pure::variants Web Components Manual

pure-systems GmbH

Version 5.0.8.685 for pure::variants 5.0

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1. Introduction

The *pure::variants Web Components* provides an OSLC Configuration Management adapter which allows to interact with configuration management of pure::variants model server via OSLC specific services.

1.1. About this manual

The reader is expected to have basic knowledge and experience about the pure::variants and Web Components Servers. Please consult their introductory material before reading this manual.

2. Installation

Please consult section **Install pure::variants Web Components** in the **pure::variants Setup Guide** for detailed information on how to install the connector (menu **Help** -> **Help Contents** and then **pure::variants Setup Guide** -> Install pure::variants Web Components).

3. Setup Wizard

Please consult section **Basic Setup of the pure::variants Web Components** in the **pure::variants Setup Guide** for detailed information on how to install the connector (menu **Help** -> **Help Contents** and then **pure::variants Setup Guide** -> **Basic Setup of the pure::variants Web Components**).

4. View pure::variants models

This section provides the basic instructions on how to view a pure::variants model. The user will first go to the Model-Picker, to choose a pure::variants Model, to then open the Model-Viewer to have a look in more detail.
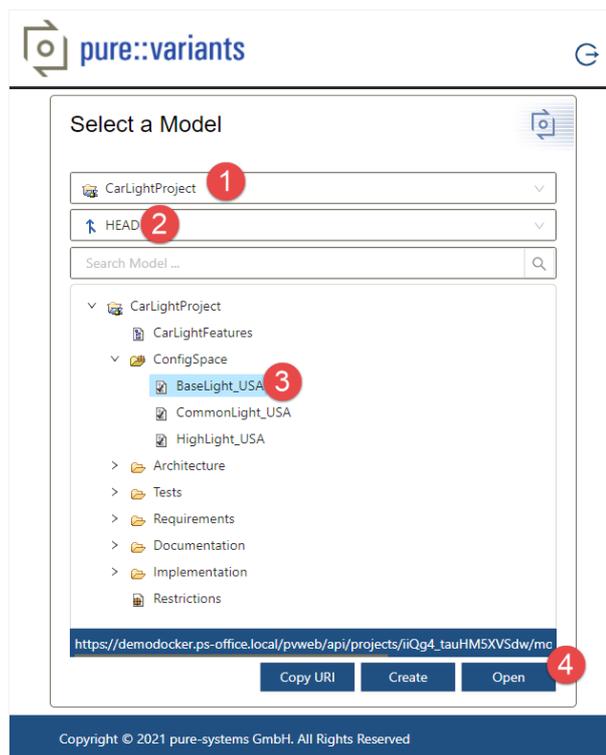
4.1. Model Picker

In order to open the Model Picker in the browser, please point your browser to the following link:

```
https://[pv-server-FQDN]:[port]/pv/ui/picker
```

A login page might be shown if you are not already authenticated. Please enter your user credentials to continue. After successful login, the Model-Picker is shown (see Figure 1, "Model Picker").

Figure 1. Model Picker

To choose a pure::variants model, you need to select a **Project** from the first drop-down menu, first. Then, you need to specify the project context, by selecting a **Revision** from the second drop-down menu. Thus the project explorer shows the whole project's content, including pure::variant models, which might be nested in a hierarchical directory structure. Finally, you have to select a **Model** and press **Open** to view the selected model in the *Model Viewer*.
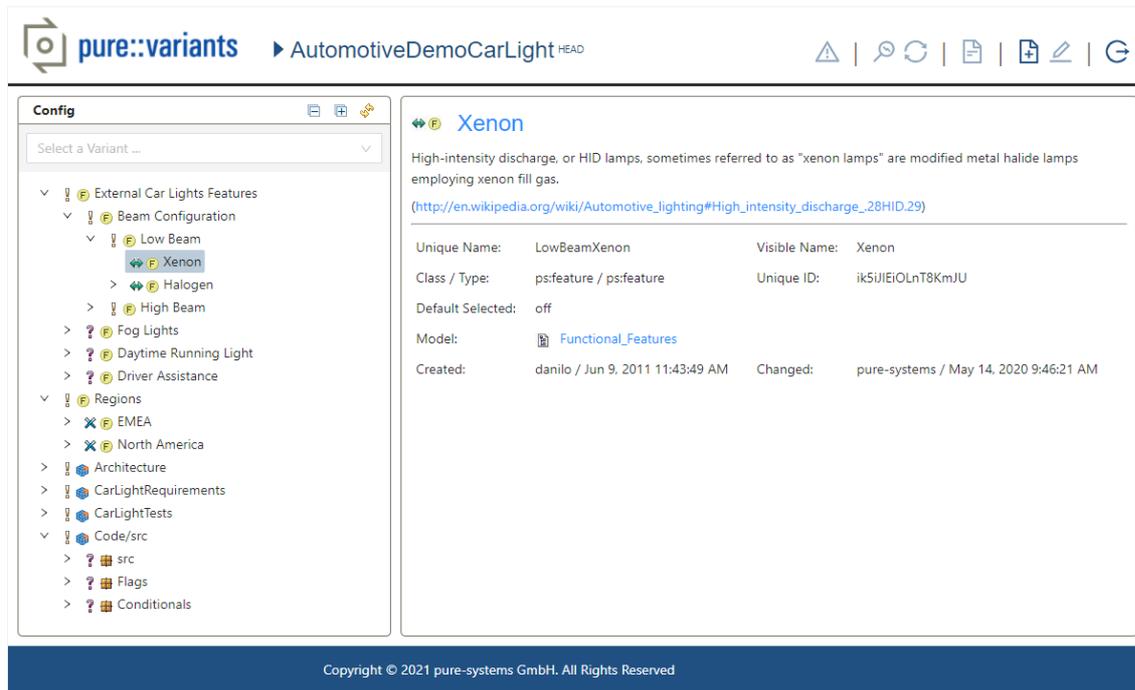
For *Variant Description Models* and *Configspaces* you can use the *Create* button, for creating a new VDM, cloning an existing VDM, or create a new Folder inside of a *Configspace*.

Figure 2. Model Picker - Create new Variant Description Model
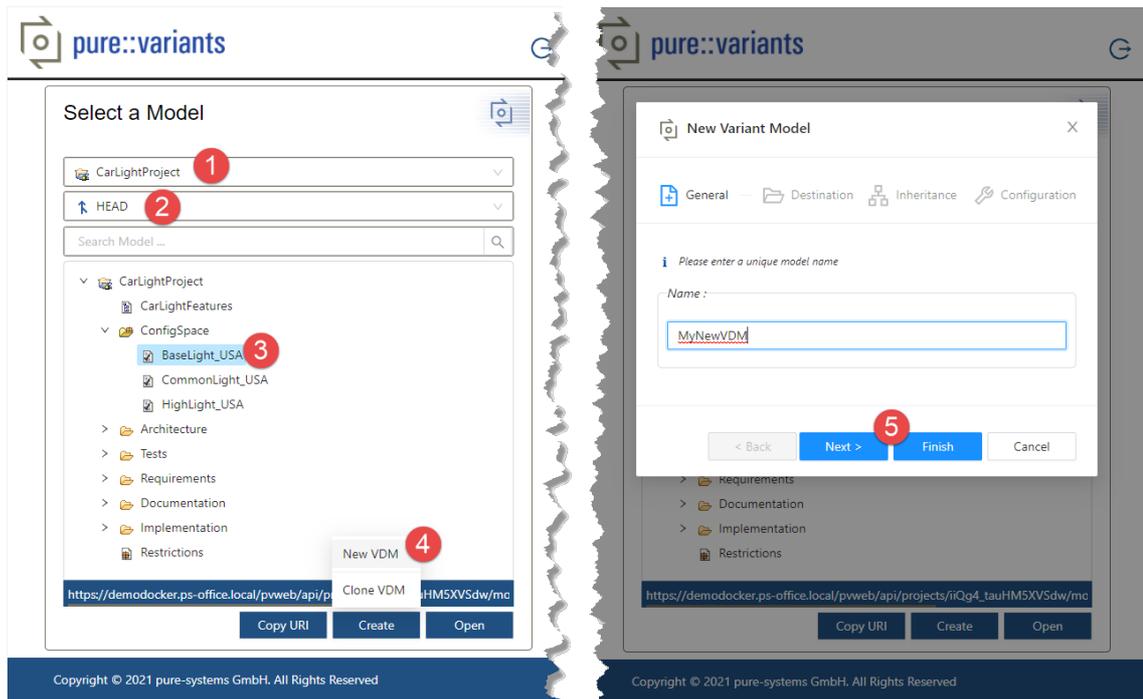
The wizard will guide you through the steps of specify the Variant Description Model. You can choose a different destination folder, you can define other Variant Description Models to inherit from, or decide if this is considered as full or partial configuration. The *Create* toolbar button is context-sensitive to your selection. E.g. selecting a *Configspace* will allow you to create a new Variant Description Model or a new folder.

4.2. Model Viewer

The *Model Viewer* can give a detailed view on various kind of pure::variants models, like the *Variant Description Model*, the *Family Model* or the *Feature Model*. And showing the *Configspace* as well. It allows you to interactively navigate throughout the model's content. As model elements can be in a relationship, e.g. via a Constraint, Restriction or Relation, you can easily jump from one to another. In case of a *Variant Description Model* or *Configspace* all the models associated to its appropriate Configspace are listed. Once a *Variant Description Model* is selected, the selection states for all models elements will be shown appropriately.

Figure 3. Model Viewer

The left panel of the Model Viewer displays the model trees. If an element is selected you can see the details of the element in the right hand panel of the Model Viewer.

4.3. Model Editor (for Variant Description Models)

The *Model Editor* can give a detailed view and editing capibilities on pure::variants *Variant Description Model*. It comes along with all the capabilities supported by the Model Viewer and supports additionally editing capabilities in case of a Variant Description Model. The editing mode requires to be enabled first, so all editing capabilities are enabled for usage.

Figure 4. Model Editor

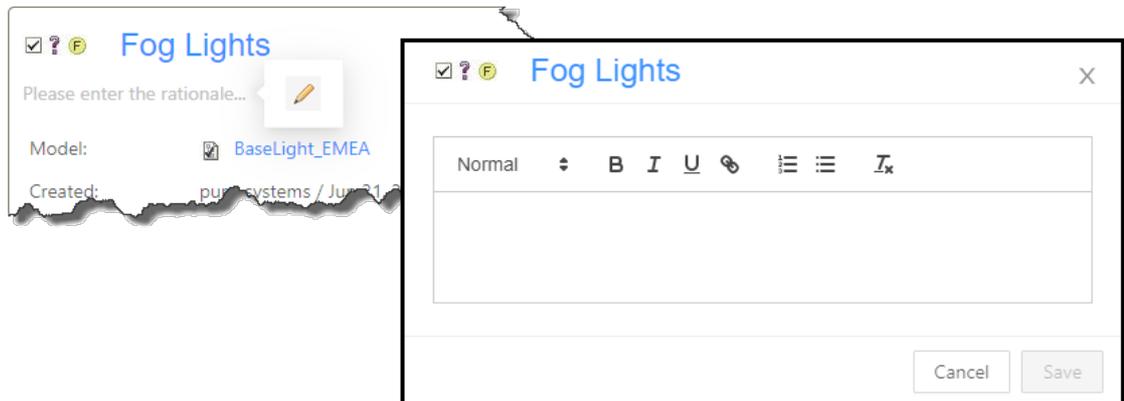Once enabled, the following editing capabilities will be supported:

i. Editing Attribute values. The values can be added, removed, or existing ones modified.

Figure 5. Model Editor

Semantic Validation   Simple Collection editing   Enumeration support
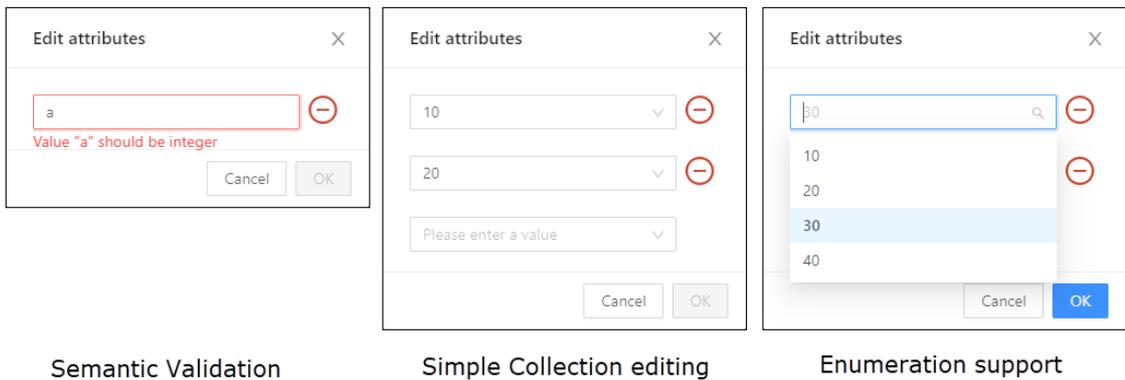
ii. Editing the Rationale. The rationale description can be modified or deleted easily.

Figure 6. Model Editor

iii. Making selection changes via simple left-mouse click or advanced selections via action toolbar. This advanced selection actions include *Select*, *Unselect*, *Exclude*, *Deselect Subtree* and *Exclude Subtree*.

Figure 7. Actions - Selection configuration
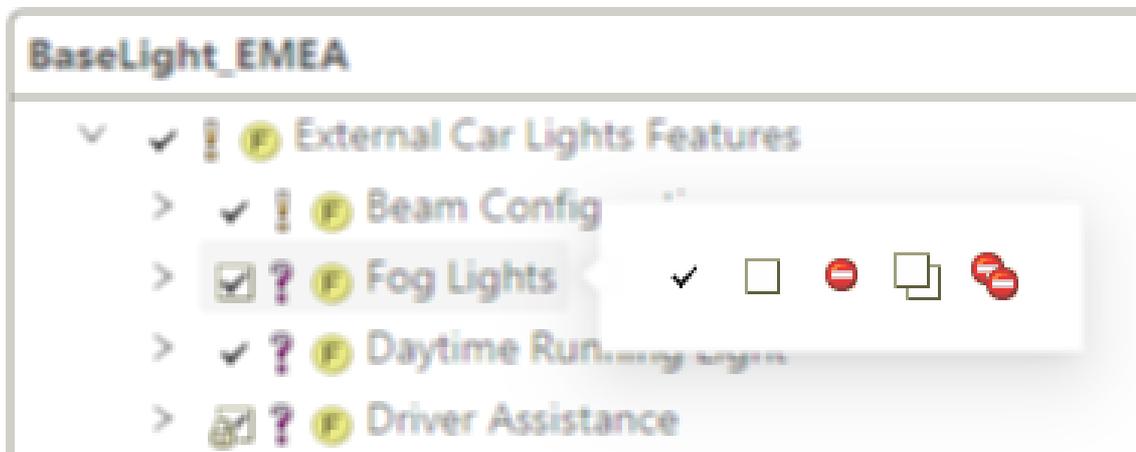
iv. Manipulating Hierarchical Variants by allowing to create, rename, or delete variant instances.

Figure 8. Actions - Variant Instances

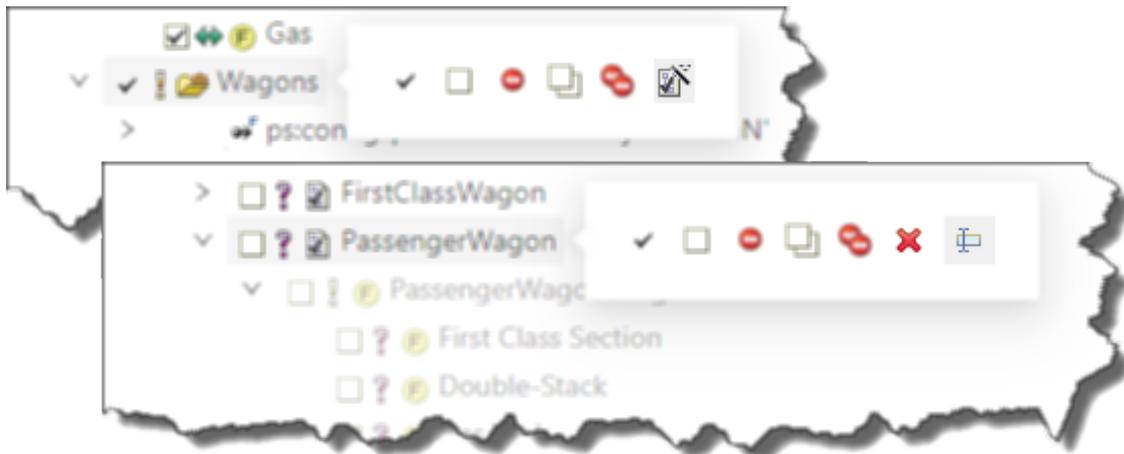To verify if the selection configuration results into a valid variant result, the user can either evaluate the selection configurations on-demand by pressing Evaluate button (1.) or get live-updates which each selection configuration change by enabling the Auto-Evaluation button (2.)

Figure 9. Evaluation - On-Demand & Auto

Along with every evaluation, there might be problems occuring because of an incorrect selection configuration. To elaborate on these issue, the Problems button can be used. It will show a popup with all current issues regarding this Variant Description Model.

Figure 10. Problems - All kind of issues listed
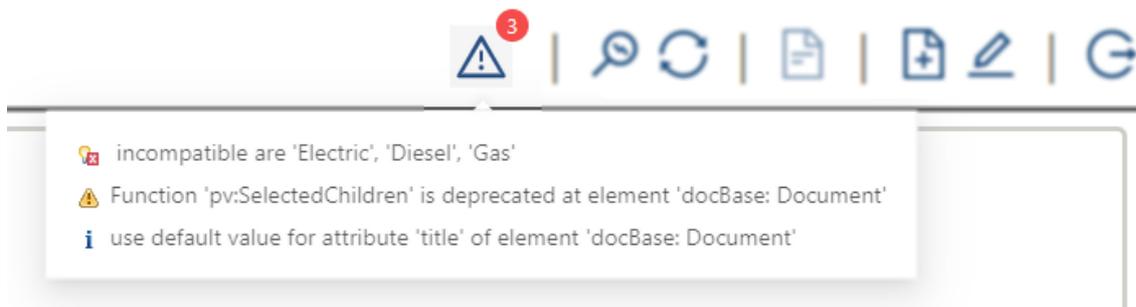
Furthermore, a click on the issue navigates you to the affected element in the tree. On the left side of the tree element, you will find marker, which may also provide you quickfix solutions.

Figure 11. Markers - May provide quickfixes
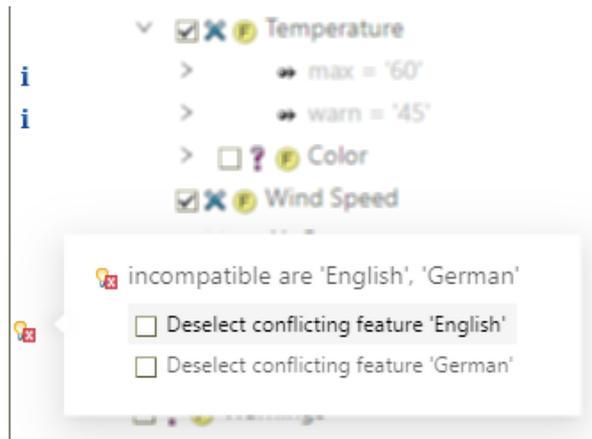
To create a new Variant Description Model, you can use the creation button, which gives you the option for creating or cloning a model. The Clone menu is only available if you have currently selected a Variant Description Mode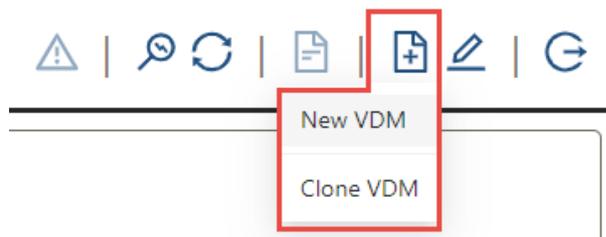l. These menus will open the wizard, which is shown in the figure Figure 2, "Model Picker - Create new Variant Description Model".

Figure 12. Create or Clone Variant Description Model in Model Editor directly

4.4. Variant Configuration Wizard

The *ConfigSpace* in a pure::variants project can be configured to provide the Variant Configuration Wizard. If the Variant Configuration Wizard is available for a Variant Model then the **Open Variant Configuration Wizard-**button is enabled in the Model Viewer as shown in the figure Figure 13, "Variant Configuration Wizard Button".

Figure 13. Variant Configuration Wizard Button
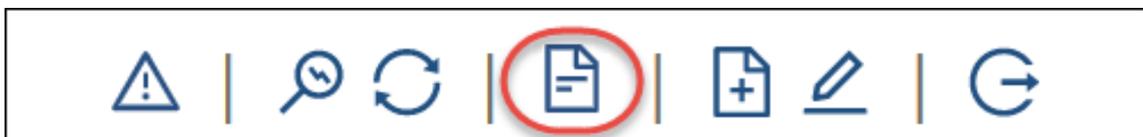
Please click the **Variant Configuration Wizard** button to start the configuration wizard. The start page of the configuration wizard is shown in the figure Figure 14, "Variant Configuration Wizard - Start Page".

Figure 14. Variant Configuration Wizard - Start Page
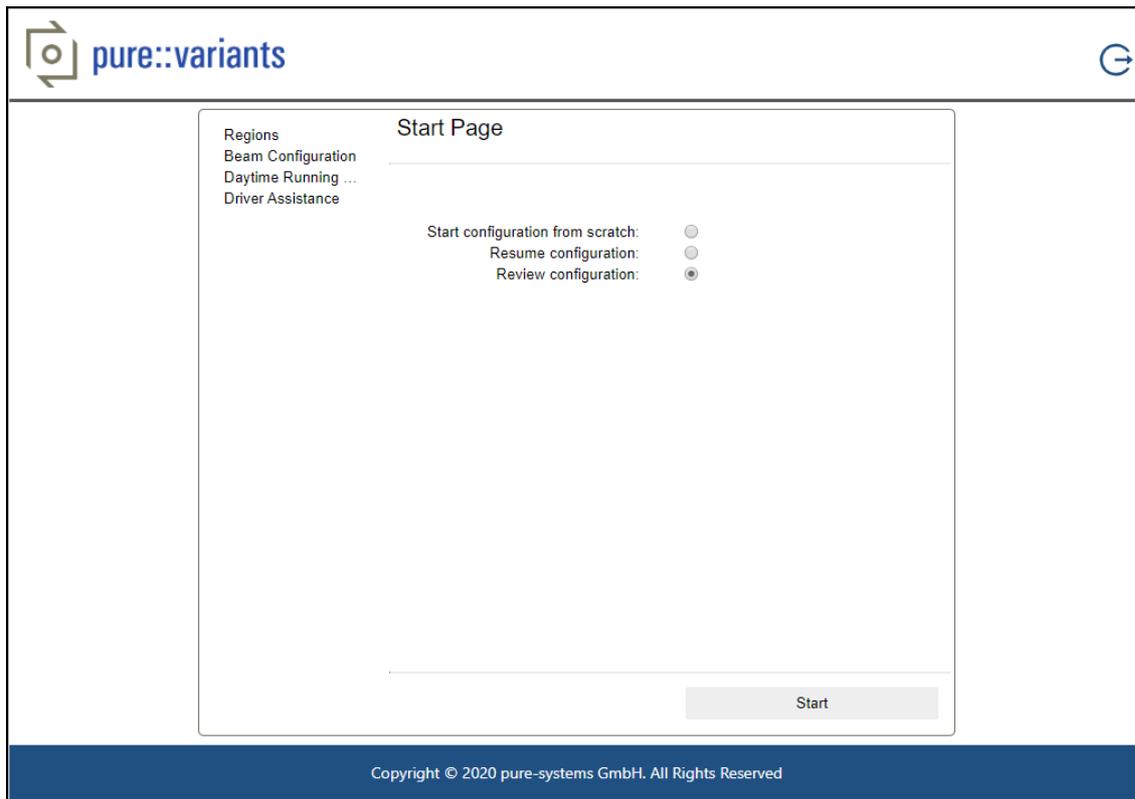
The left panel of the wizard shows the steps in the configuration wizard. You can choose to start the configuration from scratch or Resume/Review Configuration. Make appropriate selections at each step and complete the wizard.

5. Using the pure::variants Web Hub

A web-based version of the *Desktop Hub* is provided with the Web Components, namely *Web Hub*. In order to use *Desktop Hub*, every user has to install it individually on his system. While use of Web Hub doesn't require any installation on user's system. One central installation of Web Components (including Web Hub) is required to serve all the users.

One use case of Web Hub is the **pure::variants Integration for DOORS NG** as shown in the figure.

Figure 15. pure::variants Integration for DOORS NG
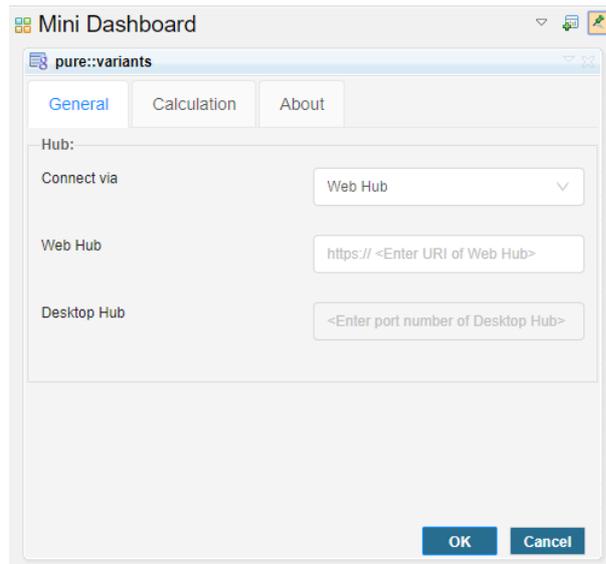
The Integration for DOORS NG can be used either with Desktop Hub or Web Hub. In the *Settings*, if you select the Web Hub from the first drop down then provide the URL of the Web Components in order to proceed.

Note

For detailed instructions on use, consult the section **Using Integration** of the **pure::variants Connector for IBM Rational DOORS NG** manual.

6. Using the CM Provider

The CM provider adds the capability to integrate the pure::variants projects into a global context, defined by a GC's configuration, like a stream or baseline. Therefore, the user can browse over all revisions of its pure::variants projects, residing on the pure::variants Model Server.

Note

The pure::variants Revision is like a Configuration in the terminology of IBM Jazz CLM. The Revision can be either a Branch or a Version. Appropriately to the terminology of IBM Jazz, the Branch is semantically equal to a Stream, and the Version is semantically equal to a Baseline.

6.1. Prerequisites

In order to use the pure::variants CM Provider with GC, it is required to have a Friends (Outbound) relationship from Jazz to pure::variants. For details, please see Figure 16, "Jazz - Add a friend (Outbound)".

Figure 16. Jazz - Add a friend (Outbound)
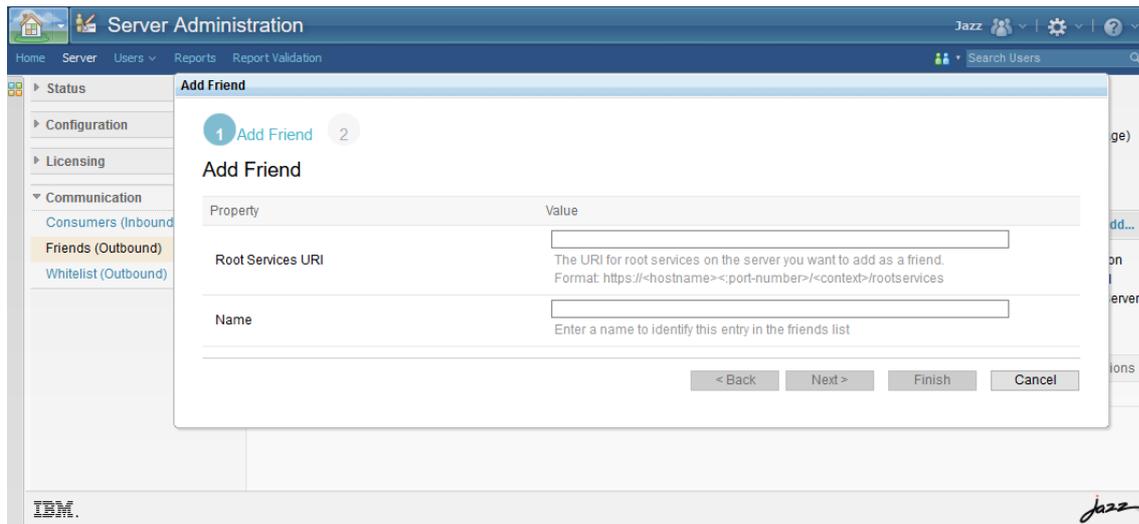
6.2. Association of pure::variants project to GCM project

The project association between GCM and pure::variants is only required if your GCM application setup enforces it. For more information, please refer to Limiting GCM contributions by enforcing project area associations.

To associate a pure::variants project with a GCM project, please go to the GCM application administration page at https://*hostname*:*port*/gc/admin, and click **Project Areas** > **Active Project Areas** on the banner and click on the particular project. Please navigate to *Associations* and press *Add...*. Now, choose the pure::variants CM provider and select one of your pure::variants projects.

Figure 17. Jazz - Associate a pure::variants project
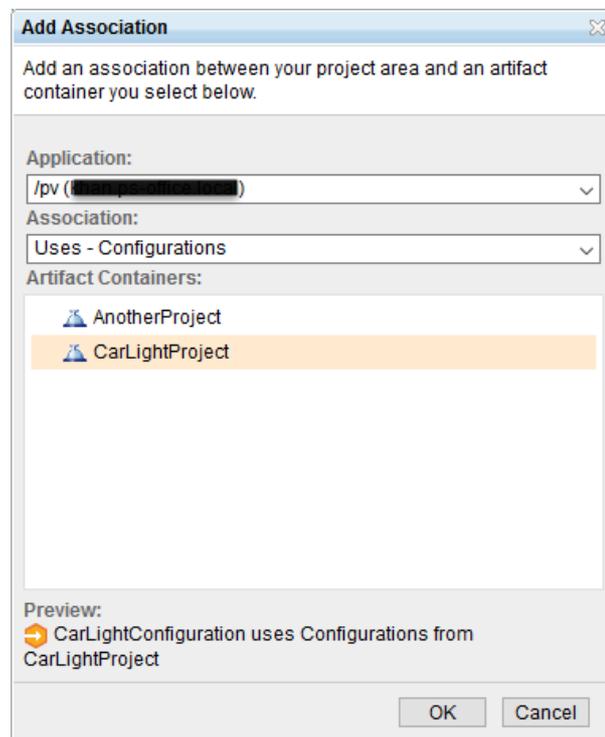
Please make sure to save your association, by pressing *Save* in the project area.

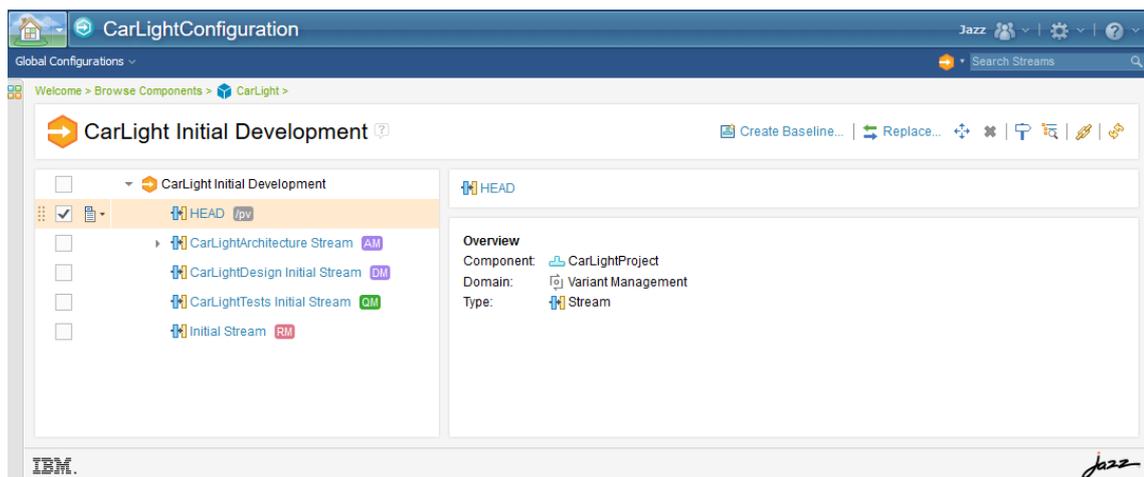## 6.3. Association of pure::variants configuration to GCM configuration

To associate a pure::variants revision, you need to navigate to a GCM configuration, first. Now, you can add the pure::variants revision as contribution to the GCM configuration, by pressing **Add Configuration**(✚ Add Configurations...). The configuration selector dialog should show up, so you can choose **Variant Management** to get the selector dialog of pure::variants configurations (see Figure 18, "GCM - Configuration Selection Dialog").

Figure 18. GCM - Configuration Selection Dialog
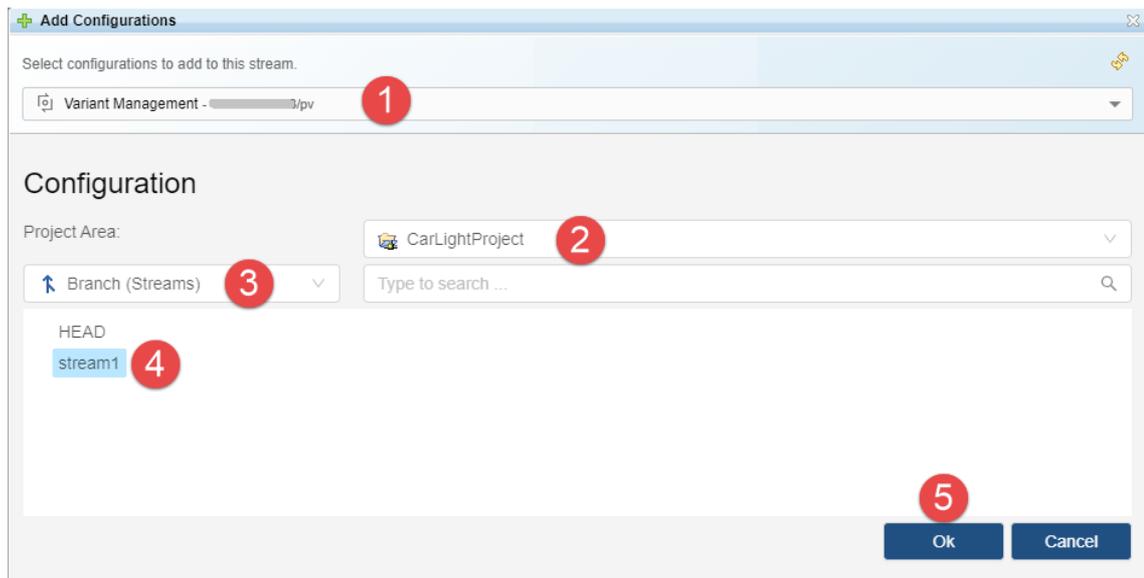
As a result, the selected pure::variants configuration should show up in the GCM configuration.

Figure 19. GCM - Configuration with the pure::variants configuration "HEAD"

6.4. Create a baseline of pure::variants configuration inside of GCM configuration

To create a baseline (or a version) of a pure::variants stream (or branch), you need to select the particular pure::variants stream and press **Create Baseline** (📘 Create Baseline...). In the dialog you can define any suffix for the baseline naming, see Figure 20, "GCM - Create Baseline Dialog". Additionally, you can decide to replace the stream with the then created baseline.

Figure 20. GCM - Create Baseline Dialog

7. Add traceability links to OSLC-capable Tools

The pure::variants features and models can be linked to the OSLC-capable tools like Jazz's RM and QM.

7.1. Prerequisites

In order to add pure::variant's traceability links in Jazz RM, the steps explained in Section 6, "Using the CM Provider" needs to be completed first. The last step Section 6.4, "Create a baseline of pure::variants configuration inside of GCM configuration" is optional and can be skipped.

7.2. Association of pure::variants project in RM project area

Navigate to the **Application Administration** of the Jazz RM application. Navigate further to the project area management page of a RM project area. In the **Associations** section, click the **Add** link to open the **Add Association** dialog as shown in the figure Figure 21, "RM - Add Association".

Figure 21. RM - Add Association

Select **PV** from the **Application** drop down list. In the **Association** drop down list, select **Provides - Related Requirements** if not already selected. Select a pure::variants project from the **Artifact Containers** list and press **OK**. Click **Save** button on the top right corner of the page to save the **Project Area** settings. Click the **Explore Project** to open the project area.

## 7.3. Adding the pure::variants Links in RM

Navigate to the RM project area with which you have associated the pure::variants project. Navigate to the Artifacts page and then open an RM **Module**. From the top right corner of the RM page, in the **Configuration Context**, make sure that the correct GC Configuration is selected in which you have added the pure::variants configuration.

In the RM Module, configure the References column to be visible in the list view. In a Requirement, in the **References** column, click the **Edit** icon and click **Add Link** as shown in the figure Figure 22, "RM - Add pure::variants Link".

Figure 22. RM - Add pure::variants Link
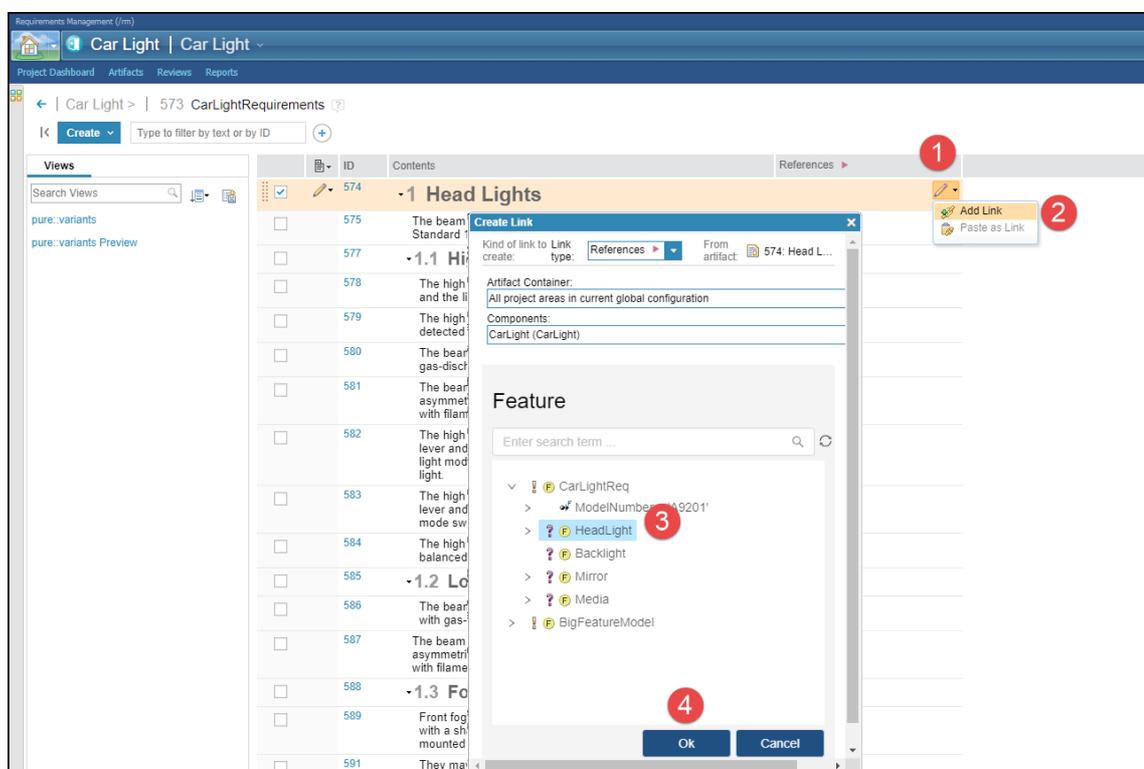
A **Create Link** dialog appears, select a feature and click **OK**. The dialog will close and the pure::variants feature's name will appear in the **References** column. If the pure::variants feature's name does not appear automatically then refresh the whole RM page. Hover over the link title in the References column in order to see the pure::variants artifact's preview as shown in the figure Figure 23, "RM, Preview of the Linked Artifact".

Figure 23. RM, Preview of the Linked Artifact
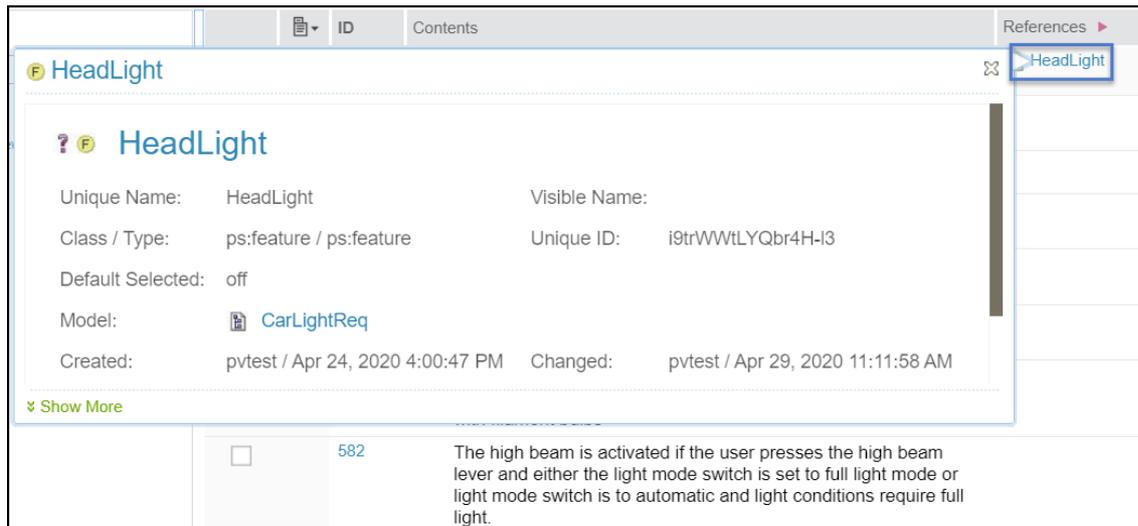
8. Troubleshooting

8.1. Internet Explorer Problem

If the Internet Explorer doesn't show the setup wizard after successful login then the user needs to set the 'Compatibility Settings' of the Internet Explorer. Go to Settings and open 'Compatibility View Settings', uncheck the 'Display intranet sites in Compatibility View' and restart the browser as shown in figure Figure 24, "Internet Explorer, Compatibility Settings".

Figure 24. Internet Explorer, Compatibility Settings
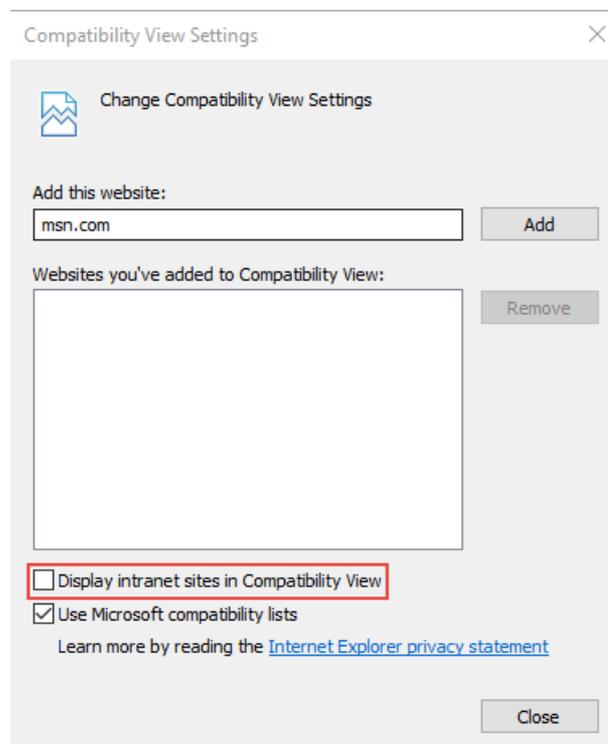
If the above solution doesn't resolve the problem then press F12 and open the 'Developers Tools' as shown in figure Figure 25, "Internet Explorer, Developer Tools". If the version number shown in the right corner is not 11, click the version number and then select 11 from the drop down list and refresh the setup page.

Figure 25. Internet Explorer, Developer Tools
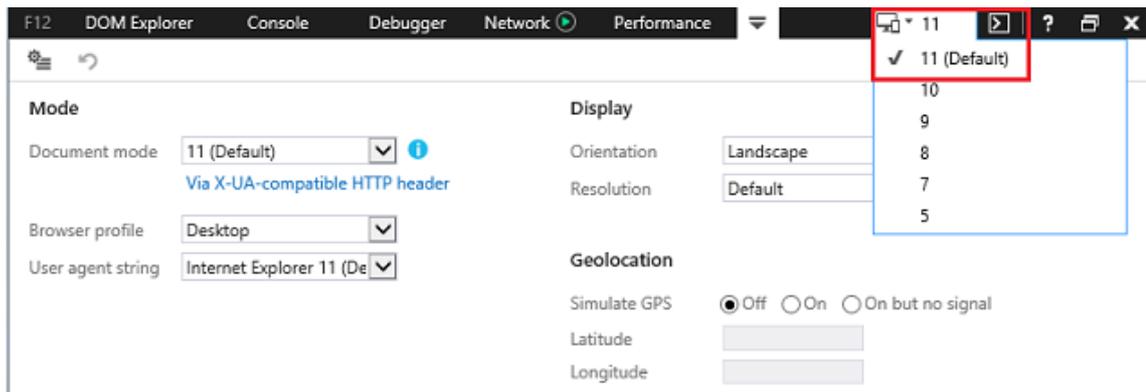
8.2. SSL Handshake Failure

Upon opening the 'Add Configurations' dialog from Jazz Global Configuration application and selecting 'Variant Management' an SSLHandShakeException is shown. If the error text says that 'unable to find valid certification path to requested target', it means that pure::variants web components is unable to verify the certification path of the certificate provided by OpenID Connect (OIDC) server. One of the reasons could be that OIDC server is using a self signed certificate.

In order to resolve this issue, please make sure that the certificate used by OIDC server is known to the pure::variants web components.

8.3. Too many Log-ins required

If the user experiences too many log-ins, when navigating to pure::variants configurations inside of Global Configuration application, it might be related to an overlapping of session cookie names. Please ensure to use a unique session cookie name to avoid this overlapping.

8.4. Enable Web Components logging

In case pure::variants Web Components is not working as expected, logging can be enabled to see the probable cause.

1. Stop the pure::variants Web Components.

2. Open the **pv.properties** file residing in the **PV_CONFIG** directory.

3. Add the following line at the end of the file:

```
com.ps.consul.oslc.serviceprovider.pv.log4j.properties=log4j.properties
```

4. Create a file named **log4j.properties** in the **PV_CONFIG** directory and add the following content to the file.

```
# Root logger option
log4j.rootLogger=DEBUG, stdout, stderr

# only warning (and more severe) logs from all packages, starting with "org" (e.g.
 org.eclipse.util)
log4j.logger.org=INFO

# Direct log messages to stdout
log4j.appender.stdout=org.apache.log4j.ConsoleAppender
log4j.appender.stdout.Target=System.out
log4j.appender.stdout.layout=org.apache.log4j.PatternLayout
log4j.appender.stdout.layout.ConversionPattern=%d\{yyyy-MM-dd HH:mm:ss} %-5p %c:%L - %m%n
log4j.appender.stdout.filter.filter1=org.apache.log4j.varia.LevelRangeFilter
log4j.appender.stdout.filter.filter1.levelMin=ALL
```

```
log4j.appender.stdout.filter.filter1.levelMax=WARN

# Direct error messages to stderr
log4j.appender.stderr=org.apache.log4j.ConsoleAppender
log4j.appender.stderr.Threshold=ERROR
log4j.appender.stderr.Target=System.err
log4j.appender.stderr.layout=org.apache.log4j.PatternLayout
log4j.appender.stderr.layout.ConversionPattern=%d\{yyyy-MM-dd HH:mm:ss} %-5p %c:%L - %m%n
```

5. Start the pure::variants Web Components again.

Note

For more information on log configuration, please see the official documentation.

8.5. Authentication failing in SSO mode due to case mismatch of User Id

The authentication in Web Components is by default case sensitive. The authentication fails if the User Ids stored in OIDC provider are not identical to the User Ids stored in the pure::variants model server. In order to enable the case insensitive User Id matching, stop the Web Components. Append the following line in the pv.properties.

```
com.ps.consul.oslc.serviceprovider.use.case.insensitive.user.id.matching=true
```

Start the Web Components again.

8.6. Authentication failing in SSO mode due to incompatible OIDC scopes

By defualt the Web Components is configured with following OIDC scopes:

```
openid profile email general
```

If one of the above mentioned scopes is not provided by your OIDC provider then the Web Components fail during the authentication. In order to configure the scopes provided by your OIDC provider, please stop the web-server hosting Web Components. Open the pv.properties residing in PV_CONFIG directory in a text editor. Append a property named com.ps.consul.oslc.serviceprovider.sso.scopes in the file. Value of this property is a space separated list of available scopes. As an example if 'openid' and 'profile' scopes are provided by your OIDC provider then the following line could be appended in the pv.properties:

```
com.ps.consul.oslc.serviceprovider.sso.scopes=openid profile
```