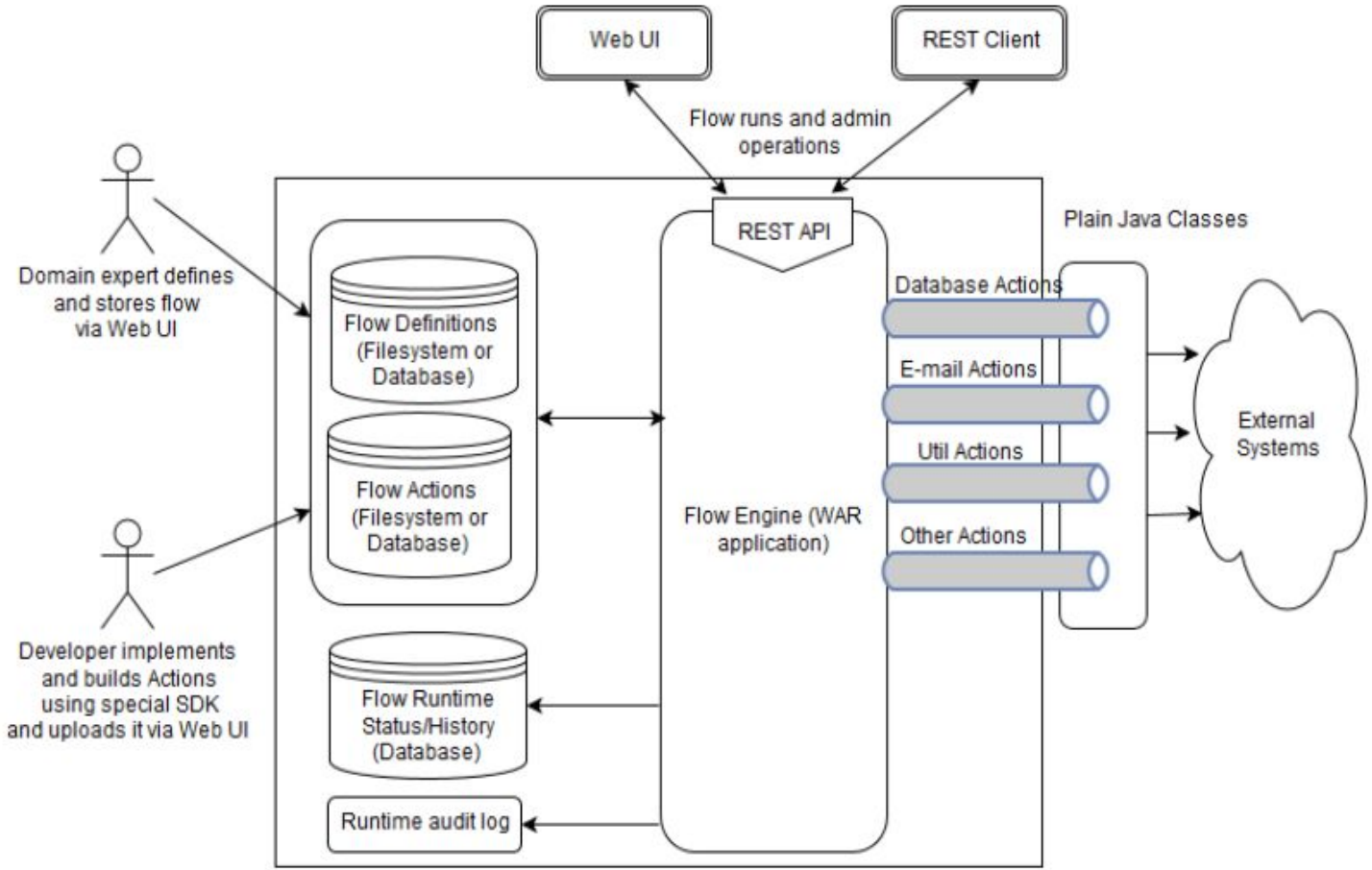
Business Flows Automation

Highlights of current project state

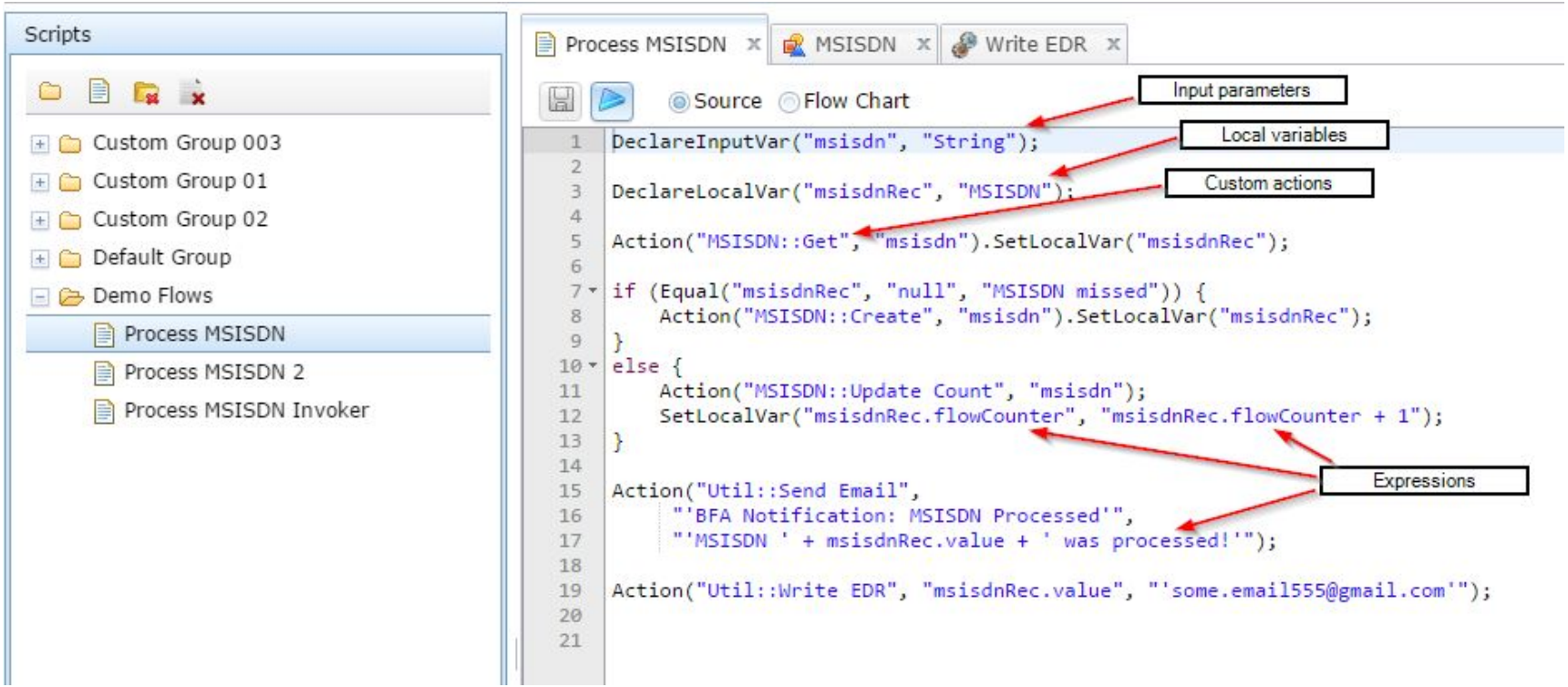
Key Items

- The flows automation framework includes runtime engine, Web UI and scripts parsing/compilation unit
- Allows domain experts creating human-readable scripts that define automation flows
- Enables a simple development/deployment of custom actions that are building blocks of automation flows
- Provides graphical view of automation flow scripts
- Supports on-the-fly flow updates. No application or server restart is needed after updating flow or its building blocks.
- Exposes REST API for flows runtime and administration operations (besides Web UI).
- The architecture assumes a simple horizontal scalability
- Can be used, for example, by Telecom operators for describing/implementation of some of their automation flows. The examples are Service provisioning in OSS (some parts of the whole flow), rules for Value-Added Services.

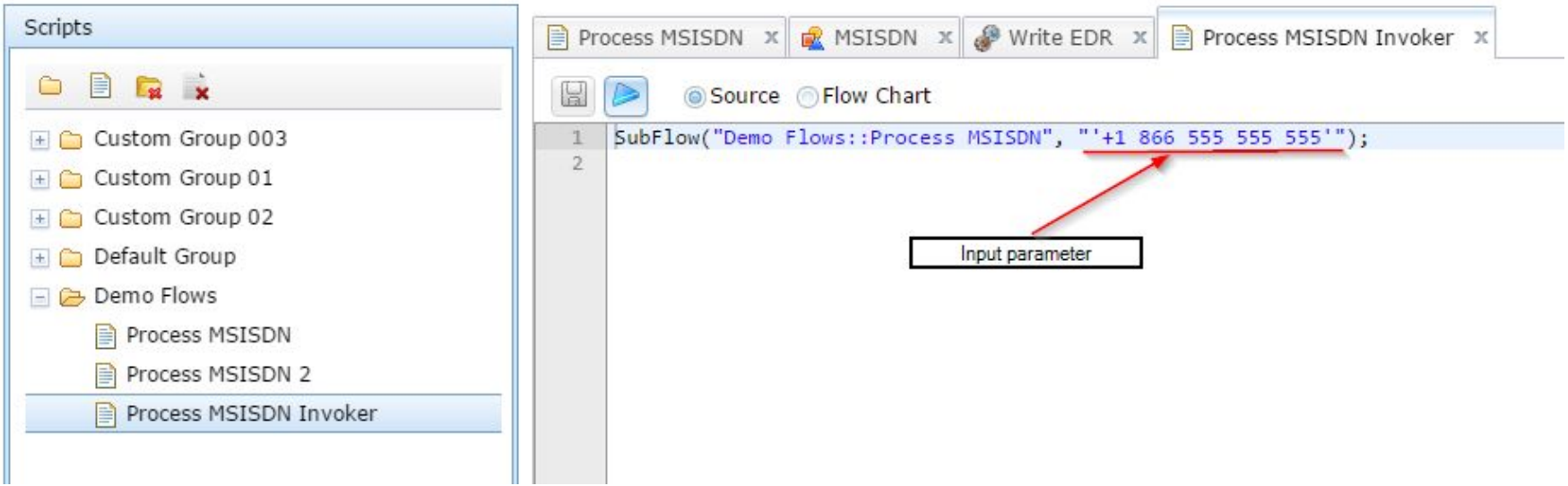
High-Level Architecture



Flow Syntax


Scripts
Custom Group 003
Custom Group 01
Custom Group 02
Default Group
Demo Flows
Process MSISDN
Process MSISDN 2
Process MSISDN Invoker
Process MSISDN
MSISDN
Write EDR
Source
Flow Chart
Input parameters
Local variables
Custom actions
Expressions
1 DeclareInputVar("msisdn", "String");
2
3 DeclareLocalVar("msisdnRec", "MSISDN");
4
5 Action("MSISDN::Get", "msisdn").SetLocalVar("msisdnRec");
6
7 if (Equal("msisdnRec", "null", "MSISDN missed")) {
8 Action("MSISDN::Create", "msisdn").SetLocalVar("msisdnRec");
9 }
10 else {
11 Action("MSISDN::Update Count", "msisdn");
12 SetLocalVar("msisdnRec.flowCounter", "msisdnRec.flowCounter + 1");
13 }
14
15 Action("Util::Send Email",
16 "'BFA Notification: MSISDN Processed'",
17 "'MSISDN ' + msisdnRec.value + ' was processed!'");
18
19 Action("Util::Write EDR", "msisdnRec.value", "'some.email555@gmail.com'");
20
21

Sub-Flows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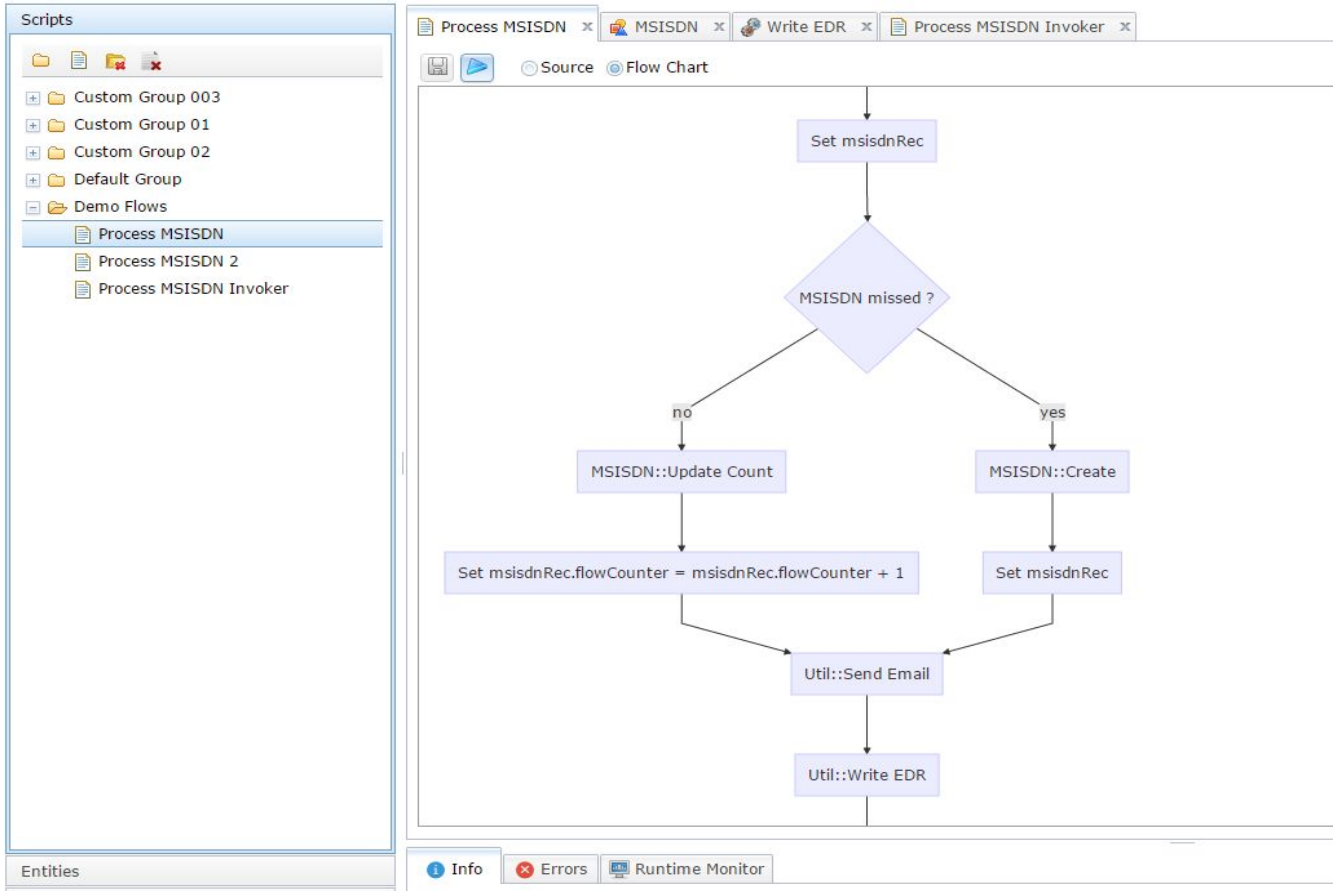
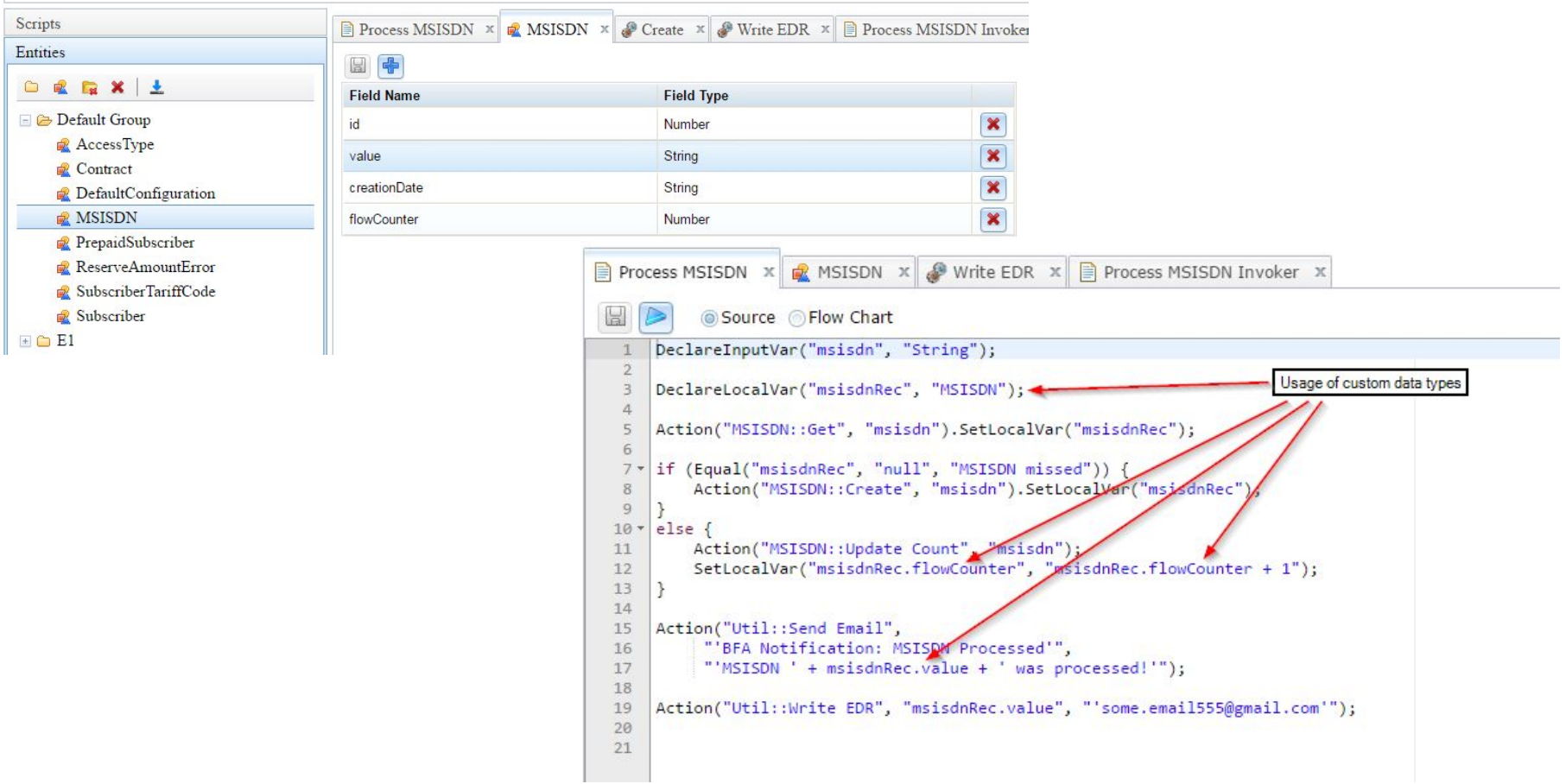
Process MSISDN 2
Process MSISDN Invoker
Process MSISDN
MSISDN
Write EDR
Process MSISDN Invoker
Source
Flow Chart
1 SubFlow("Demo Flows::Process MSISDN", "'+1 866 555 555 555'");
2
Input parameter

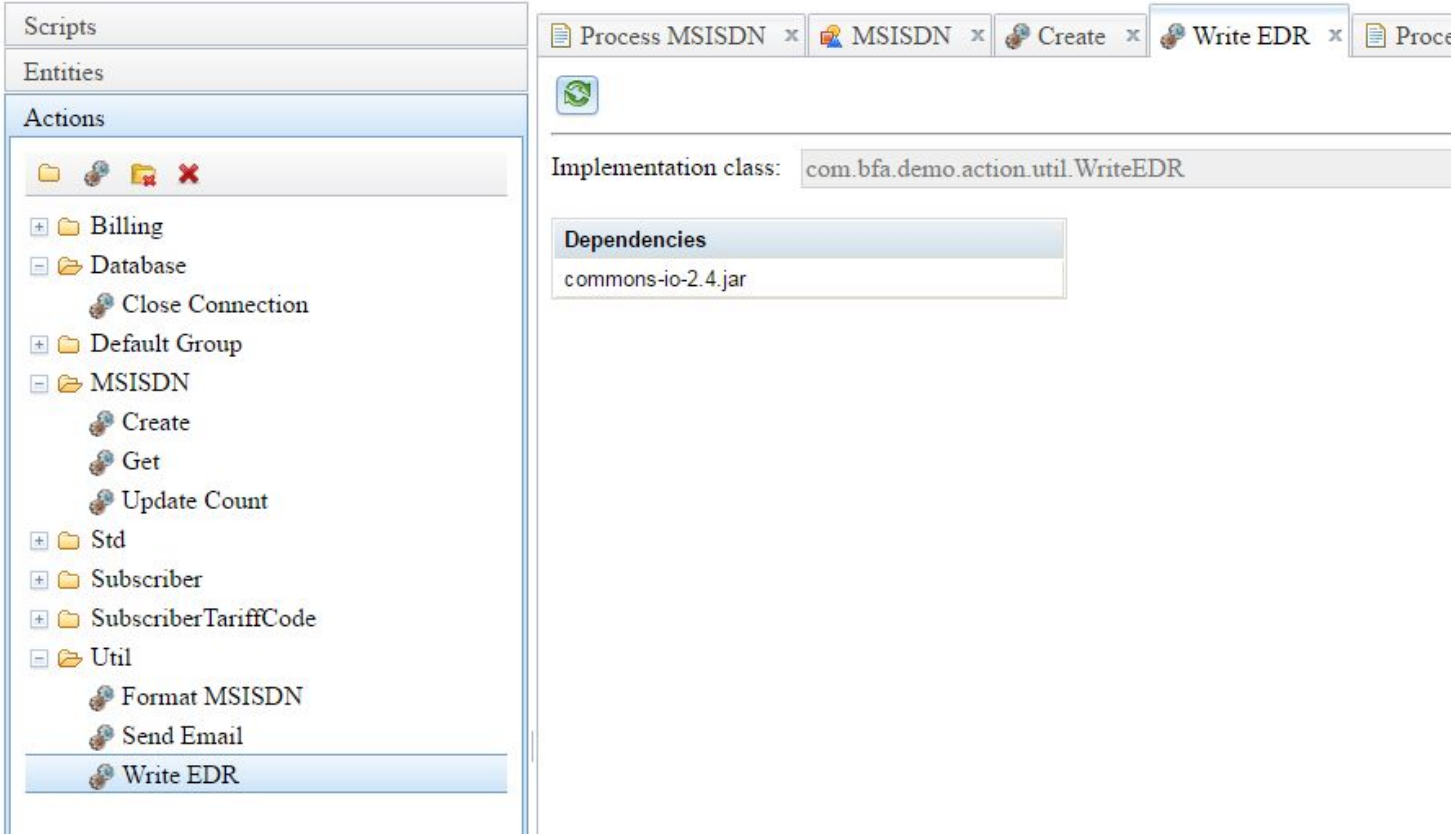
Flow Chart View



Custom Data Types

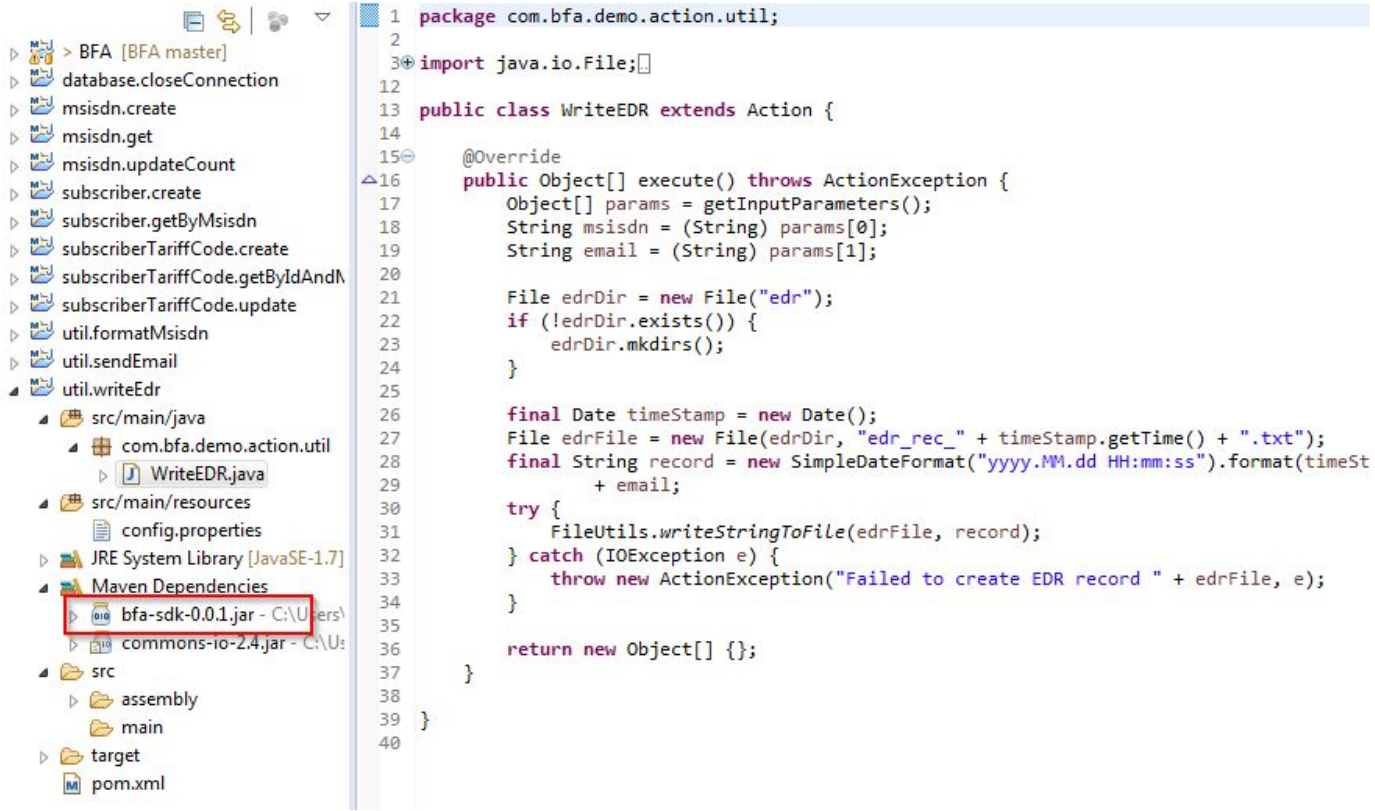


Custom Actions with Local Dependencies



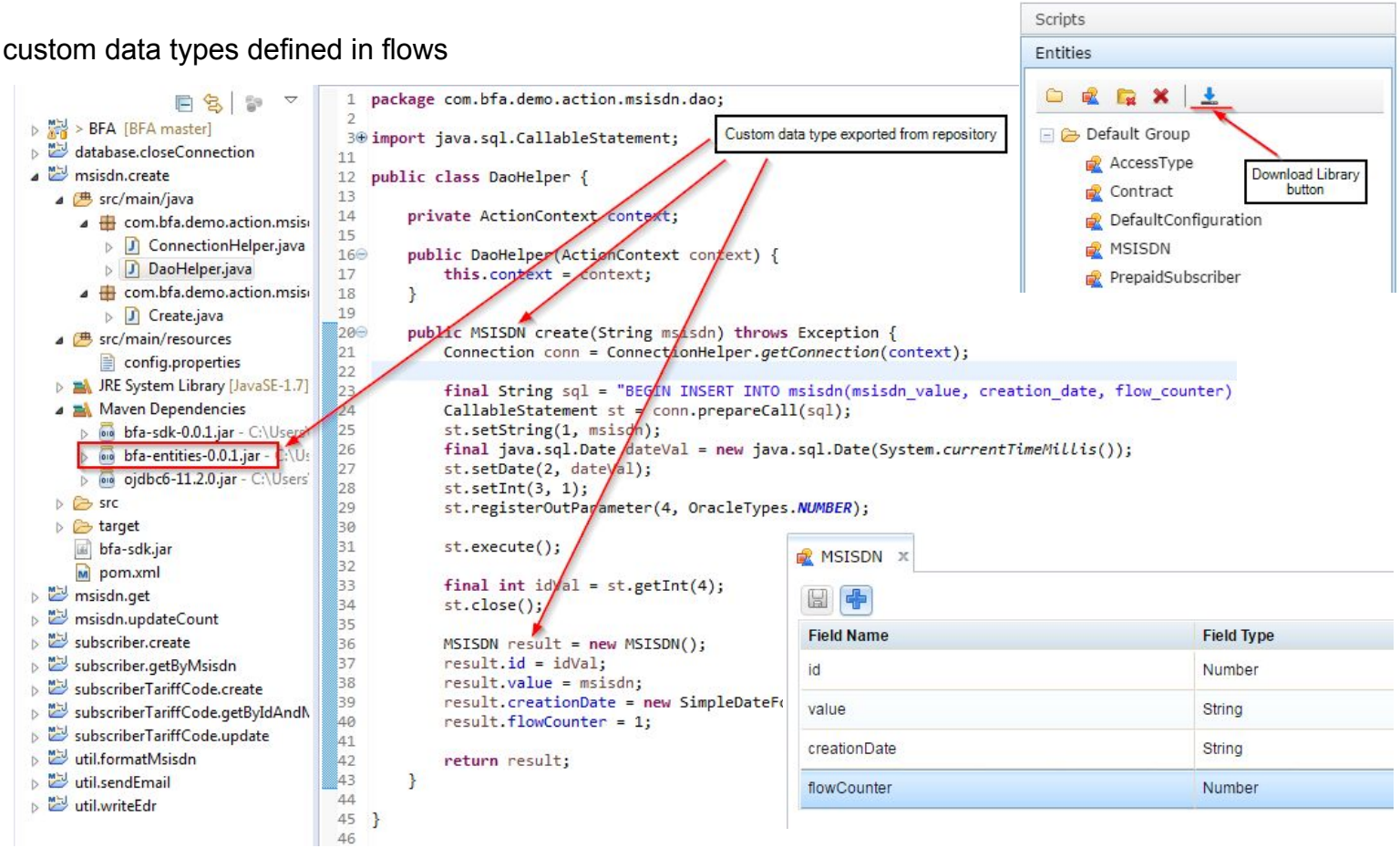
Actions SDK

Action template project can be created with SDK generator



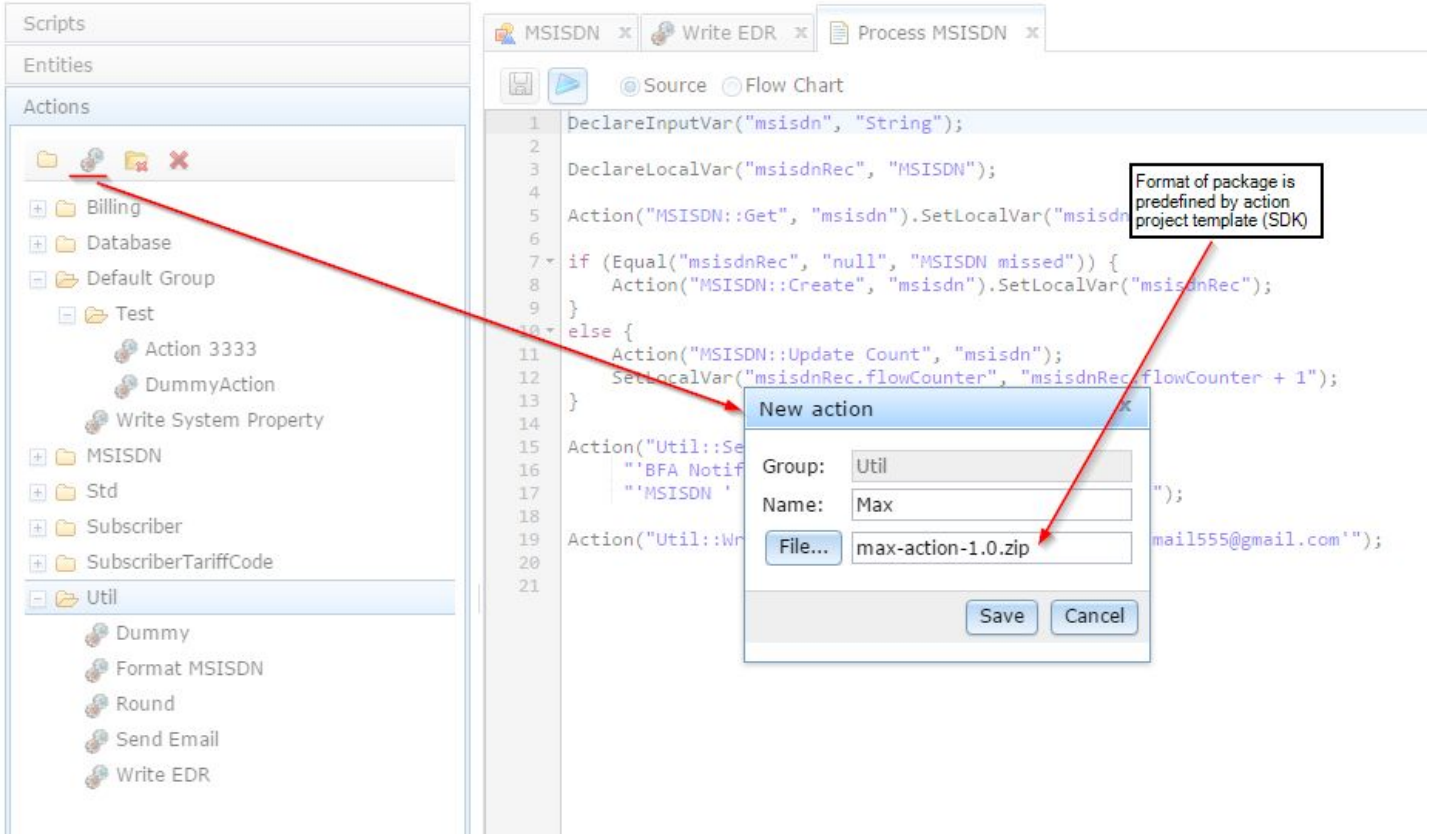
Actions and Custom Data Types

Actions can use custom data types defined in flows



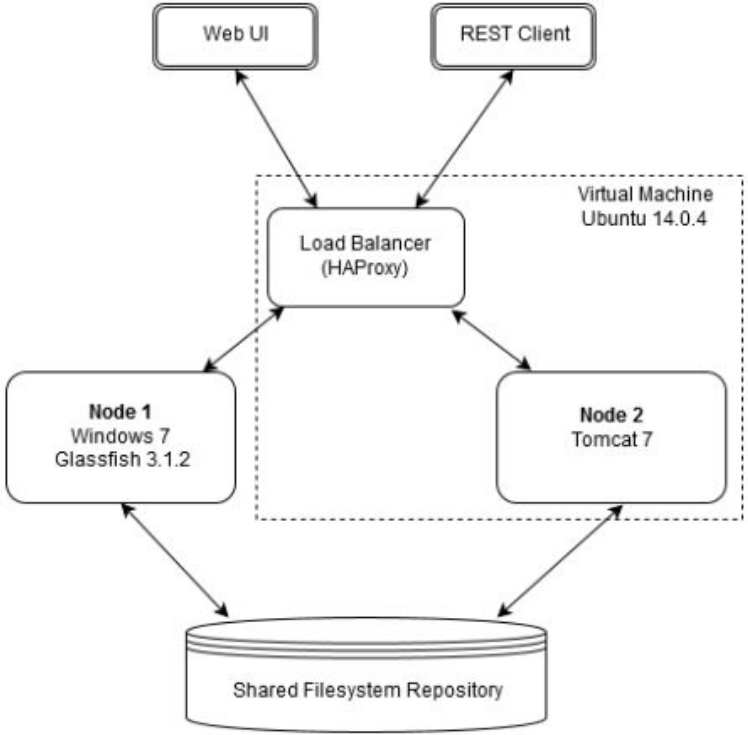
Actions Deployment

Action package is built by SDK means (generated Maven pom.xml) and can be easily deployed



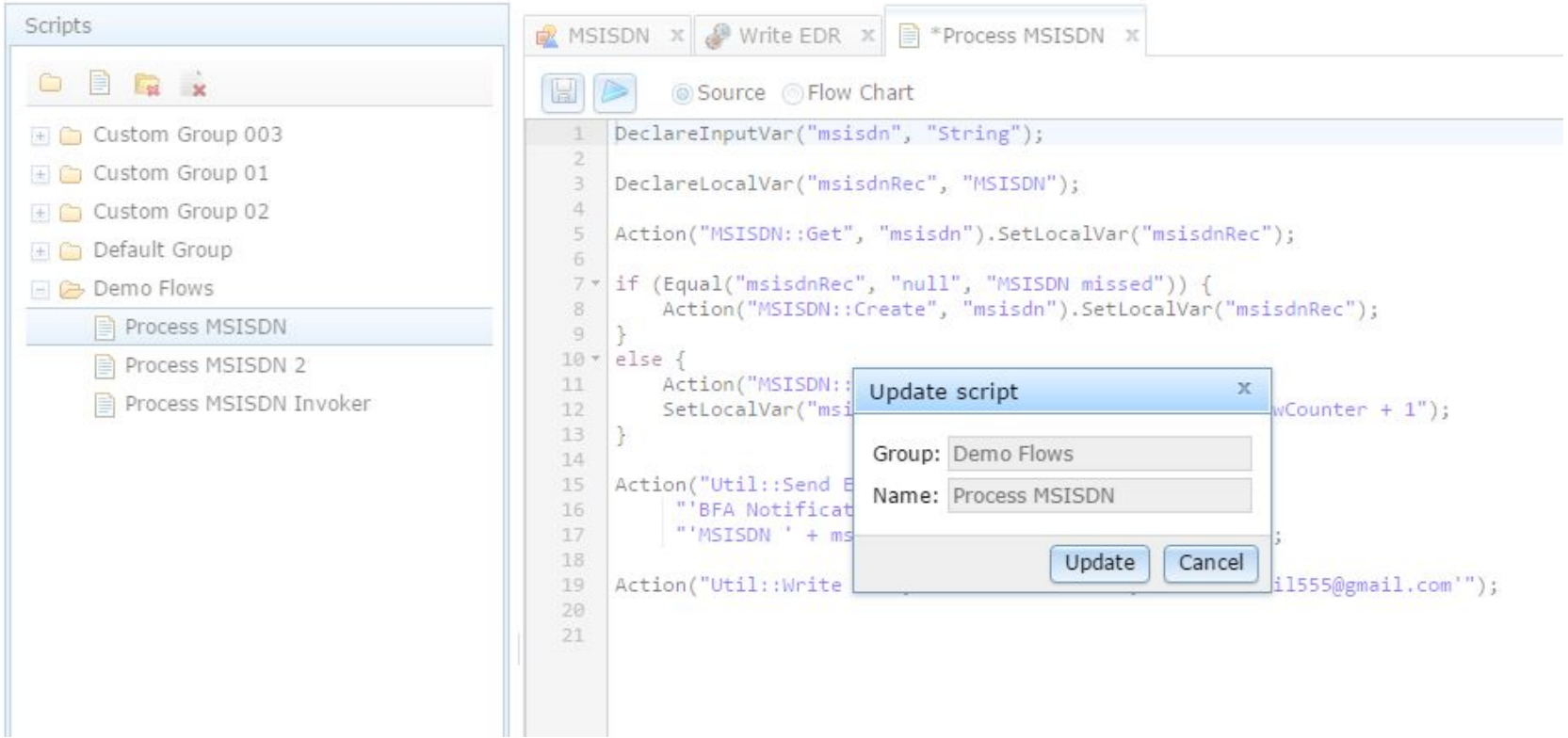
Cluster Environment

Flow Engine can be used in clustered environment. The below configuration was tested.



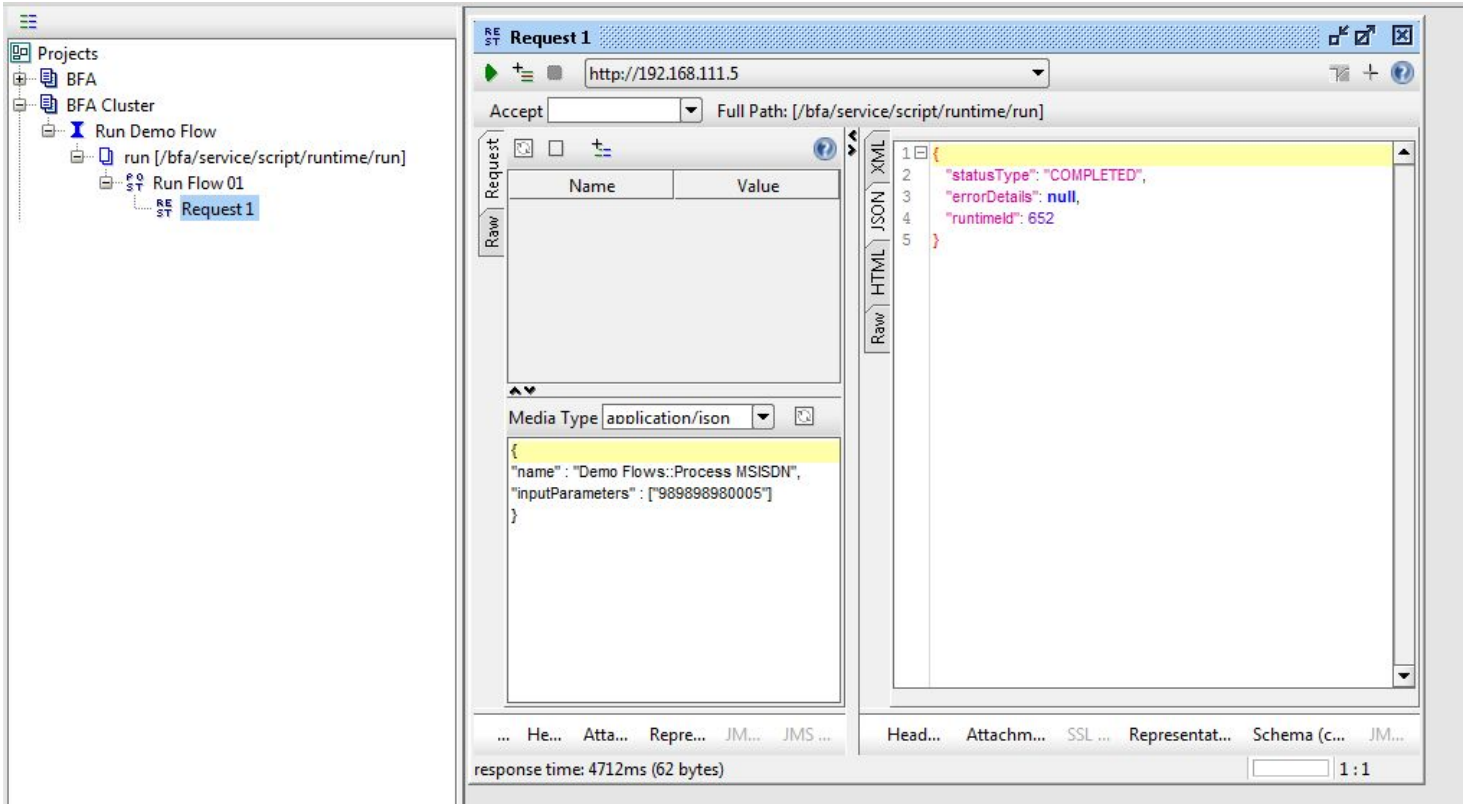
On-the-Fly Updates

Script, custom data type or action can be updated on-the-fly. The changes are applied to all nodes in cluster. No server or application restart is needed



REST/JSON API

The regular way of flows invocation is REST API. Besides, flows can be invoked via Web UI. All administration operations (create/update/delete of Script/Entity/Action) are supported via REST as well.



Future Plans

- Script syntax enhancements
- DBMS based repository. Now, the repository is filesystem based.
- Flow runtime monitoring/logging/tracing. The basic functionality has been already implemented.
- Web UI enhancements (search, navigation etc.)
- Actions packaging/deployment enhancements (Action Group support)
- Security