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Intergraph Smart Data Validator

Troubleshooting Guide

Version 2018 (3.0)
September 2017

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Contents

Preface

This document contains information about troubleshooting the installation and configuration of Intergraph Smart® Data Validator (SDV). This document is intended for system administrators and users who are installing and setting up Smart Data Validator.

Smart Data Validator Product Documentation

Smart Data Validator documentation is available as Help and as PDF files. To view printable guides for Smart Data Validator, click **Help > Printable Guides** in the software.

Hexagon PPM gives its customers permission to print as many copies of the delivered PDF files as they need for their non-commercial use. Do not print the PDF files for resale or redistribution.

Release Bulletin

- *Smart Data Validator Release Bulletin* - Provides information on Smart Data Validator features for the current release.

Installation and Overviews

- *Smart Data Validator Installation and Setup Guide* - Provides installation and setup instructions for Smart Data Validator.
- *Smart Data Validator Getting Started Guide* - Provides overview information to help users know about the Smart Data Validator functionalities.

Administration User's Guide

- *Smart Data Validator Administration User's Guide* - Provides instructions for administering the configuration of Smart Data Validator.

Job Management User's Guide

- *Smart Data Validator Job Management User's Guide* - Provides instructions on the management of jobs that process imported data to a specified workflow and export that data to a target system or target systems.

Customization Guide

- *Smart Data Validator Customization Guide* - Provides instructions for creating and modifying the various areas of customization possible in Smart Data Validator and details on provided samples included with the release.

Troubleshooting Guide

- *Smart Data Validator Troubleshooting Guide* - Provides information about troubleshooting the installation and configuration of Smart Data Validator.

Customer Support

For the latest support information for this product, use a web browser to connect to *http://hexagonppm.com/ppm-support* (*http://hexagonppm.com/ppm-support*). Also, you can submit any documentation comments or suggestions you might have on our support site.

To access the Technical User Forum, go to

http://www.intergraph.com/ppm/customers/tuf/foundation.aspx
(*http://www.intergraph.com/ppm/customers/tuf/foundation.aspx*)

SECTION 1

Timeout Messages

The topics in this section provide useful information for addressing timeout issues that may occur when processing large data sets and or performing other long running tasks in Smart Data Validator.

NOTE To reduce timeout issues and to take advantage of parallel processing, it is recommended that the count of the worker processes on the respective site application pools in the staging and the target systems be increased, depending on the system configuration. For example, for a computer with a 16-Core processor, you can use four worker processes on the site application pool.

Thread processing a large job was aborted

Problem

Exporting large data sets can result in thread abort errors if the **httpRuntime executionTimeout** setting in the web.config file on the target system site is set too low to allow the export of the data to be completed.

Solution

The parameter **httpRuntime executionTimeout** in the web.config file specifies the time after which Internet Information Services (IIS) closes and the export stops. To allow more time for the export to be completed, modify the **httpRuntime executionTimeout** value in the web.config file on the staging system and target system sites. You can increase the value to a maximum of 108000 seconds (30 hours), depending on factors such as the system's processor speed, network speed, and so on.

In the following example, the parameter is set to 36000 seconds (which equals ten hours).

```
 <system.web>
    <!-- The upload limit is currently set to 400MB, this can be changed
as necessary -->
    <httpRuntime executionTimeout="36000" maxRequestLength="400000"/>
```

NOTE The web.config file is located at *[installation location]*\SmartPlant Foundation 2016 Server Files\Web_Sites\SDV.

Socket connection aborted

Problem

Exporting large data sets can result in timeout, network, or processing error messages if the **receiveTimeout** setting in the web.config file on the target system site is set too low to allow the export of the data to be completed.

Solution

The **receiveTimeout** setting specifies how long the Internet Information Services (IIS) will remain open to receive files before closing the export.

In the following example, the **receiveTimeout** setting in the **netTcpBindingNoSecurity** section binding was increased from the default 10 minutes to 59 minutes to allow more time for exporting a large dataset. If required, you can increase this value depending on factors such as the system's processor speed, network speed, and so on.

```
    <binding name="netTcpBindingNoSecurity" closeTimeout="00:10:00"
openTimeout="00:10:00" receiveTimeout="00:59:00" sendTimeout="00:10:00"
transactionFlow="false" transferMode="Buffered"
transactionProtocol="OleTransactions"
hostNameComparisonMode="StrongWildcard" maxBufferPoolSize="2147483647"
maxBufferSize="2147483647" maxConnections="100"
maxReceivedMessageSize="2147483647">          <readerQuotas
maxDepth="2147483647" maxStringContentLength="2147483647"
maxArrayLength="2147483647" maxBytesPerRead="2147483647"
maxNameTableCharCount="2147483647"/>

          <security mode="None"/>

        </binding>
```

FileService timeout

You could encounter these possible problems with a FileService timeout.

File transfer from the client to file service exceeds timeout

Problem

When submitting a job in Smart Data Validator Job Management, the file transfer from the client to the file service exceeds the timeout.

Solution

Increase the time allowed for file transfer before timing out value of the **FileServiceTimeout** setting, which can be found in a file called Desktop_Client.exe.config located in the install directory for SmartPlant® Foundation:

```
<drive>:\Program Files
(x86)\SmartPlant\Foundation\2015\SPFDesktopClient\CurrentVersion
```

For example:

```
<add key="FileServiceTimeout" value="999999" />
```

TIPS

- The setting is in seconds.
- Because this is a client side setting, you must logout and log back in again for the changes to be applied.

Unable to connect to file service

Error message

Unable to connect to file service.

Solution

You might encounter this error when exporting documents with attached files using Smart Data Validator Job Management.

1. Change all the timeout settings as follows in the web.config file located in the target system site:

Name of the setting	**Value**
closeTimeout	04:00:00 (in hours)
openTimeout	04:00:00 (in hours)
receiveTimeout	04:00:00 (in hours)
sendTimeout	04:00:00 (in hours)
httpRuntime executionTimeout	108000 (in seconds)

2. Change the **FileServiceTimeout** setting in the SmartPlant Foundation Server Manager **Site Settings** node to 300000 seconds.
3. Set the **Idle Time-out (minutes)** option to zero for the site's FileService application pool in the target system.

Database timeout for Oracle or SQL Server

Error Message

SPF.Server.SPFException: Failed to Execute Stored Procedure ---> Oracle.DataAccess.Client.OracleException: ORA-01013: user requested cancel of current operation

or

ORA-01013: user requested cancel of current operation

Problem

When performing exports of large data sets, such as data sets with 250,000 objects or more, the database timeout setting for the Smart Data Validator site may need to be increased so that your specific SmartPlant Foundation system does not close the Oracle or SQL connection.

Solution

Use the following operation to increase the timeout value:

1. In Server Manager, expand your Smart Data Validator site node, and select the **Settings** node.
2. Double-click the **DBCommandTimeoutSeconds** option, and increase the value provided. For example, 28800 seconds. This value can be increased up to a maximum of 108000 seconds (30 hours), depending on factors such as the system's processor speed, network speed, and so on.

For more information on the timeout setting to use, contact your system administrator.

Scheduled tasks timeout

Problem

When submitting tasks using the scheduler, the following message displays.

```
"The operation has timed out. Increasing the configuration
setting:'InternalRequestTimeout' may avoid this issue"
```

Some internal web requests that create the scheduled tasks are failing after reaching the time out limit, but the underlying thread carries on processing.

Solution

You can avoid internal web request operations, such as the scheduled tasks reaching the timeout on the server so they cannot complete, you can increase the default internal request timeout setting in the property **InternalRequestTimeout** to 28800000 milliseconds (8 hours). The setting is located in the SmartPlant Foundation Server Manager **Site Settings** node.

```
<add key="InternalRequestTimeout" value="28800000">
```

NOTE The value set for the **InternalRequestTimeout** property can be further increased for very large loads.

For more information, see the *SmartPlant Foundation Server Manager Guide*.

Cannot upload a large file near 2GB limit

Problem

Microsoft Internet Information Services (IIS) imposes a technical restriction on the size of files that can be uploaded to a site. The maximum file size that can be uploaded is 2GB. When you try to upload a large file near that limit, you receive one of the following errors:

```
"The underlying connection was closed. An unexpected error occurred on a receive. Increasing the configuration setting InternalRequestTimeout may avoid this issue."
```

Or

```
"Task failed due to unexpected server failure"
```

Or

```
"Could not upload file to server ---> System.Net.WebException: The remote server returned an error: (500) Internal Server Error"
```

Solution

To ensure that your system can upload large files to the site up to the 2GB limit:

1. Update the **maxRequestLength** setting in your **File Service web.config** file to 2000000000 in value.

   ```
   <httpRuntime executionTimeout="18000" maxRequestLength="2000000000"/>
   ```

2. In the **SPFAppServer.config** fie, increase the **VTLExportFileUploadTimeout** and **InternalRequestTimeout** values to 28800000. This file is located in the SmartPlant Foundation Server Manager **Site Settings** node for both the Smart Data Validator staging and target system sites.

   ```
   <add key="InternalRequestTimeout" value="28800000"/>
   <add key="FileServiceTimeout" value="999999"/>
   <add key="VTLExportFileUploadTimeout" value="28800000"/>
   ```

Handling session timeout

Problem

Every twenty minutes, the session times out.

Solution

You should set the **Idle Time-out (minutes)** option to zero for the site application pool in the staging system and the target system.

SECTION 2

Export Issues

The following topics provide troubleshooting for issues that may arise during the export process.

Export stuck at stage 2

Problem

Export process may hang at the second stage.

Solution

This issue is most frequently encountered when using a target system for the first time. It can be resolved by loading the required Smart Data Validator scheduler and tasks using the SmartPlant Foundation Desktop Client loader.

```
The load files for installing this scheduler are available in the
installation package located at: <drive>:\Program Files
(x86)\Smart\SDV\2018\Model or the equivalent installation path selected
for your system.
```

After the scheduler and tasks have been loaded successfully, the configuration service for the target system site needs to be recycled to pick up the new scheduler and start polling. Normally you need to recycle the **CacheSvc**, **ConfigSvc**, and **Server** application pools for the site using Internet Information Services (IIS) manager.

TIP Tracing is available to help pinpoint the issue. This can be turned on in SmartPlant Server Manager. We recommend that the **ConfigService** general switch be set to **Verbose**, then you can look under the TraceLog directory on your site and find the ConfigServiceTraceRolling.log. The trace log is normally located at:

```
<drive>:\SmartPlant Foundation 2014 Server Files\TraceLogs\SiteName.
```

Error when file object is exported before the object to which it is attached

Problem

When exporting files, an error occurs when you attempt to export a file object before you export the object to which it is attached, such as when you set the export object weight to export a design file before the design document that is related to the file.

```
'Object reference not set to the instance of an object'.
```

Solution

This issue occurs because the file exists in the database before the revision to which it should be attached. Therefore, you must set the export object weighting to export a file object before exporting the file to which it is attached. For example, you must set the export object weight so that design document will be exported before the design file.

TIP You can rearrange the export object weight in the **Stage to Target Object Map** using the Smart Data Validator Administration Module. For more information on setting the export object weightings, see *Define stage object to target object mappings* in the *Smart Data Validator Administration User's Guide*.

SECTION 3

Job Processing Issues

The following topics provide troubleshooting for issues that may arise when jobs are processed in Smart Data Validator Job Management.

Processing state after server failure

Problem

After a server failure, caused by a database or server application pool stopping, a job task is left in a processing state, even though it is not being processed through Smart Data Validator Job Management.

Solution

When the server or database connection failure has been corrected and the server is brought back on-line, the server automatically searches for any tasks that have been left in a processing state. The server then sets the processing state to **Failed** and displays an error message in the **Summary** tab.

To resolve the problem, you must rerun the complete job through Smart Data Validator Job Management. The tasks and jobs are set to the **Failed** state to avoid any issues restarting a job that was being processed after a server failure.

Summary shows a different number of implicit deleted objects

Problem

When submitting a job in Smart Data Validator Job Management, the implicit delete summary and the actual implicit delete report show different numbers of implicit deleted objects.

Solution

The counts can differ between the implicit delete summary and the actual implicit delete report if the underlying dataset changes, such as:

- When a number of new objects have been loaded in the target system between the report being generated and the report being approved. Ensure you always approve an implicit delete report before loading any new objects.
- When the implicit delete fails due to a database connection issue and the process continues after reconnection.

  For example, each implicit delete process is split into batches. If the second batch fails due to a database connection failure and then continues on reconnection, the first batch may have removed some of the items from the second batch due to cascading deletes.

Therefore, the number of items in the implicit deleted summary shows fewer items than the actual implicit delete report count.

- When two implicit delete rules have the same items flagged. When implicit delete is processed, the items are only deleted once.

  For example, the first rule deletes items by plant (all tags in plant) and the second rule deletes items by class (all centrifugal pump tags). When implicit delete is processed, the second rule would show less tags in the implicit delete summary as the first rule deleted the items.

TIP Always refer to the implicit delete report for the correct numbers of implicit deleted objects.

Job fails if Windows authentication is enabled

Error message

"The HTTP request is unauthorized with client authentication scheme 'Anonymous'. The authentication header received from the server was 'Negotiate,NTLM'".

Problem

Upon running a job, Smart Data Validator fails to import data into the staging area if Windows authentication is enabled.

Solution

Configure the target system to use the net.tcp protocol instead of the http protocol. For example, when creating a target system in the **Create New Target System** dialog box in Smart Data Validator Administration, type the target system URL in the **Target System URL** text box as `net.tcp://[Target System Name]/[Target Site Name]Server`.

Net.tcp has improved performance features if the usage is within the firewall on the same network. It is recommended that users use this protocol.

Unable to create a job

Error message

"You do not have access to any of the target systems or they are disabled".

Problem

You cannot create a job using the **Create New Job** wizard in Smart Data Validator Job Management.

Reason	Solution
You have not configured the new target system or job definition with the correct access groups.	Configure the target system in Smart Data Validator Administration using the **Create New Target System** dialog box, and move the **VTLDataController** or **VTLDataMapper** access group to the **Selected Access Groups** list. Configure the job definition in Smart Data Validator Administration using the **Create New Job Definition** dialog box, and move the **VTLDataController** or **VTLDataMapper** access group to the **Selected Access Groups** list.
You have not created a target system with a valid URL.	Type the correct target system URL in the **Create New Target System** dialog box in Smart Data Validator Administration.
You have not selected the **Is Enabled** option.	Select the **Is Enabled** option in the **Create New Target System** dialog box in Smart Data Validator Administration.

Object weights have not been configured correctly

Error message

"`Unable to continue as one or more stage to target object mappings have a zero weighting. Please ensure weightings are correctly configured`".

Problem

Job cannot be created using the **Create New Job** wizard.

Solution

Ensure that the object weights are set correctly for all stage to target mappings and that none of the weights is set to zero in the **Export Mappings** page in Smart Data Validator Administration.

Smart Data Validator modules are not displayed when SmartPlant Dashboard is launched

Problem

When the SmartPlant Dashboard is launched, the Smart Data Validator Administration and the Smart Data Validator Job Management modules are not displayed.

Solution

Ensure that the VTLDataMapper and the VTLDataController roles are selected for the login user in SmartPlant Foundation Desktop Client.

SECTION 4

Stored Procedure Issues

The following topics provide troubleshooting information for issues that result due to failed stored procedures.

Import fails because the system failed to execute stored procedures

Error Message

Import fails with the error message "Failed to Execute Stored Procedure". The trace log has the following error:

```
Error^Loader^ProcessID:6676^ThreadID:7316^BaseVTLProcessStep^Execute
^ 2014/09/30 12:03:54^SPF.Server.SPFException: Failed to Execute Stored
Procedure ---> Oracle.DataAccess.Client.OracleException: ORA-01031:
insufficient privileges

ORA-06512: at "TC_VTL_DATA.VCT", line 12

ORA-06512: at line 1
```

Solution

Grant **create table** access to the Smart Data Validator user for the target system database.

For example, when using an Oracle database, connect to the database as the system administrator and execute the following SQL statement:

```
grant create table to vtl_data;
```

Failed to execute stored procedure

For more information about troubleshooting failed stored procedures, see *Stored Procedure Diagnostics* (on page 20).

NOTE We recommend consulting the trace log for details. The trace log is normally located at `<drive>:\SmartPlant Foundation 2014 Server Files\TraceLogs\SiteName` and view the **SPFServerTraceRolling.log**.

Use the table below to determine which site's trace log to review:

When the error occurs	Site on which to review the trace file
In job creation	Staging site
During initial stage of export	Target system site

When the error occurs	Site on which to review the trace file
During job deletion	Stage and target system sites
During completion of the job	Stage and target system sites

Below is a sample of the content you will find in the trace file:

```
Error^Loader^ProcessID:2496^ThreadID:5636^BaseVTLProcessStep^Execute
^ 2014/09/19 14:25:44^SPF.Server.SPFException: Failed to Execute Stored
Procedure ---> Oracle.DataAccess.Client.OracleException: ORA-00959:
tablespace 'VTL_DATASPACEEEEEE' does not exist

ORA-06512: at "VTL_DATA.VCT", line 12

ORA-06512: at line 1

   at
Oracle.DataAccess.Client.OracleException.HandleErrorHelper(Int32
errCode, OracleConnection conn, IntPtr opsErrCtx, OpoSqlValCtx*
pOpoSqlValCtx, Object src, String procedure, Boolean bCheck)

   at Oracle.DataAccess.Client.OracleCommand.ExecuteNonQuery()

   at
SPF.Common.DataAccessLayer.ProviderClasses.OracleDBProvider.ExecuteS
toredProcedure(String pstrStoredProcName, IEnumerable`1
pcolParameters) in C:\Products\SPF40\Source\Common
Projects\DataAccessLayer\SPF\Common\DataAccessLayer\ProviderClasses\
Instance\OracleDBProvider.vb:line 110

   --- End of inner exception stack trace ---

   at
SPF.Common.DataAccessLayer.ProviderClasses.OracleDBProvider.ExecuteS
toredProcedure(String pstrStoredProcName, IEnumerable`1
pcolParameters) in C:\Products\SPF40\Source\Common
Projects\DataAccessLayer\SPF\Common\DataAccessLayer\ProviderClasses\
Instance\OracleDBProvider.vb:line 123 at
Intergraph.VTL.Server.Services.Import.Classes.Classes.Database.Store
dProcedureExecution.CreateTablesForImport(IDBProvider
pobjIDBProvider, IJob pobjJob, Int32 lobjTotalRowsToBeProcessed)

   at
Intergraph.VTL.Server.Services.Import.Classes.Classes.Import.VTLJobI
mportProcessor.ProcessImportJob(IJob pobjJob)

   at
Intergraph.VTL.Server.Services.Import.Classes.Classes.Import.VTLJobI
mportProcessor.ProcessImportJob(IVTLJob pobjJob)

   at
Intergraph.VTL.Server.Services.Import.Classes.Classes.Import.VTLImpo
rt.Execute(IVTLJob pobjVTLJob, ISPFRequestContextService
pobjRequestContext)

   at
SPF.Server.Components.Workflow.ProcessSteps.Import.StepExecution()

   at BaseVTLProcessStep.Execute()
```

Stored Procedure Diagnostics

Stored procedure diagnostics are available for both the Smart Data Validator staging and target system stored procedures. APIs delivered with the service validate each of the stored procedures and report on their status.

Use a web browser to enter either of the following addresses:

```
http://HOST_MACHINE/SERVERURL/VTLJobManagementRESTService.svc/JSON/TestStagingStoredProcedures
```

```
http://HOST_MACHINE/SERVERURL/VTLTargetSystemRESTAdapter.svc/JSON/TestTargetSystemStoredProcedures
```

Glossary

actions

An indicator of what Smart Data Validator will do with the object data in the validation and export process, such as update and delete. These kinds of operations vary, depending on whether the column header is mapped to an object, a property, or a relationship.

auto-generate

An option to automatically generate validation rule definitions, export mappings, and rules, based on actions. The validation rules are used to validate imported and exported data and the export mappings ensure that the column headers match the objects and properties found in the target system.

brownfield

An existing project or area that has constraints imposed due to prior work and contains existing data.

cardinality

A setting on a relationship definition that specifies how many instances of a relationship are valid for the objects at the end of the relationship. For example, a tag cannot exist without a primary classification relationship, and also cannot have more than one primary classification.

column headers

They are used in Smart Data Validator as the basis for mapping new data in columns to match an existing structured database.

configuration tree

A representation in a tree list, which may include plant, areas, units, and projects, that indicates the structure in which the data is stored in SmartPlant Foundation.

CSV file

A comma-separated value (CSV) file, which stores tabular data in plain-text format.

data files

A job can process multiple input files and therefore use multiple input mappings. Import mappings are defined on the job definition.

export mapping

The process that maps the imported objects, classes, and properties to the existing structure of the objects, classes, and properties found in a target system.

export process

The Export process uses a defined mapping, based on the structure of the target system, to manage the loading of the data into the final destination system.

function

A computed functional code run at import, where the output value of a function depends only on the arguments that are input to the function.

greenfield

A project or area that is completely new and does not have any constraints imposed by prior work or existing data.

implicit delete

A component process used by Smart Data Validator, where a user can decide to implicitly delete or terminate a group of objects from the target system, because they are no longer in the supplied input data submission.

import definition

A defined mapping of imported file objects, properties, and relationships from existing column headers to objects, properties, and relationships found in the staging area database during the import process.

import process

The process that manages the import of data in the data file or files to the staging area database using a defined mapping.

inverted CSV file

See *raw attribute format* (on page 23).

job

A defined object that carries information for the progress of data through a selected workflow in Smart Data Validator Job Management, such as when data is imported, validated, and exported to a target system.

job definition

A combined set of components configured for the import, validation, and export of data to a specific target system or multiple target systems.

mapping

A defined process where data is correlated from existing column headers for the objects, properties, and relationships in the imported data to the correct column headers for the objects, properties, and relationships found in another database, such as the staging database or target system. For more information, see *import definition* (on page 22) and *export mapping* (on page 21).

object weighting

A process that emphasizes the contribution of an object in a set of data to a final effect or result, thereby deciding its weight in the analysis. This affects the order in which the data is exported, helping to achieve the desired result.

query definition

A comma separated list of properties that can be entered in the **Target System Query Definition** field, which identifies the object in the target system along with the class definition. These properties can be retrieved by navigating the relationships.

raw attribute format

Where the data in a CSV file is organized in a vertical format and each row contains properties and relationships for the same object. The data in a standard CSV file is typically organized horizontally. Also referred to as an inverted CSV file.

relationship definition

A defining object that relates items together in a database which are stored in different tables.

relationship property

A property on the link interface which is part of the relationship definition. The link interface allows properties to be created on the relationship itself.

rules

A logical formula used to evaluate and verify whether the data in an imported record meets the requirements and data standards specified for the target database system.

rulesets

A combined set of rules that can be run as a set during job processing.

SDV

Smart Data Validator, the software used for importing data into the staging area, validating the data, and/or exporting data to a target system.

staging

The staging or staging area or staging database used is the first part of a combined set of processes in Smart Data Validator, where imported data is held and validated before being exported to a Smart Data Validator site.

target system

The system or database used as the destination for exported data that has been validated before export. It is also used as the basis for creating import mappings, implicit delete, and validation rules.

terminate

The action of changing an object's status to terminated without removing it from the database. Terminating objects, instead of deleting them, allows you to continue to see the history of the object after termination.

UID

Unique Identifier is used to uniquely identify an object within a system. UID definitions must be set on all objects that Smart Data Validator exports from the staging area if the unique key or query definition is left blank. The staging area UID definitions must match the UID definitions in the target system.

unique key

A set of values guaranteed to be unique for each object in a relation, and can be used to identify objects in the target system.

URL

A Uniform resource locator is a web address that contains a specific character string that references a resource.

validation process

A process that evaluates the imported data against a defined set of rules to ensure the validity of the data.

validation rule

A logical formula used to evaluate the imported data in one or more fields to determine whether it matches the existing criteria and hierarchy found in the target system database. There are two types of validation rules:

1. Rules that determine if the data is valid for the target system schema (these rules can be autogenerated.
2. Rules that determine if the data meets specific business criteria, such as naming format.

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