

SAP Predictive Maintenance and Service, on-premise edition 1.0 FP02
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Operation Information for SAP Predictive Maintenance and Service, on-premise edition 1.0 FP02

Content

1	Document History	3
2	Scheduling Regular Scoring of a Model	4
3	Loading Data	7
3.1	Creating the Schema SAP_PDMS_REPLICATION_DATA	10
3.2	Creating a Procedure	11
4	Deleting Data from the Data Model	13
5	Read Information About All Data Science Services	14
6	Creating Rules for Derived Signals	16
6.1	Install and Configure the SAP HANA Rules Framework	16
6.2	Create Vocabulary	18
6.3	Create Rule Service	20
6.4	Create Rules	21
7	Glossary	23

1 Document History

Caution

Before you read this document, make sure you have the latest version of this document. You can find the latest version at the following location: https://uacp2.hana.ondemand.com/doc/7d0ef6ebfa28460e8c41db39923f446c/1.0%20FP02/en-US/Operation_Information_for_SAP_Predictive_Maintenance_and_Service_on_premise_edition_1.0_FP02.pdf

Tip

You might need to refresh your browser to see the latest version of this document.

The following table provides an overview of the most important document changes:

Table 1:

Version	Date	Description
1.04	2016-12-08	Updated: <ul style="list-style-type: none">• Loading Data [page 7]• Read Information About All Data Science Services [page 14]
1.03	2016-11-29	Added: <ul style="list-style-type: none">• Creating Rules for Derived Signals [page 16] with subchapters• Scheduling Regular Scoring of a Model [page 4] Updated: <ul style="list-style-type: none">• Loading Data [page 7]
1.02	2016-10-10	Updated: <ul style="list-style-type: none">• Chapter Read Information About All Data Science Services [page 14]
1.01	2016-09-29	Updated: <ul style="list-style-type: none">• Link to this document
1.0	2016-09-28	Initial Version

2 Scheduling Regular Scoring of a Model

Prerequisites

- You have downloaded the latest SP of [XS SERVICES 1](#) which contains the XSA Job Scheduler service, and installed the Job Scheduler service.
For more information about how to install the XSA Job Scheduler service, see the [SAP HANA Server Installation and Update Guide](#).
- The `Space Developer` role is assigned to the user who does the following tasks:
 - Creating the service broker for the Job Scheduler service (*Step 1*)
 - Creating the Job Scheduler service instance (*Step 2*)
 - Binding an application to the Job Scheduler service (*Step 3*)For more information about the `Space Developer` role and scheduling jobs, see the chapter [Scheduling Jobs in XS Advanced](#).

Context

For more information about scheduling jobs in XS advanced, see the chapter [Scheduling Jobs in XS Advanced](#) in the *SAP HANA Administration Guide*.

Procedure

1. **(If you have not registered a service broker)** Configure the service broker for the Job Scheduler service as described in the chapter [Configure the Service Broker for Job Scheduler](#).

Note

You need to register a service broker once.

2. Create a Job Scheduler service instance in the XSA space you use for SAP Predictive Maintenance and Service, on-premise edition as described in the chapter [Create a Job Scheduler Service Instance](#).
3. Bind the Job Scheduler service instance to an app of your choice as described in the chapter [Bind an Application to the Job Scheduler Service](#).

This step is required to access the environment variables of the app `datascience-service`.

Fill in the variables as follows:

Table 2: Variables for Binding an App

Variable	Value
<application name>	datascience-service
<service instance name>	Name of the Job Scheduler service instance that you created in <i>Step 2</i>

4. Extract the user name and password from the environment of the app `datascience-service` that you have bound the Job Scheduler service instance by executing the command `xs env datascience-service`.

After executing this command, the details of the Job Scheduler service instance are displayed as well.

Sample Code

```
"jobscheduler" : [ {
  "name" : "<Name of Job Scheduler service instance>",
  "label" : "jobscheduler",
  "tags" : [ "jobscheduler" ],
  "plan" : "default",
  "credentials" : {
    "password" : "<App environment password>",
    "user" : "<App environment user name>",
    "url" : "https://<Host of the Job Scheduler service>:<Port of the Job Scheduler service>"
  }
} ]
```

The URL is used to access the Job Scheduler service, the user name and password are used to create a job using the Job Scheduler service.

5. Maintain jobs and job schedules as described in the chapter [Maintain Jobs and Job Schedules in XS Advanced](#).

Sample Code

```
{
  "name": "<Name of the job>",
  "description": "<Description of the job>",
  "action": "https://<PDMS_DS_ADMIN>:<Password of PDMS_DS_ADMIN><Host of pdms router>:<Port of pdms router>/datascience/api/v1/models/score/<model ID>",
  "active": true,
  "httpMethod": "POST",
  "schedules": [
    {
      "cron": "* * * * * 0,10,20,30,40,50",
      "description": "This schedule runs every 10 seconds",
      "active": true,
      "startTime": { "date": "2016-01-01 00:00 +0000", "format": "YYYY-MM-DD HH:mm Z" }
    }
  ]
}
```

Note

The basic authorization is part of the URL. The handling of the X-CSRF token is taken care of by the Job Scheduler service. You can verify in the view `SYS.M_TASKS` that a new job task is created every 10 seconds.

For more information about the `<PDMS_DS_ADMIN>`, see the guide [Installation of SAP Predictive Maintenance and Service, on-premise edition 1.0 FPO2](#).

For more information about how to work with the Job Scheduler service using REST APIs, see the chapter [Job Scheduler REST API for XS Advanced](#).

6. Check and manage your jobs and job schedules in the Job Scheduler dashboard as described in the chapter [The Job Scheduler Dashboard](#).
7. **(If required)** Stop a job schedule by updating the job configuration.
 - a. Retrieve the job ID.
REST API call:

Sample Code

```
GET https://<Host of the Job Scheduler service>:<Port of the Job Scheduler service>/scheduler/jobs
```

This returns a list of jobs configured in the Job Scheduler service.

- b. Stop the job schedule.
REST API call:

Sample Code

```
PUT https://<Host of the Job Scheduler service>:<Port of the Job Scheduler service>/scheduler/jobs/<job_id>
```

with the following body

```
{
  "active": false
}
```

This deactivates the job schedule.

Alternatively, you can use the [Manage](#) screen of the Job Scheduler dashboard to deactivate running jobs. For more information, see the chapter [The Job Scheduler Dashboard](#).

3 Loading Data

Prerequisites

- The role collection `<pdms-executor-role>` is assigned to the `<PDMS_EXECUTOR>` user.
This user is a technical user. The credentials of this user are required by the XSA Job Scheduler service to call back to the Executor Service app.
For more information about role collections, see the chapters *Maintaining Roles and Users in SAP HANA* and *Role Templates for SAP Predictive Maintenance and Service, on-premise edition* in the guide *Installation of SAP Predictive Maintenance and Service, on-premise edition 1.0 FPO2*.
- The following user-provided services are created in the space where the Executor Service application is deployed during the installation of SAP Predictive Maintenance and Service, on-premise edition 1.0 FPO2
 - `executor-service-ups`
 - `data-access-ups`For more information, see the *Installation Guide for SAP Predictive Maintenance and Service, on-premise edition 1.0 FPO2*.
- The roles `com.sap.pdms.sdm:DATA.Provider#` and `com.sap.pdms.sdm:DATA.Consumer#` are assigned to the `<PDMS_TECH_USER>` that loads data using the Executor Service app.
For more information about roles, see the *Security Guide for SAP Predictive Maintenance and Service, on-premise edition 1.0 FPO2*.
- The data model is set up.
For more information about the data model, see .
- The schema `SAP_PDMS_REPLICATION_DATA` is created by the `<PDMS_TECH_USER>` as explained in the chapter [Creating the Schema SAP_PDMS_REPLICATION_DATA \[page 10\]](#).
- Procedures are created by the `<PDMS_TECH_USER>` in the schema `SAP_PDMS_REPLICATION_DATA` as described in the chapter [Creating a Procedure \[page 11\]](#).

Context

Before users actually start using SAP Predictive Maintenance and Service, on-premise edition 1.0, data needs to be loaded to the following views:

- `READINGS_T`
- `LOCATIONS_T`
- `MASTER_DATA`

Procedure

1. **(If you have not registered a service broker)** Configure the service broker for the Job Scheduler service as described in the chapter [Configure the Service Broker for Job Scheduler](#).

i Note

You need to register a service broker once.

2. Create the Job Scheduler service instance `pdms-jobscheduler` in the XSA space you use for the Executor Service application as described in the chapter [Create a Job Scheduler Service Instance](#).
3. **(If you have installed the Executor Service application before you have installed the Job Scheduler service)** Bind the Job Scheduler service instance to the Executor Service app as described in the chapter [Bind an Application to the Job Scheduler Service](#).

Fill in the variables as follows:


Table 3: Variables for Binding an App

Variable	Value
<code><application name></code>	<code>executor-service-backend</code>
<code><service instance name></code>	<code>pdms-jobscheduler</code>

4. Open the URL `https://<hostname>:<port>/app/launchpad/index.html`.
5. Log on to the launchpad with `<PDMS_Tech_User>`.
6. Open the *Executor Service* app.
7. Fill in the required entries.

Table 4: Entry Fields

Field	Description
<i>Name</i>	Unique name of the replication job
<i>Description</i>	Description of the replication job
<i>Procedure Name</i>	Name of the data replication procedure, which is located in the <code>SAP_PDMS_REPLICATION_DATA</code> schema. For more information, see the chapters Creating the Schema SAP_PDMS_REPLICATION_DATA [page 10] and Creating a Procedure [page 11] .

Field	Description
<i>Schedule</i>	<p>Schedule type</p> <p>You can choose among the following schedule types:</p> <ul style="list-style-type: none"> ○ <i>ONE_TIME</i> A non-recurring job that is executed only once at a specific time ○ <i>CRON</i> A recurring job that is executed automatically at a specific day and time ○ <i>REPEAT_AT</i> A recurring job that is repeated at an exact time ○ <i>INTERVAL</i> A recurring job that is continuously repeated after a given interval
<i>timeOrCron</i>	<p>Recurrence pattern of the job</p> <p>This field can have different formats depending on the schedule type you chose.</p> <div style="background-color: #fff9c4; padding: 10px;"> <p> Example</p> <ul style="list-style-type: none"> ○ Human readable time such as Now, In 2 minutes, or Tomorrow at 4:00 p.m. ○ Cron format such as 2015 * * fri 12 0 0 (Runs the job every Friday in 2015 at 12:00) For more information about Cron, see the Glossary [page 23]. ○ Date format such as 2013-02-08 09+07:00 </div>
	Description of the job schedule

8. To pass input parameters to your replication procedure, add *Parameters*.

The parameters are key-value pairs. The value is passed as an input parameter to the procedure when the procedure is called. The parameters are passed in the order in which they are added.

Example

Table 5: Parameters

Key	Value
metricId	LINE_CURRENT
retentionPeriod	123456789

9. Save the job.

When your job is triggered, you can see the result in the XS Job Dashboard.

Note

To access the XSA Job Dashboard, the required [roles for running the Job Scheduler](#) are assigned to your user.

In addition, the `SpaceDeveloper` role needs to be assigned to your user:

Sample Code

```
xs set-space-role <Your user> <Org> <Space> SpaceDeveloper
```

For more information about the XSA Job Dashboard, see the chapter [The Job Scheduler Dashboard](#) in the *SAP HANA Administration Guide*.

3.1 Creating the Schema SAP_PDMS_REPLICATION_DATA

Context

To load data for usage in SAP Predictive Maintenance and Service, on-premise edition 1.0, you need to create the schema `SAP_PDMS_REPLICATION_DATA` owned by the `<PDMS_Tech_User>`. If you have not created the schema yet, follow the steps described in this section.

Procedure

1. Open the SAP HANA SQL console.
2. To create the schema for data replication, execute the following command using the `<PDMS_Tech_User>` in SAP HANA studio:

```
CREATE SCHEMA SAP_PDMS_REPLICATION_DATA OWNED BY <PDMS_Tech_User>;
```

3. Add the following permissions to the `_Sys_Repo` user:

```
GRANT SELECT ON <virtual source table from which data is loaded> TO _Sys_Repo;  
GRANT INSERT, UPDATE, DELETE ON <target table to which data is loaded> TO  
_Sys_Repo;  
GRANT SELECT ON SCHEMA SAP_PDMS_REPLICATION_DATA TO _Sys_Repo WITH GRANT OPTION;
```

For more information about how to work with virtual tables, see the chapter [Creating Virtual Tables](#) in the *SAP HANA Administration Guide*.

Related Information

[Loading Data \[page 7\]](#)

3.2 Creating a Procedure

Prerequisites

You have created the schema `SAP_PDMS_REPLICATION_DATA` as explained in the chapter [Creating the Schema SAP_PDMS_REPLICATION_DATA \[page 10\]](#).

Context

Before you can load data for usage in SAP Predictive Maintenance and Service, on-premise edition 1.0, you need to create a data replication procedure.

You can create a procedure by executing SQL statements in the SAP HANA SQLScript editor.

For more information about SQL procedures, see the chapter [Developing Procedures](#) in the *SAP HANA Developer Guide for SAP HANA Studio*.

Procedure

1. In SAP HANA studio, create a repository workspace as explained in [Maintain a Repository Workspace](#) in the *SAP HANA Developer Guide for SAP HANA Studio*.
2. In the SAP HANA Web-based Development Workbench Editor tool, create a repository package as explained in [Create Repository Packages](#) in the *SAP HANA Developer Guide for SAP HANA Web-Based Development Workbench*.
3. Check out the package you just created.
4. In SAP HANA studio, create and share a SAP HANA project as explained in [Using SAP HANA Projects](#) in the *SAP HANA Developer Guide for SAP HANA Studio*.
5. Assign to your user the following user role permission to enable semantic code completion:
 - `sap.hana.xs.dt.base::restapi`
 - `sap.hana.xs.ide.roles::Developer`
6. Create your procedure as explain in [Create and Edit Procedures](#) in the *SAP HANA Developer Guide for SAP HANA Studio*.

For more information about the `CREATE PROCEDURE` statement, see the chapter [CREATE PROCEDURE Statement \(Procedural\)](#) in the *SAP HANA SQL and System Views Reference*.

Related Information

[Loading Data \[page 7\]](#)

4 Deleting Data from the Data Model

Prerequisites

The role `com.sap.pdms.sdm:DATA.Provider` is assigned to your user with which you log on to SAP HANA studio.

Context

Proceed as described in the following steps to delete data from the data model that is described in the installation guide of SAP Predictive Maintenance and Service, on-premise edition.

Procedure

1. Log on to SAP HANA studio.
2. Delete data from tables and views using the `DELETE` statement as explained in the chapter [DELETE Statement \(Data Manipulation\)](#) in the *SAP HANA SQL and System Views Reference*.
 - a. The following SQL statement is an example of how to delete data from the `READINGS_T` table.

Sample Code

```
DELETE FROM READINGS_T WHERE Thing = '<ThingId>';
```

After executing the above statement, the rows containing the specified `<ThingId>` are deleted from the `READINGS_T` table.

- a. The following SQL statement is an example of how to delete data from the `WORKACTIVITY` table.

Sample Code

```
DELETE FROM "SAP_PDMS_DATA"."com.sap.pdms.sdm:DATA.WORKACTIVITY_T" WHERE "AssignedTo" = '<User_ID>' OR "ReportedBy" = '<User_ID>';
```

After executing the above statement, the rows containing the specified `<User_ID>` are deleted from the `WORKACTIVITY` table.

5 Read Information About All Data Science Services

Get information about data science services.

Request

Permission: The following role collection is assigned to the <PDMS_DS_ADMIN> user:

- <pdms-datascience-role>

For more information about role collections, see the chapters *Maintaining Roles and Users in SAP HANA* and *Role Templates for SAP Predictive Maintenance and Service, on-premise edition* in the guide *Installation of SAP Predictive Maintenance and Service, on-premise edition 1.0 FPO2*.

Format: *JSON*

URI: `https://<hostname>:<router port>/datascience/api/v1/info`

HTTP Method: *GET*

Response

Response Example

```
{
  rServerPlatform: "x86_64-pc-linux-gnu",
  rVersion: "R version 3.3.0 beta (2016-03-30 r70404)",
  rNickname: "Supposedly Educational",
  pdmsRVersion: "1.2.0",
  packageStatuses: [
    {
      namespace: "com.sap.pdms.datascience",
      dataScienceService: "PCA",
      rPackageVersion: "datasci.pca 1.2.0",
      rTrainFunction: "FOUND PCAttrain",
      rScoreFunction: "FOUND PCAscore"
    },
    {
      namespace: "com.sap.pdms.datascience",
      dataScienceService: "RUL",
      rPackageVersion: "datasci.rul.weibull 1.2.0",
      rTrainFunction: "FOUND Weibulltrain",
      rScoreFunction: "FOUND Weibullscore"
    },
    {
      namespace: "com.sap.pdms.datascience",
      dataScienceService: "EMD",
      rPackageVersion: "datasci.dbfa.emd 1.2.0",
      rTrainFunction: "FOUND EMDtrain",

```

```
    rScoreFunction: "FOUND EMDscore"  
  }  
]  
}
```

6 Creating Rules for Derived Signals

Context

Proceed as described in the following steps to create rules for derived signals. The derived signals that are then generated based on the rules can be displayed in the insight provider for derived signals in the Asset Health Control Center and on the Asset Health Fact Sheet.

Procedure

1. [Install and Configure the SAP HANA Rules Framework \[page 16\]](#)
2. [Create Vocabulary \[page 18\]](#)
3. [Create Rule Service \[page 20\]](#)
4. [Create Rules \[page 21\]](#)

6.1 Install and Configure the SAP HANA Rules Framework

Prerequisites

The schema `SAP_PDMS_REPLICATION_DATA` exists.

Context

To install and configure the SAP HANA Rules Framework (HRF), proceed as described in the following steps:

Procedure

1. Add the administrator role of the SAP HANA lifecycle manager to the `SYSTEM` user:
 - a. In the navigation tree of the new system, go to **Security > Users > SYSTEM**.
 - b. Open the context menu of the `SYSTEM` user and then choose the option *Open*.
 - c. In the *Granted Roles* tab, click *(Add)*.
 - d. Search for the role `sap.hana.xs.lm.roles::Administrator` and click *OK*.
 - e. Click **File > Save**.
2. Import the HRF delivery unit file `HCORULEFW.tgz` using the SAP HANA lifecycle manager:
 - a. In your browser, open the SAP HANA lifecycle manager: `http://<full_domain_name>:80<instance_number>/sap/hana/xs/lm`.
 - b. Log on using the same user and password you defined earlier in the *Connection Properties* window when you created the SAP HANA system.
 - c. Under *Home*, click *Delivery Units*.
 - d. Click **Import**.
 - e. In the *Import Delivery Unit* dialog box, browse to and select the `HCORULEFW.tgz` file.
 - f. Import the `HCORULEFW.tgz` file.
 - g. Check the *Notifications* bar to ensure that the import is done successfully.
3. Add the following roles to the `SYSTEM` user in SAP HANA studio following the procedure described in *Step 1*.
 - `sap.hrf.role.model::HrfAdmin`
 - `sap.hrf.role.model::HrfRuleConsumer`
 - `sap.hrf.role.model::HrfRuleViewer`
 - `sap.hana.uis.db::SITE_DESIGNER`
 - `sap.hana.uis.db::SITE_USER`
4. Using any REST client, run the configuration script using the following request:
 - a. URL: `http://<full_domain_name>:80<instance_number>/sap/hrf/service/configuration`
 - b. Select the `POST` method.

Request body parameters:

Source Code

```
{
  "timeZoneCode": "<ID>",
  "webApplicationConfigurations": "default"
}
Example:
{
  "timeZoneCode": "005",
  "webApplicationConfigurations": "default"
}
```

5. Grant permission on the schema created for derived signals:

Sample Code

```
grant SELECT, EXECUTE, INSERT, UPDATE on schema "SAP_PDMS_REPLICATION_DATA" to
_SYS_REPO with grant option;
```

Related Information

[Creating Rules for Derived Signals \[page 16\]](#)

[Create Vocabulary \[page 18\]](#)

6.2 Create Vocabulary

Context

To create vocabulary and a vocabulary schema, proceed as described in the following steps:

Procedure

1. **(Optional)** Deploy the SAP HANA Rules Framework modeling tools in SAP HANA studio.

This is a one-time task to install the add-on for vocabulary creation in SAP HANA studio.

- a. Open SAP HANA studio.
- b. Choose **Help > Install New Software**.
- c. In the *Install* window, click *Add*.
- d. In the *Add Repository* window, enter a name and location for your repository.

For the repository location, enter `http://<hostname>:80<instance_number>/sap/hrf/updatesite`.

- e. Enter the logon credentials of the SAP HANA machine.
- f. Select *SAP HANA Rules Framework - Modeling Tools*.
- g. Click *Next* and *Next* again.
- h. After you have read and accepted the terms of the license agreement, click *Finish*.
- i. Click *OK* when you are asked install software with unsigned content.

- j. When the installation has completed, restart SAP HANA studio.
2. Create the XS project `SAP_PDMS_REPLICATION_DATA` in the SAP HANA studio *Project Explorer* view.
3. Select the project and follow the path **File > New > Other**.
4. Select **SAP HANA Operational Process Intelligence > Vocabulary**.
5. Click *Next* and enter **DS_VOCAB** as name, and click *Finish*.
6. Create the table `DERIVED_SIGNALS_METRIC_DATA` in the `SAP_PDMS_REPLICATION_DATA` schema:

Source Code

```
create column table
"SAP_PDMS_REPLICATION_DATA"."DERIVED_SIGNALS_METRIC_DATA"("ThingType"
NVARCHAR(81), "PropertySetTypeID" NVARCHAR(30), "PropertyID"
NVARCHAR(30), "Timestamp" TIMESTAMP, "Value" DOUBLE, "AssetThingID"
NVARCHAR(32), "ComponentThingID" NVARCHAR(32), "AssetName"
NVARCHAR(255), "ComponentName" NVARCHAR(255));
```

7. Add the following fields to the data object `DERIVED_SIGNALS_METRIC_DATA`:

Table 6: Data Object Fields

Field	Type
ThingType	NVARCHAR(81)
PropertySetTypeID	NVARCHAR(30)
PropertyID	NVARCHAR(30)
Timestamp	TIMESTAMP
Value	DOUBLE
AssetThingID	NVARCHAR(32)
ComponentThingID	NVARCHAR(32)
AssetName	NVARCHAR(255)
ComponentName	NVARCHAR(255)

8. Add the output type `DERIVED_SIGNALS_METRIC_DATA_OUTPUT..`
9. Add the following fields to the output type, and activate the vocabulary:

Table 7: Parameters

Field	Type	Length
SEVERITY	NVARCHAR	50
ALERT_TYPE	NVARCHAR	50

Table 8: Static Parameters

Field	Expression
VALUE	DERIVED_SIGNALS_METRIC_DATA.VALUE

Related Information

[Creating Rules for Derived Signals \[page 16\]](#)

[Create Rule Service \[page 20\]](#)

6.3 Create Rule Service

Context

To create the rule service needed to create rules for derived signals, proceed as described in the following steps:

Procedure

1. Access the SAP HANA Rules Framework web application for rule services and rules in your web browser:
http://<full_domain_name>:80<instance_number>/sap/hana/uis/clients/ushell-app/shells/fiori/FioriLaunchpad.html?siteId=sap.hrf.ui|app|app.
2. Click on the *Rule Service* tile and create a new rule service with the following values:

Table 9: Entries to Create Rule Service

Field	Value
<i>Name</i>	PDMS_DS_DATA
<i>Description</i>	PDMS_DS_DATA
<i>Consumption Artifact</i>	Procedure and View
<i>Vocabulary</i>	SAP_PDMS_REPLICATION_DATA::DS_VOCAB
<i>Resulting Data Object</i>	DERIVED_SIGNALS_METRIC_DATA

Field	Value
<i>Keys</i>	ThingType, PropertySetTypeID, PropertyID, Timestamp, ComponentThingID
<i>Output</i>	DERIVED_SIGNALS_METRIC_DATA_OUTPUT
<i>Rule Assignment</i>	Automatic

Related Information

[Creating Rules for Derived Signals \[page 16\]](#)

[Create Rules \[page 21\]](#)

6.4 Create Rules

Context

To create rules for derived signals, proceed as described in the following steps:

Procedure

1. Access the SAP HANA Rules Framework web application for rule services and rules in your web browser:
http://<full_domain_name>:80<instance_number>/sap/hana/uis/clients/ushell-app/shells/fiori/FioriLaunchpad.html?siteId=sap.hrf.ui|app|app.
2. Click on the *Rules* tile and create a new rule with the following values:

Table 10: Entries to Create Rule

Field	Value
<i>Name</i>	DSRULE
<i>Description</i>	DSRULE
<i>Vocabulary</i>	SAP_PDMS_REPLICATION_DATA::DS_VOCAB

Field	Value
<i>Condition</i>	<pre>ThingType of the DERIVED_SIGNALS_METRIC_DATA is equal to 'com.sap.pdms.example.trains:Battery' and PropertySetTypeID of the DERIVED_SIGNALS_METRIC_DATA is equal to 'power' and PropertyID of the DERIVED_SIGNALS_METRIC_DATA is equal to 'Current' and Value of the DERIVED_SIGNALS_METRIC_DATA is greater than 0.6 and ComponentThingID of the DERIVED_SIGNALS_METRIC_DATA is equal to 'LOCOMOTIVE-SP02-2500-BT'</pre>

3. Click on *Add Output*, select DERIVED_SIGNALS_METRIC_DATA_OUTPUT, and add values such as the following:

Table 11: Derived Signals Values

Field	Value
<i>SEVERITY</i>	'CRITICAL'
<i>ALERT_TYPE</i>	'SAFETY'

Related Information

[Creating Rules for Derived Signals \[page 16\]](#)

7 Glossary

Table 12: Term Definitions

Term	Definition
Cron	Cron is a Unix program that can be used to execute recurrent jobs automatically on a specific day and at a specific time.

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