Interstage

FUJITSU

Interstage
Business Process Manager
V11.1

ARIS Process Performance Manager Integration Guide

Table of Contents

About this Manual

This manual describes how to install and configure the PPM adapter and the PPM autoConfig tool.

Intended Audience

This manual is intended for system administrators. It assumes that the reader has a working knowledge of

- Interstage Business Process Manager administration
- ARIS Process Performance Manager administration

This Manual Contains

Here is a list of what is in this manual:

Chapter	Title	Description
1	Introduction	Overview of the function mode of PPM adapter and the PPM autoConfig tool.
2	Installing PPM adapter and PPM autoConfig	Instructions for installing the PPM adapter and the PPM autoConfig tool.
3	Configuring the PPM adapter	Instructions for the configuration of the PPM adapter.
4	Configuring PPM autoConfig	Instructions for the configuration of the PPM autoConfig tool.
5	Integrating Interstage BPM and ARIS PPM	Describes how to use Interstage BPM and ARIS PPM for optimizing a business process.
6	Exporting Workflow Elements	Shows how workflow elements from Interstage BPM are mapped to ARIS PPM.
7	Exporting User Defined Attributes	Shows how User Defined Attributes from Interstage BPM are mapped to ARIS PPM.
8	Example: Purchase Order	Describes on basis of an example how to use Interstage BPM and ARIS PPM.
Appendix A	ppmAdapter.properties File	Description of the parameters in the `ppmAdapter.properties` file.
Appendix B	ppmAutoConfig.properties File	Description of the parameters in the `ppmAutoConfig.properties` file.

Typographical Conventions

The following conventions are used throughout this manual:

Example	Meaning
command	Text, which you are required to type at a command line, is identified by Courier font.
screen text	Text, which is visible in the user interface, is **bold**.
Reference	Reference material is in *italics*.
Parameter	A command parameter is identified by Courier font.

Other References

The following references for Interstage Business Process Manager are also available:

• *Release Notes*

Contains an overview of Interstage Business Process Manager, installation tips, and late-breaking information that could not make it into the manuals.

• *Interstage Business Process Manager Server Installation Guide*

Describes software and hardware requirements for Interstage Business Process Manager Server, and how to install Interstage Business Process Manager Server.

• *Interstage Business Process Manager Console Installation Guide*

Explains how to install the Interstage Business Process Manager Console.

• *Interstage Business Process Manager Server Administration Guide*

Explains how to configure and administrate Interstage Business Process Manager Server. This guide also describes the configuration parameters of the Interstage BPM Server.

• *Interstage Business Process Manager Developer's Guide*

Describes how to use the Interstage Business Process Manager API to customize and extend Interstage BPM to fit the unique needs of your organization.

• *Interstage Business Process Manager Studio User's Guide*

Explains how to model processes using the Interstage Business Process Manager Studio.

• *Interstage Business Process Manager User's Guide*

Explains how to use the Interstage Business Process Manager Console user interface.

• *API Javadoc*

This HTML documentation provides the API and syntax of the packages, interfaces and classes for developing custom applications or embedding Interstage Business Process Manager into other products.

The following references for ARIS Process Performance Manager are also available:

• *ARIS Process Performance Manager Platform Matrix 4.1*
• *ARIS Process Performance Manager 4.1 Installation Guide*
• *ARIS Process Performance Manager Process Analysis Quick Start Guide*
• *ARIS Process Performance Manager Customizing Technical Reference*
• *ARIS Process Performance Manager Data Import Technical Reference*

- *ARIS Process Performance Manager System Architecture Technical Reference*
- *ARIS Process Performance Manager ARIS Toolset Interface User Guide*
- *ARIS Process Performance Manager Advanced Users User Guide*
- *ARIS Process Performance Manager ARIS PPM Database Connection User Guide*
- *ARIS Process Performance Manager LDAP Connection User Guide*
- *ARIS Process Performance Manager Performance Cockpit Customizing Guide*

Abbreviations

The products described in this manual are abbreviated as follows:
- "ARIS Process Performance Manager" is abbreviated as "ARIS PPM".
- "Interstage Business Process Manager" is abbreviated as "Interstage BPM".
- "Microsoft® Windows® 2000 Server" is abbreviated as "Windows® 2000 Server".
- "Microsoft® Windows Server® 2003" is abbreviated as "Windows Server® 2003".
- "Solaris ™ Operating System" is abbreviated as "Solaris".

1 Introduction

The PPM adapter and the PPM autoConfig tool are two software programs for transferring process data from Interstage Business Process Manager (Interstage BPM) to ARIS Process Performance Manager (ARIS PPM).

The following figure illustrates the interaction of the applications involved.
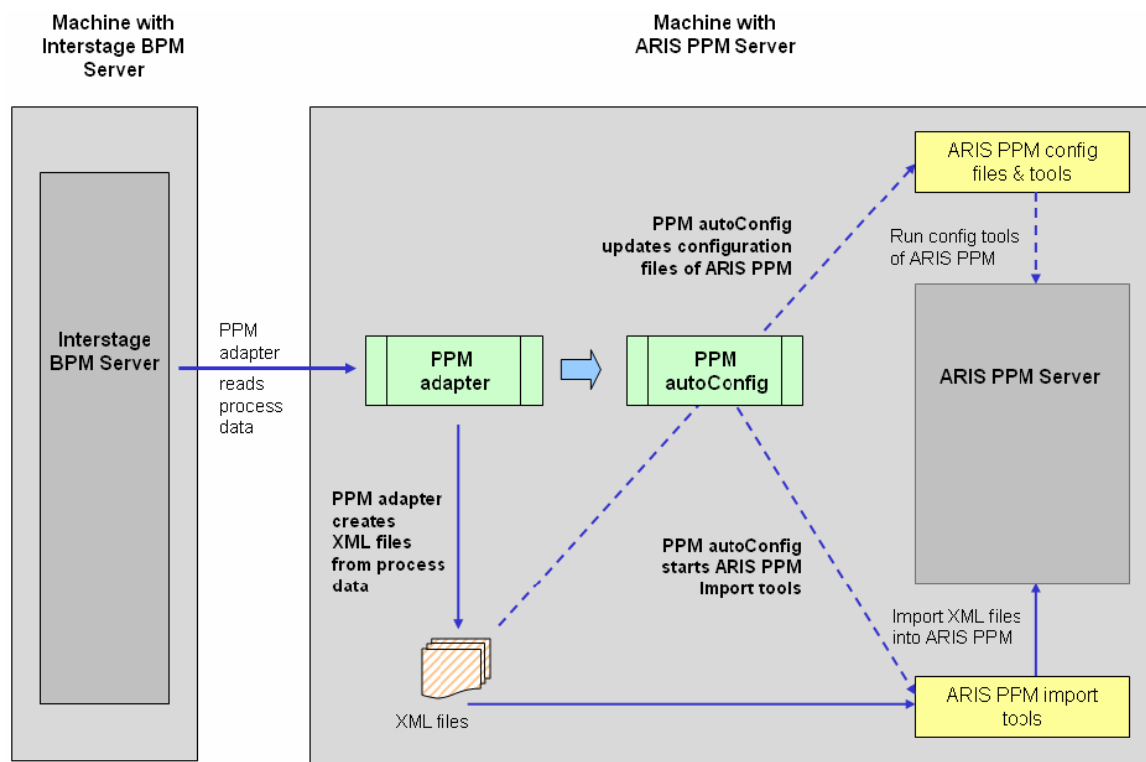
Figure 1: Component Overview for Recommended Installation

1.1 Interstage BPM Server

Interstage BPM is a server-based workflow engine with APIs (Application Programming Interfaces) for workflow application development. It empowers business groups to collaboratively plan, automate, track, and improve business processes.

The main component of the Interstage BPM Server is the workflow engine. The workflow engine enacts process instances started by users, negotiates interaction between users and other components and notifies users of changes in status within a process instance. A process instance is the individual execution of a process definition.

To each process definition there are default User Defined Attributes like the number of process instances or the status of a process instance. In addition a user can create specific User Defined Attributes, marked as "dimension" and "measure" in Interstage BPM, which are called "dimension" and "Key Performance Indicators" (KPI) in ARIS PPM. For each of those User Defined Attributes, the XML configuration files of the ARIS PPM Server must be reconfigured with the PPM autoConfig tool.

1.2   PPM adapter

The PPM adapter reads process data from the Interstage BPM Server and exports them into an XML file in a format that meets the requirements of ARIS PPM. The process data can contain all kinds of nodes, arrows and User Defined Attributes. Process instances that are called as sub- or chained processes are also exported with all their information.

Through a configuration file you can specify, which process instances are to be exported from the Interstage BPM Server. In addition you can define the start time, from which the modified process instances are to be exported. Refer to section *Defining Process Instances for the Export* on page 19 for details. Therefore an administrator can filter with the PPM adapter all desired process instances which are to be analyzed and evaluated in ARIS PPM.

Every process instance exported from Interstage BPM is called a graph in ARIS PPM.

1.3   PPM autoConfig

The program PPM autoConfig is a tool for automatically extending the ARIS PPM configuration files with regard to the process instances exported by the PPM adapter. Furthermore, the PPM autoConfig tool uses ARIS PPM tools to automatically import the XML files generated by the PPM adapter into ARIS PPM.

The configuration file of the PPM autoConfig tool defines where the XML configuration files of the ARIS PPM Server and the XML data files of the PPM adapter are located. Refer to chapter *Configuring PPM autoConfig* on page 28 for details. The PPM autoConfig tool is configured usually only once either automatically during the installation or manually after the installation. Refer to chapter *Installing PPM adapter and PPM autoConfig* on page 13 for details.

The PPM autoConfig tool is executed after the PPM adapter successfully accomplished the export of the process instances. The execution of the PPM autoConfig tool can be done manually or from within the PPM adapter.

> **Note:**   The Interstage BPM Server and the ARIS PPM Server do not need to be installed on the same machine. However, it is necessary that the PPM autoConfig tool is always installed on the same machine where ARIS PPM is installed, because the PPM autoConfig tool needs access to the ARIS PPM configuration files and tools.

1.4   ARIS PPM Server

ARIS PPM is a tool for analyzing, evaluating and monitoring business process data, after this ARIS PPM generates intuitive Management Dashboards that can be used for management reporting. ARIS PPM provides a clearly and precisely display of the current performance of business processes.

The ARIS PPM Server measures the performance of business processes based on runtime data. In order to be able to evaluate the process data from Interstage BPM the ARIS PPM Server has to be automatically configured by the XML files created by the PPM autoConfig tool. After the configuration of the ARIS PPM Server by the PPM autoConfig tool, the XML data files generated by the PPM adapter can be imported by the ARIS PPM import tools. After the import of the XML data files the user can analyze, evaluate and monitor the business processes.

1.5   ARIS PPM Configuration Files & Tools

The ARIS PPM Server is configured by XML files, which are located in the installation directory of ARIS PPM. To publish any changes made to the XML files, ARIS PPM provides a set of tools, which import the configuration data into the ARIS PPM Server. The PPM autoConfig tool executes the

internal ARIS PPM configuration tools automatically, so that ARIS PPM is reconfigured by these tools. After the reconfiguration of ARIS PPM it is possible to display the User Defined Attributes marked as "dimension" and "measure" in Interstage BPM as "dimension" and "Key Performance Indicators" in ARIS PPM.

1.6 ARIS PPM Import Tools

To import the XML files generated by the PPM adapter, the import tool of ARIS PPM is started by the PPM autoConfig tool. All XML files located in a user defined directory of the ARIS PPM installation will be read and the data will be imported into the ARIS PPM database.

2 Installing PPM adapter and PPM autoConfig

The PPM adapter and the PPM autoConfig tool are installed through the Interstage BPM installer.

The files of the PPM autoConfig tool always reside on the machine where ARIS PPM is installed. However, for the PPM adapter there are three scenarios possible:

- Interstage BPM and ARIS PPM on the same machine
- Interstage BPM and ARIS PPM on different machines
- Existing Interstage BPM installation and ARIS PPM on a different machine

For second and third option, it is recommended to copy the files for the PPM adapter to the machine where ARIS PPM is installed.

2.1 System Requirements

The following ARIS PPM version is supported for integration with Interstage BPM:

ARIS Process Performance Manager Enterprise Edition version 4.1

Refer to the *Interstage Business Process Manager Release Notes* for the operating systems supported by Interstage BPM.

Refer to the *ARIS Process Performance Manager Platform Matrix 4.1* for the operating systems supported by ARIS PPM.

2.2 Interstage BPM and ARIS PPM on the Same Machine

If Interstage BPM and ARIS PPM are installed on the same machine, a certain installation sequence is recommended, i.e. you should first install ARIS PPM and afterwards Interstage BPM, so that the PPM adapter and the PPM autoConfig tool are configured correctly through the Interstage BPM installer.

> **Note:** If you exchange the installation sequence, i.e. you first install Interstage BPM and afterwards ARIS PPM, the following changes have to be made after the installation in the `ppmAutoConfig.properties` file of the PPM autoConfig tool.
>
> 1. Update the client parameter if the ARIS PPM client is not "`ibpm`".
> 2. Change the paths in the following parameters: `configPath`, `xmlArchivePath`, `commandPath`, and `dtdPath`.
>
> Refer to appendix *ppmAutoConfig.properties File* on page 60 for details.

The installation sequence does not differ between Windows systems and Solaris. However, Windows systems and Solaris use different directory paths and file names.

In order to run the shell scripts of ARIS PPM on Solaris you first have to set up your shell environment. For setting up the shell environment use the `.setppmenv.sh` file which is located in the bin folder of the ARIS PPM installation directory, typically `/opt/PPM4Interstage/bin`. Use this directory as working directory for executing the shell scripts.

> **Note:** Make sure that the used shell is always initialized before with the `.setppmenv.sh` file. If you change the shell, you must initialize the new shell again with the `.setppmenv.sh` file.

2.2.1 Installation Procedure

In order to install and run the PPM adapter, complete the following steps in the recommended order:

1. Install the ARIS PPM Server.

   Refer to the *ARIS Process Performance Manager 4.1 Installation Guide* for details.

   Note: If you install an ARIS PPM IDS Version you need some further configuration files. Contact your local Fujitsu Support organization for getting these configuration files.

2. Run the `runppmclientadministration.bat` file on Windows systems and the `runppmclientadministration` file in the working directory on Solaris to create a client with the name "`ibpm`".

   The files are located in the bin folder of the ARIS PPM installation directory, typically `C:/ProgramFiles/PPM4Interstage/bin` on Windows systems and `/opt/PPM4Interstage/bin` on Solaris. Refer to the *ARIS Process Performance Manager 4.1 Installation Guide* for details.

3. Install the Interstage BPM Server.

   Refer to the *Interstage Business Process Manager Server Installation Guide* for details.

4. Start the ARIS PPM RMI Registry using the `runppmregistry.bat` file on Windows systems and the `runppmregistry` file in the working directory on Solaris.

   The files are located in the bin folder of the ARIS PPM installation directory, typically `C:/ProgramFiles/PPM4Interstage/bin` on Windows systems and `/opt/PPM4Interstage/bin` on Solaris. Refer to the *ARIS Process Performance Manager 4.1 Installation Guide* for details.

5. Initialize the ARIS PPM database using the `runinitdb` file. This command starts the client-specific ARIS PPM Server and sets up the database with default values. For the `ibpm` client created with the `runppmclientadministration.bat`/ `runppmclientadministration` file use the `runinitdb` command as follows:

   ```
   runinitdb -user <username> -password <password> -client ibpm -init
   ```

   The file is located in the bin folder of the ARIS PPM installation directory, typically `C:/ProgramFiles/PPM4Interstage/bin` on Windows systems and `/opt/PPM4Interstage/bin` on Solaris. Refer to the *ARIS Process Performance Manager 4.1 Installation Guide* for details.

   The `runinitdb` command starts the ARIS PPM Server automatically. You can stop the ARIS PPM Server with:

   ```
   stopppmserver -client<name> -shutdown
   ```

   You can start the ARIS PPM Server again with:

   ```
   runppmserver [-client<name>] [-language<ISO code>]
   ```

6. Start the Interstage BPM Server.

   Refer to the *Interstage Business Process Manager Server Installation Guide* for details.

7. Configure the PPM adapter.

   Refer to chapter *Configuring the PPM adapter* on page 19 for details.

8. Run the PPM adapter.

   Refer to section *Starting the PPM adapter* on page 24 for details.

2.2.2 Installation Files of PPM adapter and PPM autoConfig

It is assumed that Interstage BPM is installed in `C:/fujitsu/InterstageBPM/` on Windows systems or `/opt/FJSVibpm` on Solaris. For the PPM adapter the Interstage BPM installer creates the directory `<Interstage BPM Server Installation Directory>/client/ppm/ppmadapter` containing the following files:

```
/client/ppm/ppmadapter
    ppmAdapter.properties
    PPMAdapter.jar
    runExport.bat
    runExport.sh
```

Note: The PPM adapter may require application server-specific libraries. For example, on WebLogic the PPM adapter requires the WebLogic libraries `wlclient.jar` and `wljmsclient.jar`.

For the PPM autoConfig tool the Interstage BPM installer creates the directory `<Interstage BPM Server Installation Directory>/client/ppm/ppmautoconfig` containing the following files:

```
/client/ppm/ppmautoconfig
    ibpmMapping.dtd
    PPMautoConfig.jar
    ppmAutoConfig.properties
    runConfig.bat
    runConfig.sh
    xercesImpl.jar
    xml-apis.jar
```

The `iFlow.jar` library is required by both components (PPM adapter and PPM autoConfig tool). It is located in the directory `<Interstage BPM Server Installation Directory>/client/lib`:

```
/client/lib
    iFlow.jar
```

The `iFlowClient.properties` file is created during deployment of Interstage BPM. It is required by the PPM adapter tool. It is located in the directory `<Interstage BPM Server Installation Directory>/client`:

```
/client/
    iFlowClient.properties
```

The Interstage BPM installer configures the PPM adapter and the PPM autoConfig tool automatically. Through the `ppmAdapter.properties` file you can specify which process instances are to be exported from the Interstage BPM Server. Refer to chapter *Configuring the PPM adapter* on page 19 for details.

2.3 Interstage BPM and ARIS PPM on Different Machines

As mentioned above, the files of the PPM adapter and the PPM autoConfig tool are located in the directory `<Interstage BPM Server Installation Directory>/client/ppm`.

Note: If the Interstage BPM Server and the ARIS PPM Server are installed on different machines, it is necessary that the PPM adapter has an RMI connection to the Interstage BPM Server. The PPM adapter works as a client of the Interstage BPM Server.

The files of the PPM autoConfig tool always reside on the machine where ARIS PPM is installed.

It is recommended to copy also the files of the PPM adapter to the machine where ARIS PPM is installed. The following procedure is recommended:

1. For the PPM adapter copy the following files into any directory on the ARIS PPM Server machine:

   • all files located in `<Interstage BPM Server Installation Directory>/client/ppm/ppmadapter`

   • `iFlow.jar` located in `<Interstage BPM Server Installation Directory>/client/lib`

   • `iFlowClient.properties` located in `<Interstage BPM Server Installation Directory>/client`

2. For the PPM autoConfig tool copy the following files into any directory on the ARIS PPM Server machine:

   • all files located in `<Interstage BPM Server Installation Directory>/client/ppm/ppmautoconfig`

   • `iFlow.jar` located in `<Interstage BPM Server Installation Directory>/client/lib`

   The Interstage BPM installer configures the PPM adapter automatically. After copying the files of the PPM adapter to the ARIS PPM machine, no changes have to be made in the `ppmAdapter.properties` file. However, the `ppmAutoConfig.properties` configuration file of the PPM autoConfig tool must be reconfigured after the files have been copied to the ARIS PPM machine.

3. In the `runExport.bat` / `runExport.sh` file on the ARIS PPM Server machine, set up the path to the `iFlow.jar` library:

```
set IBPM_JAR=<path to iFlow.jar>
```

4. In the `runConfig.bat` / `runConfig.sh` file on the ARIS PPM Server machine, set up the path to the `iFlow.jar` library:

```
set IBPM_JAR=<path to iFlow.jar>
```

5. If you are using Interstage BPM Enterprise Edition on WebLogic application server, copy the WebLogic libraries `wlclient.jar` and `wljmsclient.jar` into the directory that you created for the PPM autoConfig tool files on the ARIS PPM Server machine. In the `runExport.bat` / `runExport.sh` file on the ARIS PPM Server machine, set up the path to the libraries:

```
set EE_JARS=<path to wlclient.jar and wljmsclient.jar>
```

6. Configure the PPM autoConfig tool through the `ppmAutoConfig.properties` file. Refer to chapter *Configuring PPM autoConfig* on page 28 for details.

	Machine with Interstage BPM Server	Machine with ARIS PPM Server
PPM adapter		X
PPM autoConfig		X

Only if the PPM adapter and the PPM autoConfig tool are installed on the same machine, it is possible to call the PPM autoConfig tool from within the PPM adapter. Refer to section *Configuring the Automatic Start of PPM autoConfig* on page 23 for starting the PPM autoConfig tool from within the PPM adapter.

	Machine with Interstage BPM Server	Machine with ARIS PPM Server
PPM adapter	X	
PPM autoConfig		X

If you only copy the files needed for the PPM autoConfig tool to the machine where ARIS PPM is installed, you have to execute the PPM adapter on the machine where Interstage BPM is installed and afterwards you have to execute the PPM autoConfig tool on the machine where ARIS PPM is installed. The XML files generated by the PPM adapter must be copied manually to the machine where ARIS PPM is installed or they must be made available for ARIS PPM in a shared network folder.

2.4 Existing Interstage BPM Installation and ARIS PPM on a Different Machine

Under certain circumstances it can be necessary to maintain an existing Interstage BPM installation, for example if a customized implementation of Interstage BPM is not to be changed.

If you want to use the PPM adapter and the PPM autoConfig tool with an existing Interstage BPM installation, the following procedure is recommended:

1. Execute the Interstage BPM installer on the machine where ARIS PPM is installed. The Interstage BPM installer configures the PPM adapter and the PPM autoConfig tool automatically.

2. Copy the `iFlowClient.properties` file from the `<Interstage BPM Server Installation Directory>/client` directory of your existing Interstage BPM Server installation into the `<Interstage BPM Server Installation Directory>/client/ppm/ppmadapter` directory on the ARIS PPM Server machine.

3. On the ARIS PPM Server machine, change the following parameters in the `ppmAdapter.properties` file for the PPM adapter:

   • `host`: Specifies the name of the existing Interstage BPM host.

   • `rmiPort`: Specifies the RMI port that is used for the communication with the existing Interstage BPM Server.

   • `ibpmLoginProperties`: Defines the absolute or relative path to the `IFlowClient.properties` file on the ARIS PPM Server machine.

   • `user`: This value identifies the user name of an Interstage BPM administration account for the existing Interstage BPM Server.

   • `password`: This value identifies the password of an Interstage BPM administration account for the existing Interstage BPM Server.

2.5 Notes on ARIS PPM Update

You can update an existing ARIS PPM installation with ARIS PPM version 4.1. After the update, the caches of each ARIS PPM client must be cleaned up; otherwise the application reports an error.

To clean up the cache of an ARIS PPM client, run the ARIS PPM command line tool `<ARIS PPM Installation Directory>/bin/runppmadmin` using the following options:

```
runppmadmin user <user> -password <password> -client <client> -clearcache
```

For detailed information, refer to the ARIS Process Performance Manager documentation.

2.6   Configuring ARIS PPM Import Settings

ARIS PPM supports a maximum of 100 characters for dimension values. If you try to import process instances from Interstage BPM having dimension values with more than 100 characters, import errors may occur. To prevent these errors, you are recommended to change the ARIS PPM import configuration.

1. Edit the database configuration file:

   `<ARIS PPM Installation Directory>/config/ibpm/Database_settings.properties`

2. Change the settings of the parameters `TRUNCATE_DIMENSION_STRING` and `TRUNCATE_DIMENSION_MARK` as follows:

```
TRUNCATE_DIMENSION_STRINGS=MARK
TRUNCATE_DIMENSION_MARK=#Error: Too many characters
```

For the `TRUNCATE_DIMENSION_MARK` parameter, you can specify an error text of your choice. However, make sure that the error text does not exceed 100 characters.

With these settings, dimension values and descriptions exceeding 100 characters are replaced by the string defined in `TRUNCATE_DIMENSION_MARK` during the import.

3 Configuring the PPM adapter

With the PPM adapter you can export process data from Interstage BPM into an XML file, which ARIS PPM can use for further analysis. In the `ppmAdapter.properties` configuration file you can specify which process instances are to be exported from Interstage BPM to an XML file. A list of all available parameters provides the appendix *ppmAdapter.properties File* on page 54.

> **Note:** If parameters are wrongly set, the arisen error messages are logged in the `ArisPpmAdapter.log` log file, specified with the logfile parameter in the `ppmAdapter.properties` file.

After having configured the PPM adapter through the `ppmAdapter.properties` file, you can start the PPM adapter with the `runExport.bat` file (for Windows systems) or the `runExport.sh` file (for Solaris) respectively. Refer to section *Starting the PPM adapter* on page 24 for details.

3.1 Defining Process Instances for the Export

In the `ppmAdapter.properties` file you can specify which process instances are to be exported from the Interstage BPM Server. The PPM adapter needs information, where to store the generated XML files. During installation the following parameter was set:

- `outfile`

For the definition of the process instances that are to be exported from Interstage BPM, you can use the following parameters (Refer to appendix *ppmAdapter.properties File* on page 54 for a detailed description of the parameters):

- `planName`
- `planState`
- `planVersion`
- `procState`
- `planUseMaster`

By default the following parameters are set by the Interstage BPM installer:

```
planName=*
planVersion=*
planState=published
procState=closed
planUseMaster=false
```

This setting defines a filter where the closed process instances of all published process definitions are exported. The "master plan" option is not used (i.e. `planUserMaster=false`) in this filter. Refer to section *Master Plan Support* on page 20 for more details.

> **Note:** This filter is also used by the PPM adapter, if these five parameters are commented out in the `ppmAdapter.properties` file.

To limit the number of process instances that are to be exported, you can use these six parameters for defining a filter. In addition you can define a start time, from which the modified process instances are to be exported. Refer to section *Maintaining the Export Date* on page 22 for defining a start time.

3.1.1 Exporting Multiple Process Instances

It is possible to specify filters for more than one process definition. In this way you can export process instances from more than one process definition.

You can set multiple filters in the `ppmAdapter.properties` file by using `planName<suffix>`, `planVersion<suffix>`, `planState<suffix>`, `procState<suffix>` and `planUseMaster<suffix>`.

For example:

```
planName=MyFirstPlan

planVersion=2.0

planState=all

procState=running|closed

planUseMaster= true

planName2=MySecondPlan

planVersion2=1.0

planState2=all

procState2=running

planUseMaster2= false
```

3.1.2 Exporting User Defined Attributes

By default User Defined Attributes marked as "dimension" in Interstage BPM are exported by the PPM adapter. In this case the `exportUDAasDim` parameter is set to `true`. User Defined Attributes marked as "measure" in Interstage BPM are not exported. The `exportUDAasKPI` parameter is set to `false`. These User Defined Attributes are called "Key Performance Indicators" (KPI) in ARIS PPM.

3.1.3 Master Plan Support

When the PPM adapter exports a process instance, it uses by default the related version of the process definition to get the information about the defined User Defined Attributes. In this case the `planUseMaster` parameter in the `ppmAdapter.properties` file is set to `false`.
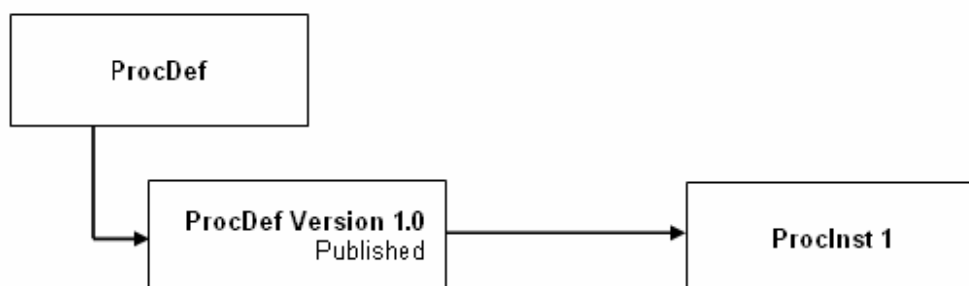
Figure 2: planUseMaster=false

In the figure above, the process instance `ProcInst 1` belongs to the process definition `ProcDef Version 1.0`. Therefore the information about the User Defined Attributes is taken from the related process definition `ProcDef Version 1.0`.

In Interstage BPM it is possible to create different versions of a process definition. From each version of a process definition which can be in any state, process instances can be created. Each process instance belongs to one process definition, but the version of the process definition need not necessarily be in the state "published".

If the `planUseMaster` parameter is set to `true`, the PPM adapter uses the "master plan" of a process definition to get the information about the User Defined Attributes. The "master plan" of a process definition is the published version of the process definition or, if no version has been published, the latest version of the process definition.
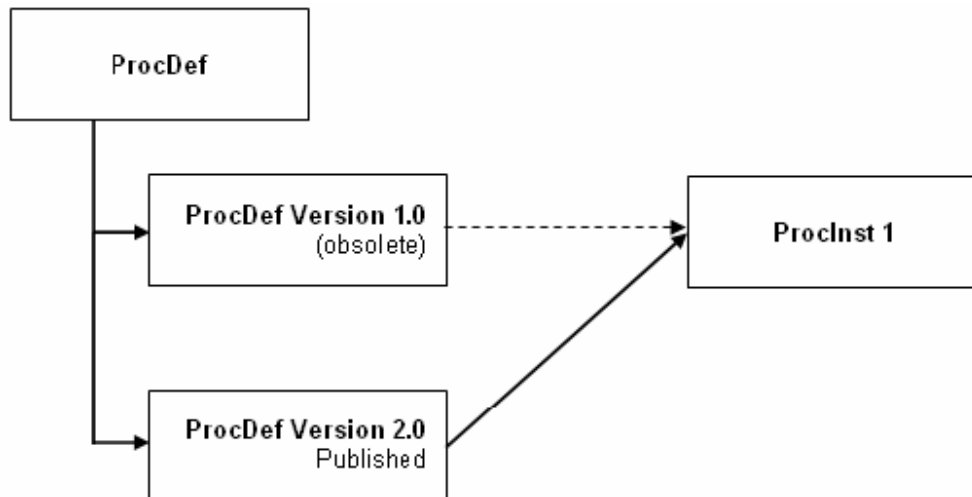
Figure 3: planUseMaster=true

In the figure above, the published process definition is `ProcDef Version 2.0`. If the PPM adapter exports the process instance `ProcInst 1` with `planUseMaster=true`, it uses the process definition `ProcDef Version 2.0` and not the original process definition `ProcDef Version 1.0` to get the information about the User Defined Attributes. This information is made up of type, name, initial value and Analytics settings.

In case, the Analytics settings (User Defined Attribute marked as Dimension or Measure) have been changed for User Defined Attributes from one version of a process definition to the next, you can guarantee by using the option `planUseMaster=true` that the User Defined Attributes are exported as specified in the master process definition.

Note: User Defined Attributes added to a new process definition are ignored during a new export, since the initial process instances did not have these attributes.

Example:

The process definition `ProcDef Version 1.0` has been generated and published with the following User Defined Attributes:

Type	Name	Initial Value	Analytics Setting
String	str		Dimension
Integer	int	0	Measure

Type	Name	Initial Value	Analytics Setting
Float	float	0.0	Dimension
Boolean	bool	false	
Long	long	0	

New process instances are generated for this process definition. At a later point in time, a process analyst finds out that it would be useful to also export the User Defined Attribute 'long' as Dimension and to use the User Defined Attribute 'float' not as Dimension but as Measure. Since a published process definition can no longer be modified, you need to generate a new version of the process definition for which you can then change the settings of the User Defined Attributes as follows:

Type	Name	Initial Value	Analytics Setting
String	str		Dimension
Integer	int	0	Measure
Float	float	0.0	Measure
Boolean	bool	false	
Long	long	0	Dimension

When you publish Version 2.0 of the `ProcDef` process definition, Version 1.0 automatically becomes obsolete. To make use of the changes for the process instances based on Version 1.0, set the `planUseMaster` parameter to `true`. Now export the existing process instances again. The setting for Dimension and Measure of each User Defined Attribute assigned to the process instance to be exported is retrieved from the master process definition.

3.2 Maintaining the Export Date

The number of the exported process instances can be limited by the indication of a date. You can use either the `lastExportDate` parameter or the `procModDateStart` parameter in the `ppmAdapter.properties` file. If you set none of these two parameters, all process instances depending on the other filter settings are exported.

With setting the `lastExportDate` parameter to `true` (the default value is `false`) the date of the last export is maintained in the `lastExportDate.properties` file. If the `lastExportDate.properties` file does not exist and the PPM adapter has not been executed before with `lastExportDate=true`, all process instances will be exported. After a successful execution of the PPM adapter, the `lastExportDate.properties` file will be created (in the directory where the `PPMadapter.jar` file is located), containing the appropriate date.

With the next execution of the PPM adapter (`lastExportDate` is still set to `true`) only the process instances are exported, which were modified since the last export date. The content of the `lastExportDate.properties` file will be updated to the start time of the current export after a successful execution of the PPM adapter.

Note: The execution of the PPM adapter is successful if all of the process instances specified in the `ppmAdapter.properties` file can be exported. This means that if the PPM adapter fails to export a process instance, the export date will not be modified. If an export fails no data are overwritten. An appropriate error message is logged in the `ArisPpmAdapter.log` file, which is specified with the `logfile` parameter in the `ppmAdapter.properties` file.

With the `procModDateStart` parameter you can define your own start time, from which the modified process instances are to be exported. In this case the `lastExportDate` parameter must be set to `false`. The format is `procModDateStart =YYYYMMDDhhmmss`.

In the following example all process instances are to be exported which were modified since the 1. December 2004 11:45:15:

```
lastExportDate=false

procModDateStart =20041201114515
```

3.3 Configuring the Automatic Start of PPM autoConfig

In order to import the XML file to ARIS PPM, the stand alone program PPM autoConfig is needed.

By default the PPM autoConfig tool has to be started manually by the system administrator. However, it can be started automatically by the PPM adapter. For starting the PPM autoConfig tool from within the PPM adapter, you must set the following two parameters (Refer to appendix *ppmAdapter.properties File* on page 54 for a detailed description of the parameters):

- `runAutoConfig=true`
- `autoConfigPath=Path to the runConfig.bat/runConfig.sh file`

3.4 The runExport.bat / runExport.sh File

If you configured the PPM adapter properly, you can start it with the `runExport.bat` batch file (for Windows systems) and the `runExport.sh` file (for Solaris), which are provided and configured by the Interstage BPM installer. Refer to section *Installation Files of PPM adapter and PPM autoConfig* on page 15 for details.

The following example shows the required setting in the `runExport.bat` batch file. An appropriate setting can be found in the `runExport.sh` file.

```
set IBPM_JAR=..\iFlow.jar
```

Sets up the path to the `iFlow.jar` file.

> **Note:** If you copied the PPM adapter to another machine, you need to adapt the path. A relative or an absolute path can be used. Refer to section *Interstage BPM and ARIS PPM on Different Machines* on page 15 for details.

```
set EE_JARS=
```

Sets up the path to application server-specific libraries that are required by the PPM adapter. The value is set by the Interstage BPM installer. The value is set if application server-specific libraries are required.

> **Note:** If you copied the PPM adapter and the application server-specific libraries to another machine, you need to adapt the path. A relative or an absolute path can be used. Refer to section *Interstage BPM and ARIS PPM on Different Machines* on page 15 for details.

```
set JAVA_EXE=C:\j2sdk1.5.0\bin\java.exe
```

Sets up the path to the Java Runtime Environment 1.5.0.

```
set MAIN_CLASS=com.fujitsu.iflow.tools.ppmadapter.ArisPpmAdapter
```

Sets up the path to the class `com.fujitsu.iflow.tools.ppmadapter.ArisPpmAdapter`.

```
set PPMADAPTER_JAR=.\PPMAdapter.jar
```

Sets up the path to the PPM adapter. A relative or an absolute path can be used.

```
set ADAPTER_PROP_FILE=%1
```

Sets up the variable for the `ppmAdapter.properties` file.

> **Note:** If a path is wrongly set, the execution of the `runExport.bat` / `runExport.sh` file is automatically stopped.

3.5 Starting the PPM adapter

The PPM adapter can be started automatically or manually by the system administrator.

Use the `runExport.bat` file for Windows systems and the `runExport.sh` file for Solaris for starting the PPM adapter manually.

The PPM adapter can be started automatically as a Scheduled Task in Windows and as a cron job in Solaris.

3.5.1 Defining a Scheduled Task on Windows

To create a scheduled task for the PPM adapter:

1. Select **Start > Settings > Control Panel**.
2. Select **Scheduled Tasks > Add Scheduled Task**.
   The **Scheduled Task Wizard** screen appears.
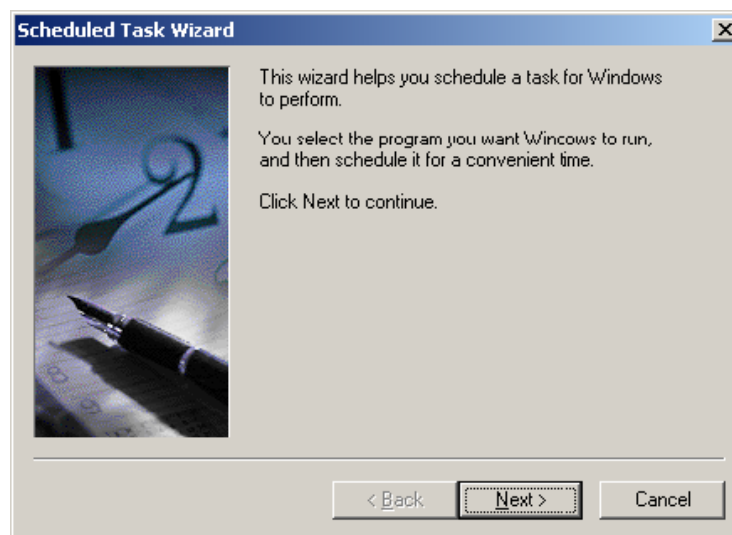
Figure 4: The Scheduled Task Wizard

Click **Next** to continue.

The following screen appears.
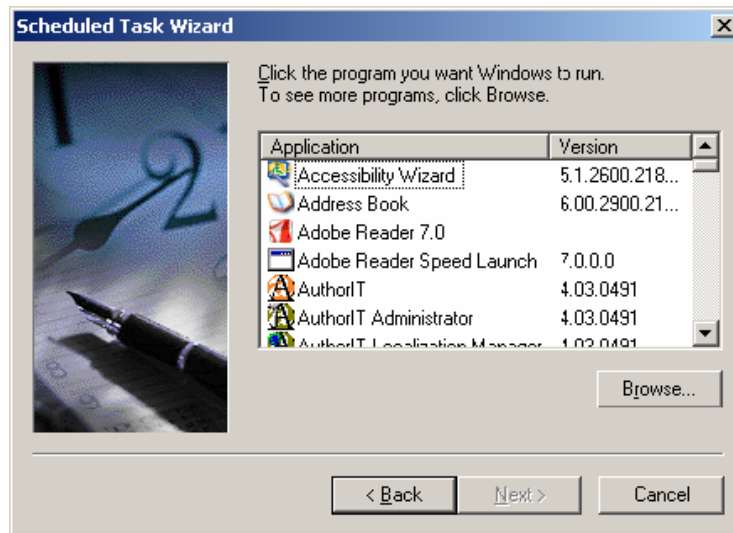
Figure 5: Browse for the runExport.bat file

3. Click **Browse** and navigate to the directory in which the `runExport.bat` file is located.
4. Select the `runExport.bat` file.
   The following screen appears.

Figure 6: Select an option

5. Select an option starting from which the task is to be performed.
   Click **Next** to continue.

The following screen appears, if you have selected the option **Daily**. An appropriate screen appears for the other options.
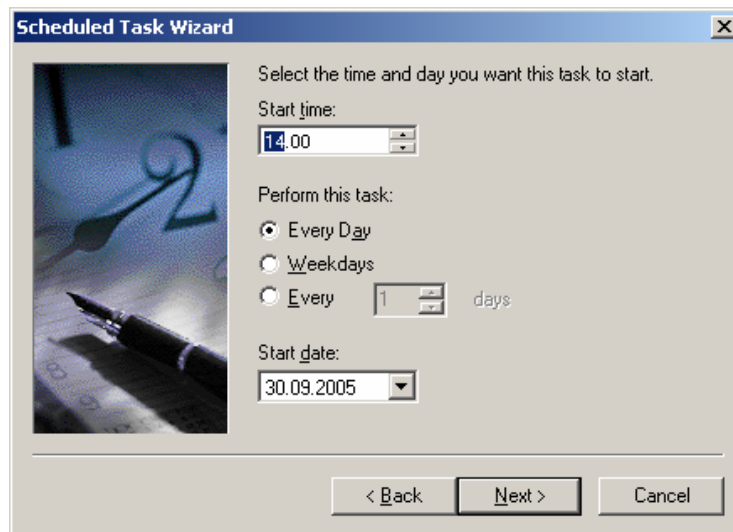
Figure 7: Specify the option

6. Specify the settings for the selected option.
   Click **Next** to continue.
   The following screen appears.
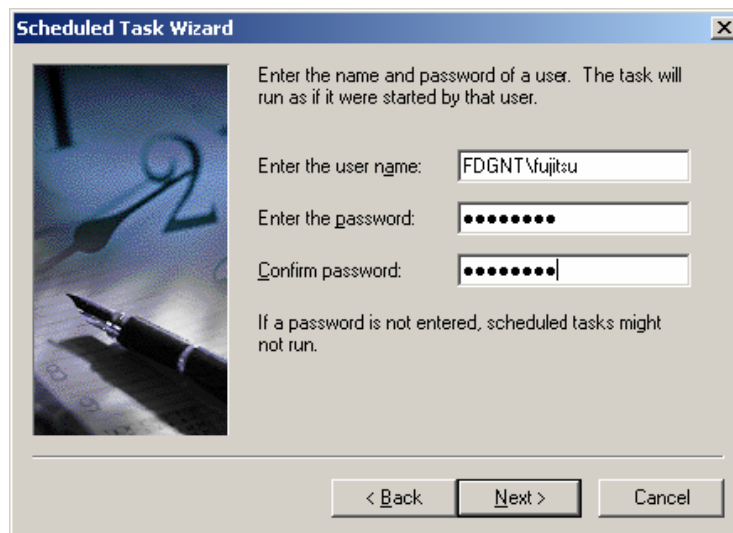
Figure 8: Enter your Windows password

7. Enter your Windows password and confirm it.
   Click **Next** to continue.

The following screen appears.

Figure 9: Add the task to the Windows schedule

8. Click **Finish** to add the task to the Windows schedule.

The PPM adapter is started with regard to the specified options. After a successful execution of the PPM adapter an XML file is generated and saved in the directory, specified with the outfile parameter in the `ppmAdapter.properties` file.

3.5.2 Defining a cron Job on Solaris

A cron job enables Solaris users to execute commands or scripts automatically at a specified time. You can define a cron job that starts the PPM adapter automatically using the `crontab -e` command.

The following example shows a crontab entry for starting the PPM adapter. The `runExport.sh` script is to be executed every day at 5:30 am:

```
5 30 * * * /path/to/runExport.sh
```

Refer to your Solaris documentation for more information about the `crontab` command and the syntax of crontab entries.

4 Configuring PPM autoConfig

The PPM autoConfig tool uses the `ppmAutoConfig.properties` configuration file. In this configuration file you can set all parameters that are necessary for importing the XML data files generated by the PPM adapter into ARIS PPM.

> **Note:** A configuration of the PPM autoConfig tool is necessary only if Interstage BPM and ARIS PPM are installed on different machines. Refer to chapter *Installing PPM adapter and PPM autoConfig* on page 13 for details.

To configure the PPM autoConfig tool with the `ppmAutoConfig.properties` file, you must perform the following steps:

1. Define the server and data for login
2. Define the paths to the configuration XML files
3. Define the paths to the data XML files

A list of all available parameters provides the appendix *ppmAutoConfig.properties File* on page 60.

> **Note:** If parameters are wrongly set, the arisen error messages are logged in the `PpmAutoConfig.log` file, specified with the logfile parameter in the `ppmAutoConfig.properties` file.

After having configured the PPM autoConfig tool through the `ppmAutoConfig.properties` file, you can start it with the `runConfig.bat` batch file (for Windows systems) or the `runConfig.sh` file (for Solaris) respectively. Refer to section *Starting the PPM autoConfig Tool* on page 29 for details.

4.1 Defining the Server and Data for Login

If you have to configure the PPM autoConfig tool, it needs information how to login to the ARIS PPM Server. You must set the following parameters (Refer to appendix *ppmAutoConfig.properties File* on page 60 for a detailed description of the parameters):

- `ppm_home`
- `commandPath`
- `client`
- `user`
- `password`

4.2 Defining the Paths to the Configuration XML Files

The PPM autoConfig tool needs information about the configuration XML files of the ARIS PPM Server. You must set the following parameters (Refer to appendix *ppmAutoConfig.properties File* on page 60 for a detailed description of the parameters):

- `configPath`
- `xmlArchivePath`
- `dtdPath`

4.3 Defining the Paths to the Data XML Files

The PPM autoConfig tool needs information about the data XML files generated by the PPM adapter. You must set the following parameters (Refer to appendix *ppmAutoConfig.properties File* on page 60 for a detailed description of the parameters):

- `dataXMLPath`
- `dataXMLArchive`

4.4 The runConfig.bat / runConfig.sh Files

If you configured the PPM autoConfig tool properly, you can start it with the runConfig.bat batch file (for Windows systems) and the runConfig.sh file (for Solaris), which are provided and configured by the Interstage BPM installer. Refer to section *Installation Files of PPM adapter and PPM autoConfig* on page 15 for details.

The following example shows the required settings in the `runConfig.bat` batch file. An appropriate setting can be found in the `runConfig.sh` file.

```
set JAVA_EXE=C:\j2sdk1.4.2_11\bin\java.exe
```

Sets up the path to the Java Runtime Environment 1.4.2.

```
set IBPM_JAR=..\iFlow.jar
```

Sets up the path to the `iFlow.jar` file.

> **Note:** If you copied the PPM autoConfig tool to another machine, you need to adapt the path. A relative or an absolute path can be used. Refer to section *Interstage BPM and ARIS PPM on Different Machines* on page 15 for details.

```
set MAIN_CLASS= com.fujitsu.iflow.tools.ppmautoconfig.PpmConfigurator
```

Sets up the path to the class `com.fujitsu.iflow.tools.ppmautoconfig.PpmConfigurator`.

```
set XERCES_JAR=.\xerces.jar
```

Sets up the path to the `xerces.jar` file.

```
set PPMADAPTER_JAR=.\ PPMAutoConfig.jar
```

Sets up the path to the PPM autoConfig tool. A relative or an absolute path can be used.

```
set AUTOCONFIG_PROP_FILE=%1
```

Sets up the variable for the `ppmAutoConfig.properties` file.

> **Note:** If a path is wrongly set, the execution of the `runExport.bat` / `runExport.sh` file is automatically stopped.

4.5 Starting the PPM autoConfig Tool

The PPM autoConfig tool can be started manually by the system administrator or automatically by the PPM adapter.

Use the `runConfig.bat` file for Windows systems and the `runConfig.sh` file for Solaris for starting the PPM autoConfig tool manually.

For information how to start the PPM autoConfig tool from within the PPM adapter refer to section *Configuring the Automatic Start of PPM autoConfig* on page 23.

5 Integrating Interstage BPM and ARIS PPM

Interstage BPM is a tool for modeling and for the execution of business processes. In order to be able to measure the efficiency of business processes, for example the average duration for the execution of a purchase order, an analysis tool is necessary such as ARIS PPM.

With the result of the analysis of the process data accomplished in ARIS PPM weak points during processes can be uncovered and corrected thereafter. In addition the process definitions in Interstage BPM can be modified and afterwards new process instances can be started. In such a way a business process can be optimized more and more by the use of both tools.

In chapter *Example: Purchase Order* on page 40 you find an example of a purchase order in a company, which demonstrates how Interstage BPM and ARIS PPM could be used to optimize the process of a purchase order.

5.1 Using Interstage BPM with ARIS PPM

In order to be able to optimize a business process, e.g. an order process, numerous steps are necessary, where Interstage BPM and ARIS PPM are used for different tasks.

In the first step the business process, here as example an order process, has to be analyzed. Questions like:

• who is involved in the process?
• who accomplishes which tasks?
• who has to make which decisions?

are typically to be answered with the analysis of such a process.

In addition managers are frequently interested in the following questions:

• how long does it last from the order until the commodity arrives?
• are decisions made fast?
• which products are most frequently ordered?
• which suppliers are preferred?
• what is the average quantity of an order?

With answering of these and similar questions one specifies:

• the participants in the process,
• the activities which the participants must accomplish,
• the information which must be worked on.

With this data a process definition can be created in Interstage BPM. The activities correspond to nodes in Interstage BPM. The information which must be worked on by the participants, like the ordering quantity, the prices of the individual products, the possible suppliers etc. correspond to User Defined Attributes in Interstage BPM. User Defined Attributes can be marked as dimensions or measures.

Chapter *Example: Purchase Order* on page 40 shows how a purchase order can be represented by a process definition.

After the process definition was created for the order process, the next step is to start a process instance for each new order. Thus all data are stored by Interstage BPM, which are generated during the purchase order processes.

An analysis of the order processes with ARIS PPM can take place at any time. Also the analysis can be accomplished both for running purchase order processes and for closed purchase order processes.

Section *Analyzing Interstage BPM Data with ARIS PPM* on page 32 gives a short overview of the analyzing possibilities of ARIS PPM.

In order to be able to make the data available for analysis in ARIS PPM, the PPM adapter has to be configured and started accordingly. The process data are then exported as desired to ARIS PPM. Chapter *Example: Purchase Order* on page 40 gives some example of how to use the PPM adapter and how to analyze the data with ARIS PPM.

5.2   Analyzing Interstage BPM Data with ARIS PPM

ARIS PPM offer many possibilities for analyzing process data. The most used are:

*   **Process Analysis**: It essentially covers the regulation of characteristic numbers of processes, for example turn-around times, frequencies, costs, observance of date and quality guidelines.

*   **Organizational Analysis**: With the Organizational Analysis in ARIS PPM it is possible to gain an overview of the activity and communication structures within a company. The organizational analysis evaluates the business processes based on information about the executive organizational units by analyzing the relationships of organizational units to each other or to activities. ARIS PPM highlights both the relationships between organizational units and employees and the connection between organizational structure and process handling. The organizational analysis supplements the process analysis with additional analysis options.

*   **Online Monitoring**: Online Monitoring can be used to determine individual process instances that demonstrate weak spots. Specific critical process instances can be searched and alarm value deviations can be analyzed and used for setting up an early alert system for selected processes.

*   **Continuous Business Improvement**: This is procedure for improving business processes which are supported by ARIS PPM. Using planned values and alarm values, can identify weak spots in processes and establish an early alert system for the processes.

For detailed information for further analyzing possibilities refer to the product documentation of ARIS PPM.

6 Exporting Workflow Elements

The PPM adapter exports workflow elements like nodes and arros from Interstage BPM to ARIS PPM.

6.1 Mapping of Workflow Elements

The following table provides an overview of the workflow elements used in Interstage BPM and their appropriate designation in ARIS PPM.

Interstage BPM	ARIS PPM
Process instance	Graph
Node	Function
Arrow	Event
Role	Organizational Unit

A process instance in Interstage BPM is called a graph in ARIS PPM. A function (= node in Interstage BPM) is described in ARIS PPM as an activity performed within a business process. Each function is triggered by at least one event (= arrow in Interstage BPM) and in turn has at least one event as its outcome. An organizational (= Role in Interstage BPM) unit corresponds to the group of employees in the company who execute a function as part of a business process.

Only those nodes are exported by the PPM adapter, which were executed during process enactment in Interstage BPM. Therefore only those workflow elements are available for analysis in ARIS PPM which actually were used in a process instance in Interstage BPM.

7 Exporting User Defined Attributes

Apart from workflow elements the PPM adapter exports User Defined Attributes from Interstage BPM to ARIS PPM. User Defined Attributes can be marked as dimension and measure in Interstage BPM. The first section gives an overview of the allowed mapping of Interstage BPM data types to measures and dimensions. The second section shows how the Interstage BPM dimensions and measures are mapped to ARIS PPM dimensions and Key Performance Indicators. The last section gives an overview of predefined dimensions and Key Performance Indicators used by Interstage BPM and ARIS PPM.

7.1 Dimensions and Measures in Interstage BPM

The following table shows the allowed mapping of Interstage BPM data types to measure or dimension.

Data Type	Measure	Dimension
STRING	-	X
BOOLEAN	-	-
BIGDECIMAL	X	X
DATE	X	X
FLOAT	X	X
INTEGER	X	X
LONG	X	X

A `STRING` can only be used as dimension whereas the `BOOLEAN` data type can be used neither as dimension nor as measure.

7.2 Mapping of User Defined Attributes

Interstage uses different data types for dimensions and measures than ARIS PPM. Therefore a mapping must be provided between the data types of Interstage BPM and ARIS PPM. Also ARIS PPM uses a different mapping of its data types to dimensions and Key Performance Indicators than Interstage BPM. The mapping of dimensions and measures from Interstage BPM to dimensions and Key Performance Indicators in ARIS PPM therefore results in a list with the allowed Interstage BPM data types supported as measures or dimensions in ARIS PPM.

7.2.1 Mapping between Interstage BPM and ARIS PPM Data Types

As in Interstage BPM the dimensions and Key Performance Indicators in ARIS PPM are assigned to certain data types. The following table shows how the data types from Interstage BPM and ARIS PPM correspond.

Data Type in Interstage BPM	Data Type in ARIS PPM
STRING	Text
BOOLEAN	Boolean
FLOAT	Double

Data Type in Interstage BPM	Data Type in ARIS PPM
BIGDECIMAL	Double (Text)
INTEGER	Long
LONG	Long
DATE	Time

The mapping of `BIGDECIMAL` to `Double` is a critical part because it is possible that the value stored within a `BIGDECIMAL` does not fit into a `Double` value. If the value of a `BIGDECIMAL` does not fit into a `Double` value the PPM adapter logs a warning and exports the User Defined Attribute for this process instance not as ARIS PPM `Double` attribute but as `Text` attribute. This attribute is neither defined as dimension nor as Key Performance Indicator in ARIS PPM. The regarding ARIS PPM attribute of type `Double` will not be maintained for this process instance. Exporting these values as `Text` gives the user the possibility to use them as information within the process analysis.

7.2.2 Mapping ARIS PPM Data Types to Dimensions and Key Performance Indicators

The following table shows for which data types of ARIS PPM can be used as dimension or Key Performance Indicator (KPI).

Data Type	KPI	Dimension
Text	-	X
Boolean	-	X
Double	X	X
Long	X	X
Time	-	X

7.2.3 Interstage BPM Data Types Supported as Measures or Dimensions

Regarding to the overview of allowed mapping within ARIS PPM and the mapping between Interstage BPM and ARIS PPM data types, only the following Interstage BPM data types are supported as measure or dimension:

Data Type	KPI	Dimension
STRING	-	X
BOOLEAN	-	-
DIGDECIMAL	X (-)	X (-)
DATE	-	X
FLOAT	X	X
INTEGER	X	X
LONG	X	X

This table shows that the Interstage BPM data type `DATE` is not supported as Key Performance Indicator in ARIS PPM although it is possible to mark such a User Defined Attribute as measure in Interstage BPM. If a User Defined Attribute of data type `DATE` is marked as measure, it will be imported to ARIS PPM but it will be neither defined as Key Performance Indicator nor as dimension in ARIS PPM. Furthermore a warning is logged. In this way the information is available in ARIS PPM anyway.

7.3 Predefined Dimensions and Key Performance Indicators in ARIS PPM

Many dimensions and Key Performance Indicators are predefined in ARIS PPM.

For some dimensions of Interstage BPM exits a mapping to ARIS PPM dimensions. The Interstage BPM dimension "Status of a process instance", which is always exported, is taken over by ARIS PPM.

The predefined Key Performance Indicators in ARIS PPM are separated in the two categories Time Key Performance Indicators and Quality Key Performance Indicators. These Key Performance Indicators are very useful for measuring the duration of processes or the time span between the start and end of the processing of the activities.

7.3.1 Predefined Dimensions

Name of dimension in ARIS PPM front-end	Mapped information from Interstage BPM	Example	Remarks
Process Type	Name of process definition.	"Purchase Order"	
Process Date	Start date and time of a process instance.	"2008/01/18" All process instances are grouped by their start date independent of all further activities in the process instance.	In the ARIS PPM front-end filters and steps widths for the data range can be defined.
Time of Day	Start time of the process instance.	"16:32:00" All process instances are grouped by their start time, independent of the date.	In the ARIS PPM front-end filters and steps widths for the data range can be defined.
Function	Name of activity.	"CFO PR Approval"	
Function Date	Start date of an activity.	"2008/01/18"	
Processor	Role which is assigned to the activity.	"Employee"	

7.3.2 Interstage BPM Specific Additional Dimensions

Status of process instance	Status of process instance.	"running"	

7.3.3 Predefined Key Performance Indicators

The Key Performance Indicators of ARIS PPM are separated in the categories Time Key Performance Indicators and Quality Key Performance Indicators.

Each Key Performance Indicator of these categories are either of type *<process specific>* or *<function specific>*.

<process-specific> means, that these Key Performance Indicators can be applied to the whole process instance, while the *<function specific>* Key Performance Indicators can only applied to separate functions.

Time Key Performance Indicators (*<process-specific>*)

Name of KPI in ARIS PPM front-end	Mapped information from Interstage BPM	Remarks
`Process cycle time`	Each activity has assigned its start and end time.	The `Process cycle time` Key Performance Indicator corresponds to the time span between the start time of the first function of a process instance and the end time of the last function.
`Process cycle time (Factory calendar)`		This Key Performance Indicator represents the same information as the previous KPI, but based on a factory calendar.

Time Key Performance Indicators (*<function-specific>*)

Name of KPI in ARIS PPM front-end	Remarks
`Cycle time`	The Cycle time Key Performance Indicator corresponds to the average duration of the execution of a function. It comprises the average processing time and the average wait time of a function. The cycle time of a single function is calculated as follows: Cycle time = End time of function - Latest end time of preceding functions.
`Cycle time (Factory calendar)`	This Key Performance Indicator represents the same information as the previous KPI, but based on a factory calendar.

Name of KPI in ARIS PPM front-end	Remarks
Processing time	The `Processing time` Key Performance Indicator corresponds to the average time span between the start and end of processing of the functions of a type. This Key Performance Indicator can be calculated on the basis of various indicators. First of all, the `Processing time` attribute of the functions of a type is evaluated. If this attribute is not maintained for a function, the processing time is calculated as the difference between the end time and start time of the function. If only one of the said times is available, or if the calculated difference is negative, the function is not taken into account in the calculation of Key Performance Indicators.
Processing time (Factory calendar)	This Key Performance Indicator represents the same information as the previous KPI, but based on a factory calendar.
Wait time	The `Wait time` Key Performance Indicator of the functions of a type corresponds to the average time span between the end of processing of the preceding functions (latest end time) and the start of processing of the functions under analysis. The wait time of the individual function corresponds to the difference between the start time of the function under analysis and the latest end time of the preceding functions.
Wait time (Factory calendar)	This Key Performance Indicator represents the same information as the previous KPI, but based on a factory calendar.

Quality Key Performance Indicators (*<process-specific>*)

Name of KPI in ARIS PPM front-end	Remarks
No. Processes	The `No. Processes` Key Performance Indicator corresponds to the number of process instances.
Number of processors	The `Number of processors` Key Performance Indicator corresponds to the average number of different processors in all process instances under analysis. Processors belonging to an organizational unit excluded from Key Performance Indicator calculation are not included in the calculation.

Name of KPI in ARIS PPM front-end	Remarks
Processing frequency	The `Processing frequency` Key Performance Indicator for a process instance corresponds to the sum of the processing frequencies of all functions of that process instance.

Quality Key Performance Indicators (*<function-specific>*)

Name of KPI in ARIS PPM front-end	Remarks
Function frequency	The `Function frequency` Key Performance Indicator corresponds to the average number of processing operations of the function within the set of process instances under analysis.
Number of functions	The `Number of functions` Key Performance Indicator corresponds to the sum total of the occurrences of a function (activities) in the process instances under analysis.
Number of processors	The `Number of processors` Key Performance Indicator corresponds to the average number of different processors, which have executed a function within the set of process instances under analysis.
Processing frequency	The `Processing frequency` Key Performance Indicator corresponds to the average number of processing operations of the function within the set of process instances under analysis.

8   Example: Purchase Order

This chapter describes on the basis of the example of a purchase order how to analyze data in ARIS PPM generated from process instances in Interstage BPM. The example Purchase Order is available as Workflow Application package `PurchaseOrder.bar`. Contact your local Fujitsu Support organization for getting this package.

8.1   Importing the Example Purchase Order

To import the example Purchase Order:

1. Start the Interstage BPM Console and log in as an Interstage BPM Administrator.
2. Expand the **Applications** folder in the Navigation Panel of the Interstage BPM Console and select **Install Application**.
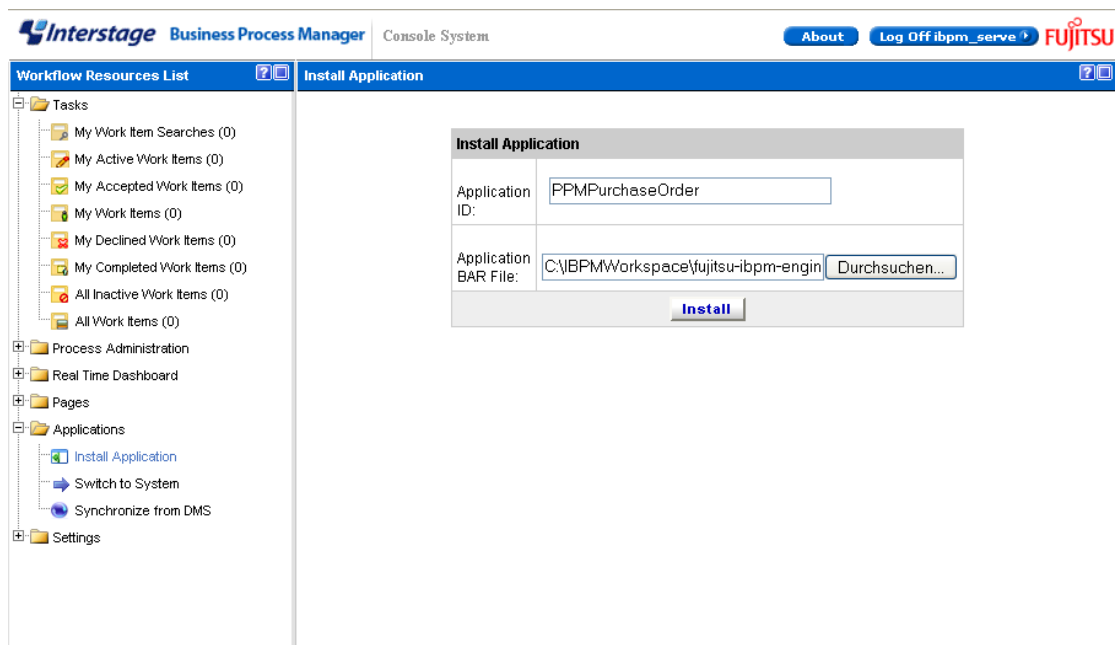
Figure 10: Install Application

3. Enter a name (ID) for the sample application in the **Application ID** field. It is suggested that you use an easily identifiable name as this is the name that will appear on your list of applications and in the application URL.
4. Click **Browse** and navigate to the location of the `PurchaseOrder.bar` file.
5. Click **Install**.

   The application will be added to the Interstage BPM Console, and all process definitions and the associated forms are included. A URL is shown which you can use to access the imported application and the respective process definition.

6. Access this URL, expand the **Process Administration** folder, and click Process Definitions. The process definition **Purchase Order** is now listed:

Figure 11: Purchase Order Process Definition

8.2   Process Definition: Purchase Order

Purchase orders usually take place in enterprises after certain guidelines. The example Purchase Order describes such process with the following workflow:

- An employee fills out a purchase form and submits it to an accountant.
- An accountant selects a supplier and forwarded it for approval to the management.
- If the total costs of the order exceed 1000 units the approval of the Director and the CFO is required. This is called a multiple approval.
- If the total costs of the order are lower than 1000 units only the approval of the Manager is needed. Here only a single approval is needed.
- When the purchase order is approved (either by the single or the multiple approvals), the account raises the purchase order.
- When the supplier delivers the goods, the warehouse accepts the goods.
- In the last step the employee checks the arrived goods.

The process definition for the described process looks as follows in Interstage BPM:
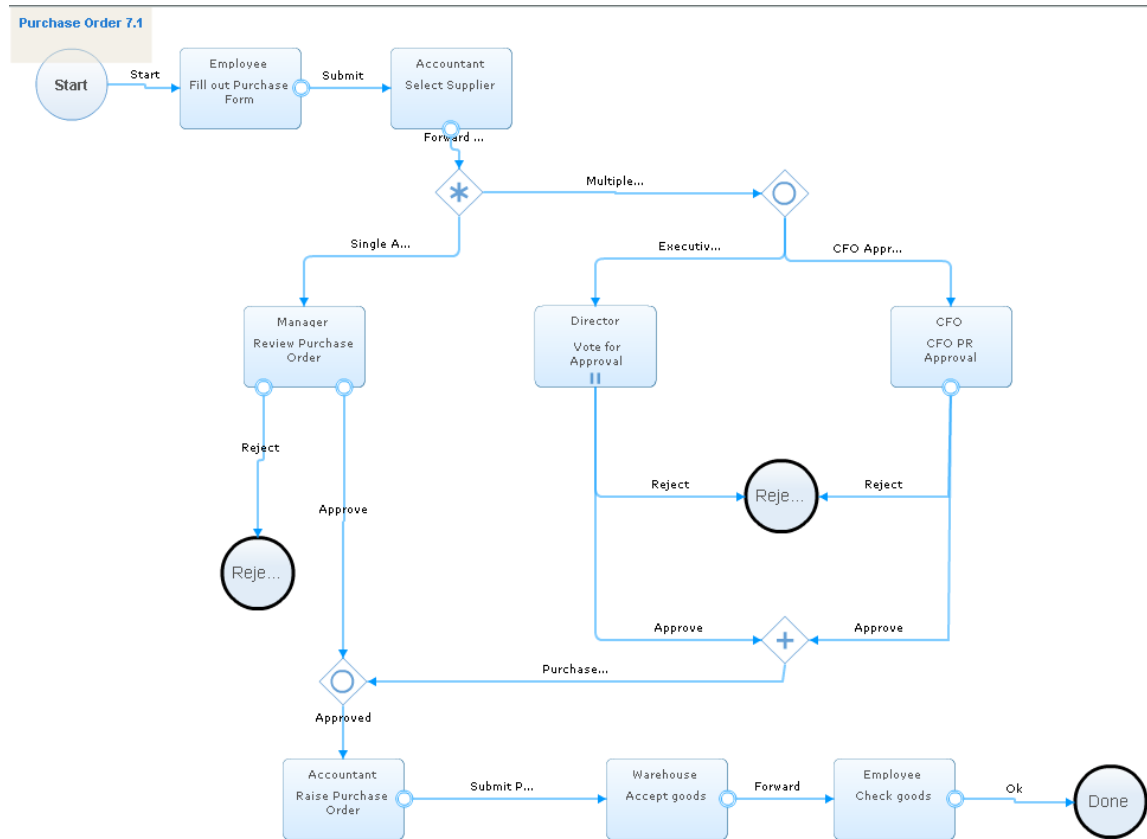

Figure 12: Process Definition Purchase Order

In this process definition the following Roles are defined:

- Employee
- Accountant
- Manager
- Director
- CFOP
- Warehouse

Before starting a process instance of the process definition Purchase Order the users must be added to Interstage BPM. Refer to the *Interstage Business Process Manager Server Installation Guide* for information about adding users to Interstage BPM.

8.3 Workflow Elements and User Defined Attributes in the Example Purchase Order

The process definition Purchase Order consists of a number of workflow elements and User Defined Attributes.

8.3.1 Workflow Elements

In the process definition Purchase Order the following workflow elements are used:

- 1 Start Node
- 7 Activity Nodes
- 1 Voting Activity Node
- 1 Complex Conditional Node
- 1 AND Node
- 2 OR Nodes
- 3 Exit Nodes

The Activity Nodes and the Voting Activity Nodes are connected with forms on which the appropriate assignee of the activity has to work on.

8.3.2 User Defined Attributes

During such a process like the purchase order there are many characteristic parameters, for example:

- Costs of the products
- The total cost of the whole order
- The available budget
- Different suppliers of the product
- Estimated delivery date for the ordered product
- The delivery date for the ordered product

These parameters are stored in User Defined Attributes.

The following dimensions and measures are defined in the example Purchase Order:

DELIVERYDATE	DATE	Measure
LOCATION	STRING	Dimension
COST	FLOAT	Dimension
ESTIMATEDDELIVERYDATE	DATE	Measure
PRODUCT	STRING	Dimension
SUPPLIER	STRING	Dimension
PURCHASEREQUESTOR	STRING	Dimension
BUDGET	INTEGER	Dimension
TOTALCOST	FLOAT	Dimension
DEPARTMENT	STRING	Dimension
QUANTITY	INTEGER	Dimension
REQUESTOR	STRING	Dimension

8.4   Running the Process Instances

For starting a process instance of the Purchase Order process definition, the process definition first has to published and than to be started.

For information about publishing a process definition and starting a process instance refer to the *Interstage Business Process Manager User's Guide*.

After starting a process instance the first activity is assigned to an employee. Afterwards the process instance is gone through, as it is prescribed by the process definition. After the processing of all activities a process instance is closed.

8.5   Configuring the PPM adapter

An analysis of the process data with ARIS PPM can take place at any time. You can for example analyze running process instances or closed process instances.

You can start the PPM adapter manually (refer to section *The runExport.bat / runExport.sh File* on page 23 for details) or automatically (refer to section *Starting the PPM adapter* on page 24 for details).

In the following example the PPM adapter is executed manually. All process instances are to be analyzed, which are in closed state. Therefore the following parameters have to be set in the `ppmAdapter.properties` file:

```
planName=Purchase Order

planState= published

procState=closed
```

To run the autoConfig tool after the execution of the PPM adapter set the following parameter:

```
runAutoConfig=true
```

Before starting the PPM adapter make sure, that all parameters (especially the paths to ARIS PPM) in the `ppmAutoConfig.properties` file are set correctly.

Run the PPM adapter. The data are exported in accordance with the filter set in the PPM adapter. The PPM autoConfig tool is started automatically by the PPM adapter and imports the process data as XML-files to ARIS PPM. Now the process data can be analyzed in ARIS PPM.

8.6   Analyzing Data in ARIS PPM

The following sample shows how to analyze process data from Interstage BPM with ARIS PPM.

To analyze the data with ARIS PPM:

1. Enter the URL consisting of the server name, port number, and application name (specified in the Web Server Settings when installing ARIS PPM) in your Browser, for example:

   ```
   http://MYServerName:49950/ppm41/html
   ```

   The login screen of ARIS PPM appears.

2. Enter your user name, password and the client name. Click **Next**.

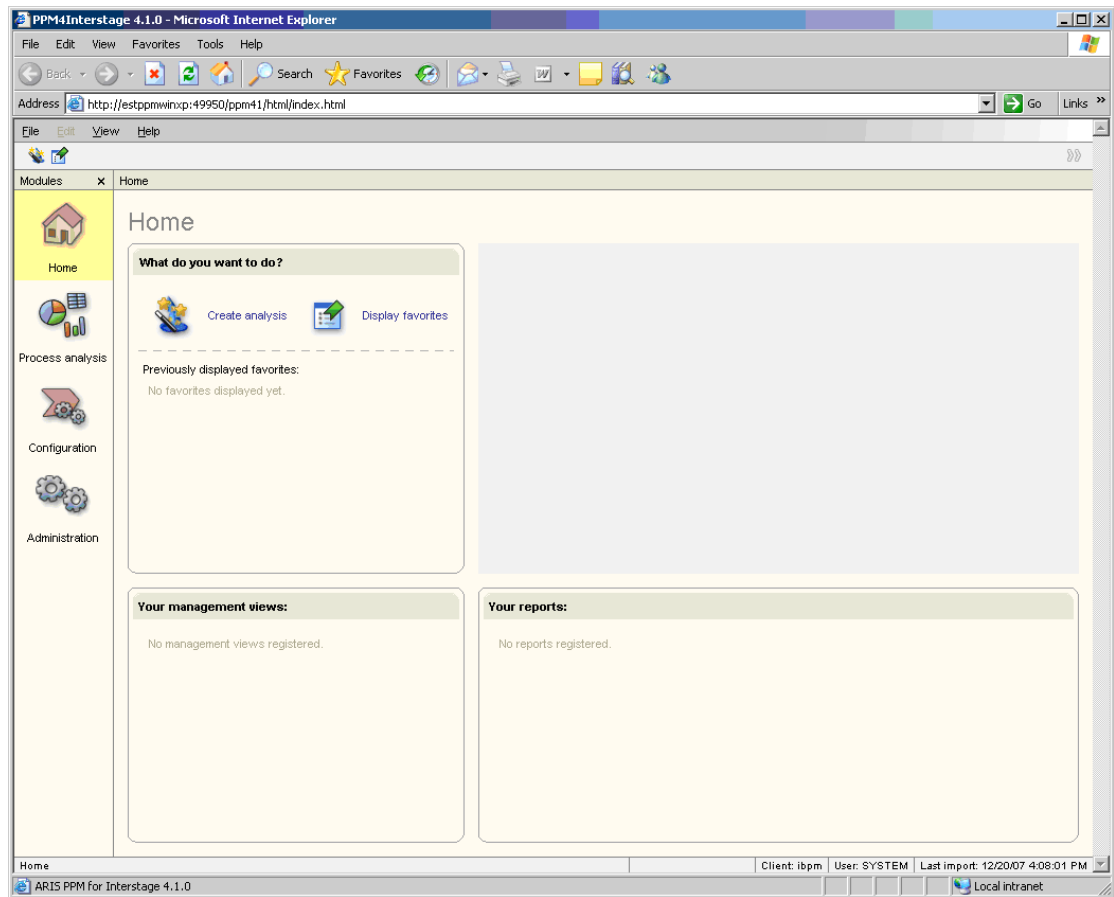3. Select your language. Click **Next**.

The following screen appears:

Figure 13: Home screen of ARIS PPM

4. Select **Create analysis**.

In the appearing screen you can select the kind of data analysis you want to accomplish. As example **Three-dimensional chart** is used.
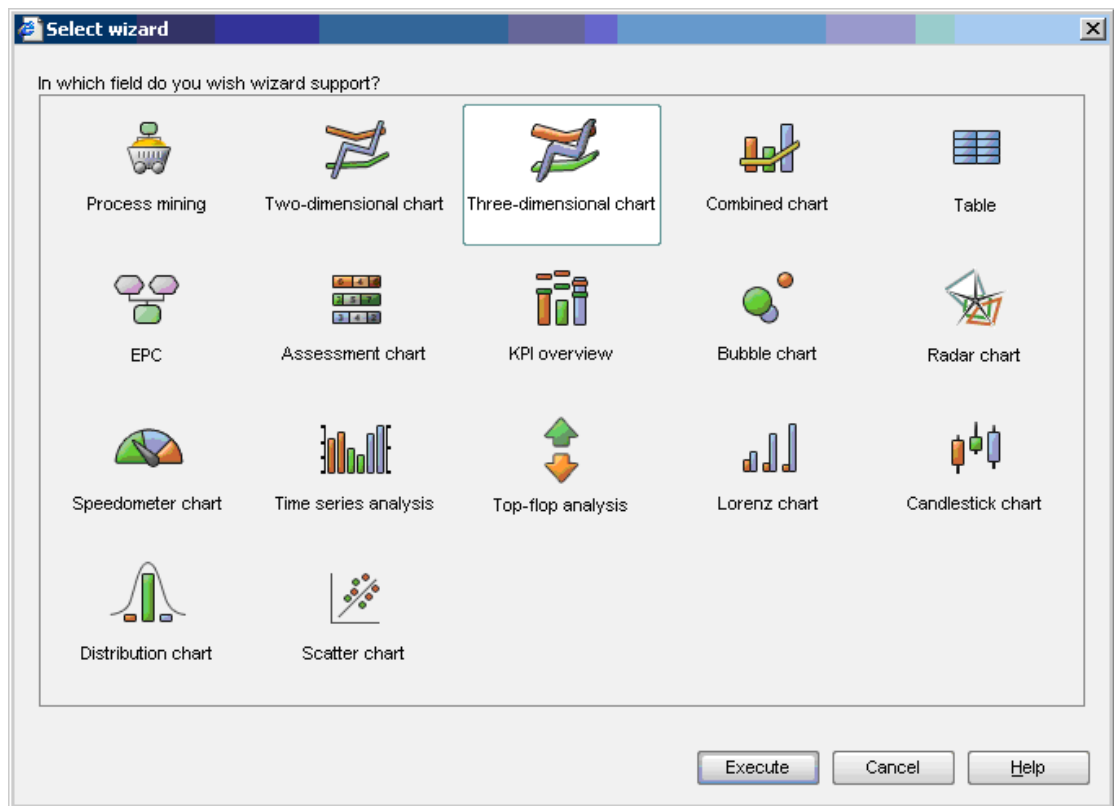

Figure 14: Screen for selecting the analysis method

5. Select **Three-dimensional chart** and click **Execute**.

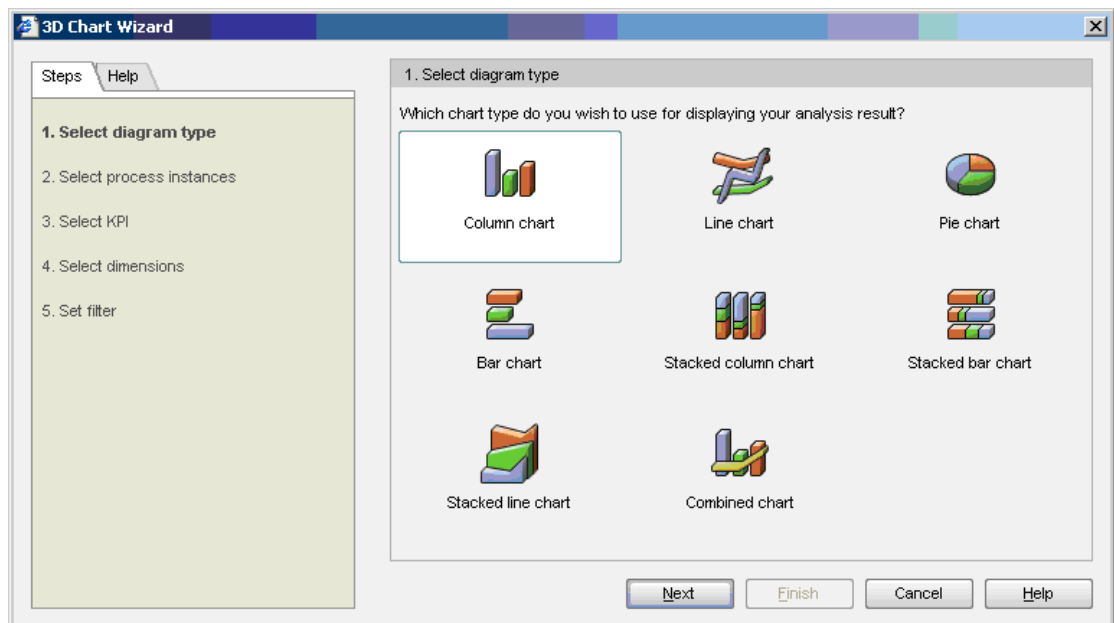In the appearing screen you can select type of diagram used for displaying the analysis results. As example **Column chart** is used.

Figure 15: Screen for selecting the diagram type

6. Select **Column chart** and click **Next**.

The **Select process instances** screen appears:
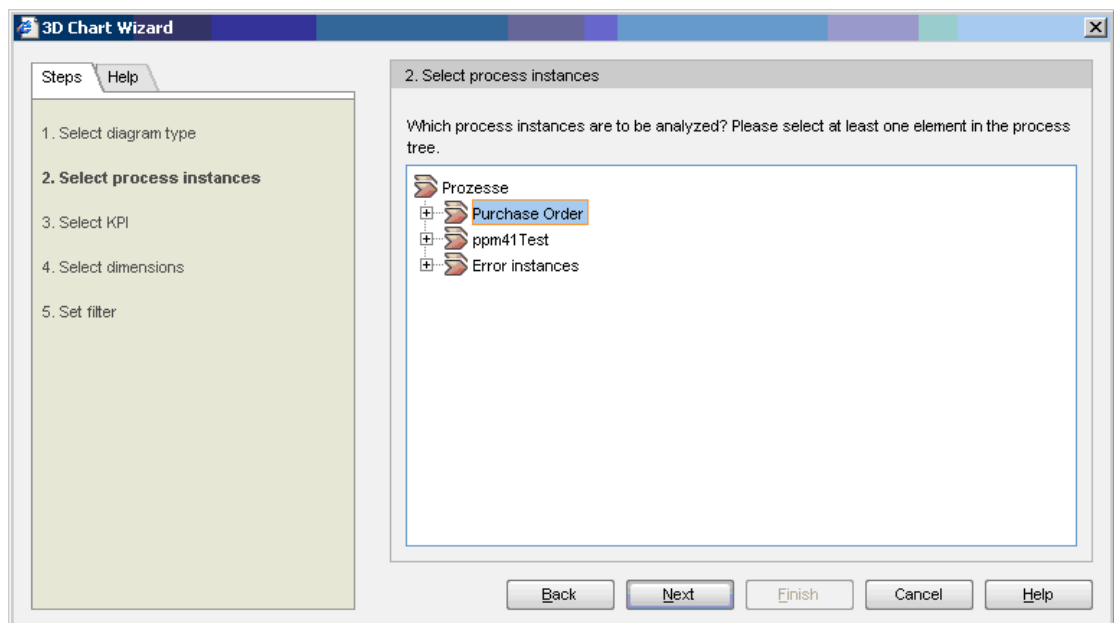
Figure 16: Screen for selecting process instances

7. Select **Purchase Order** and click **Next**.
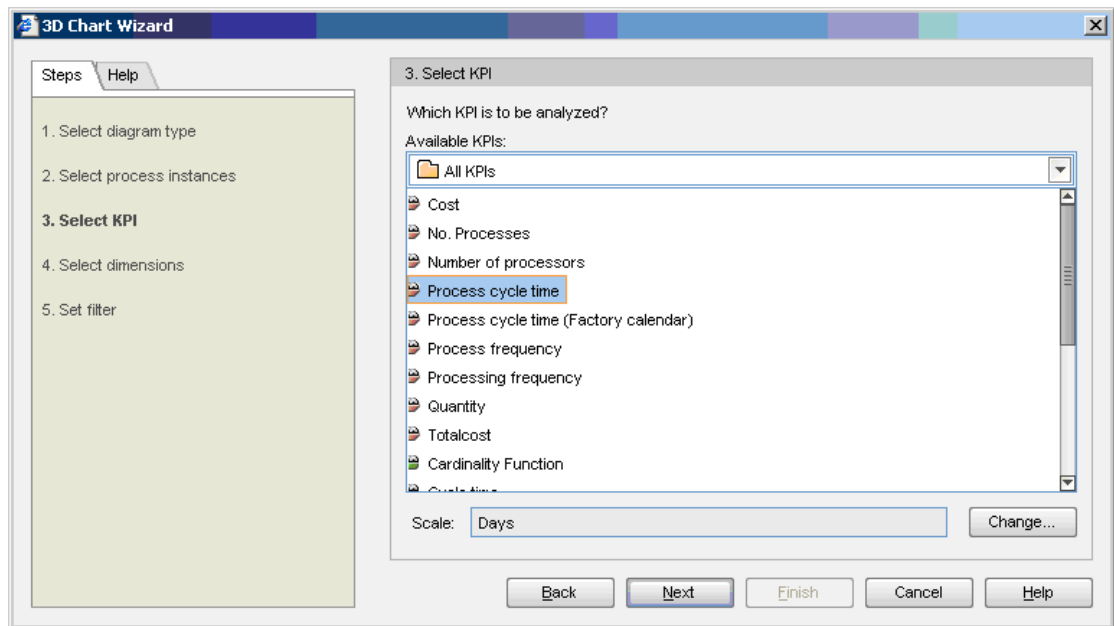
The **Select KPI** screen appears:

Figure 17: Screen for selecting Key Performance Indicators

8. Select **Process cycle time**.

This Key Performance Indicator corresponds to the time span between the start time of the first function of a process instance and the end time of the last function. For more details refer to section *Predefined Key Performance Indicators* on page 37.

9. Click **Next** to continue.

The **Select dimensions** screen appears. Here you can select the dimensions which you want to add to the data analysis. As example, the dimensions `Cost` and `Product` are selected.
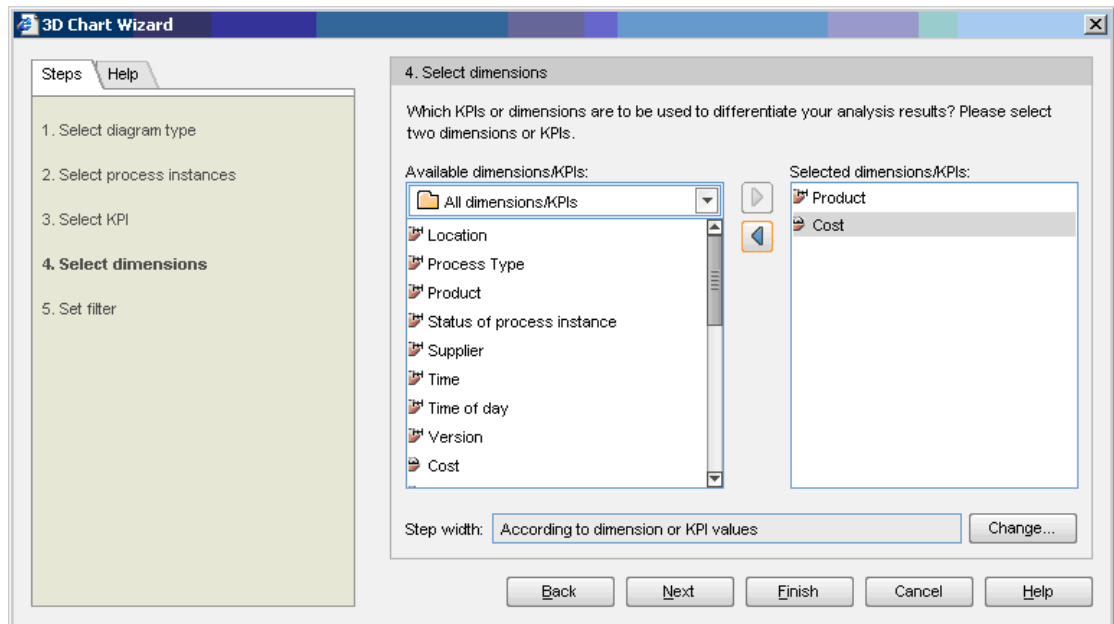

Figure 18: Screen for selecting the dimensions

10. Select **Cost** and click the arrow to add the dimension. Then select **Product** and click the arrow to add the dimension.

Click **Finish** or **Next**.

a) Clicking **Next** opens the **Set filter** screen for optionally selecting or entering desired values for each selected dimension.
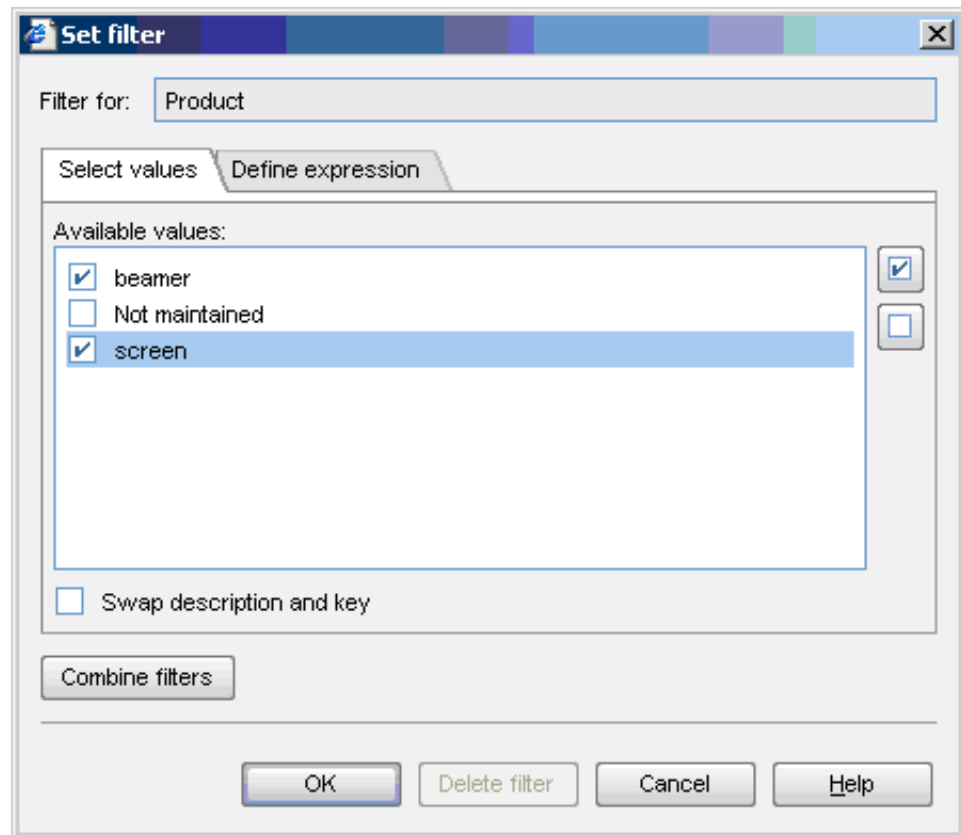
For example:

Figure 19: Screen for setting a filter

    b) Clicking **Finish** opens the analysis results. See below.

11. Click **OK** in the **Set filter** screen or click **Finish** in the **Select dimensions** screen.

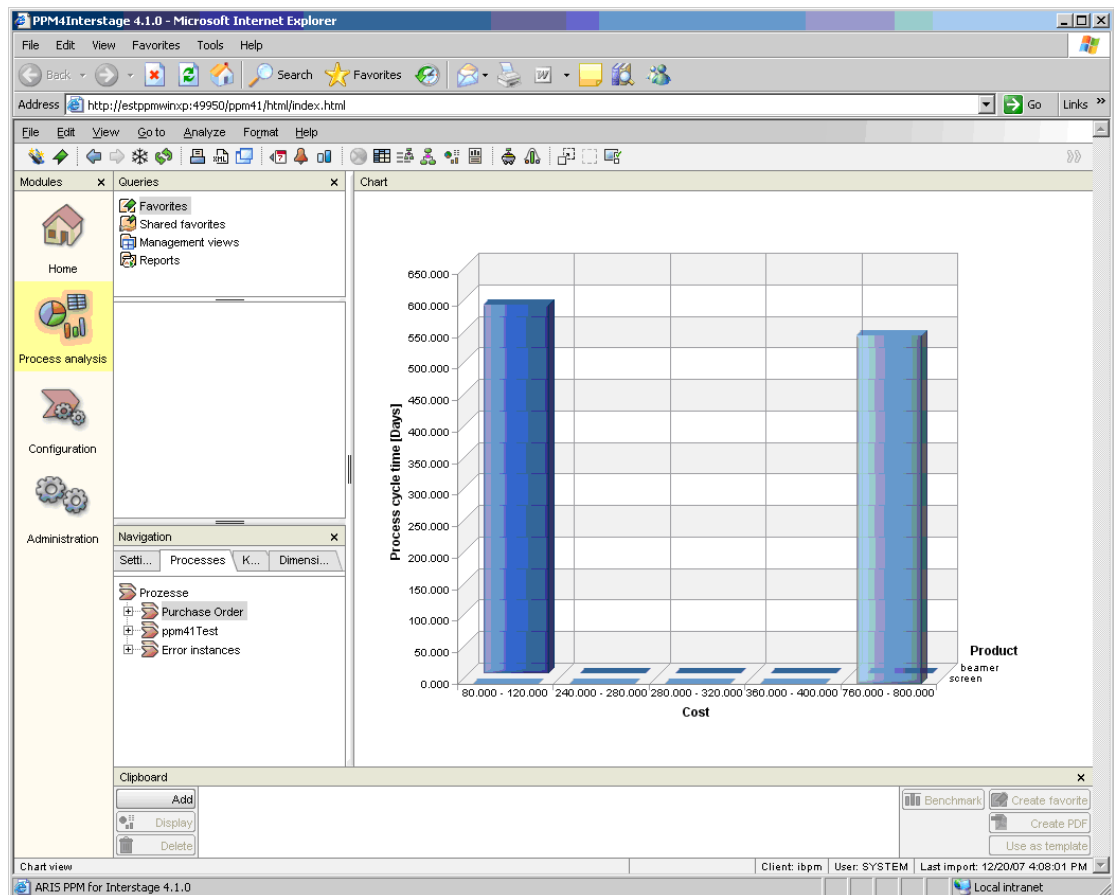Now all parameters for data analysis are selected. The following screen appears.

Figure 20: The result of a Three-dimensional chart analysis

8.6.1 Adding Dimensions and Key Performance Indicators

In ARIS PPM, the navigation toolbar can be used for adding and removing dimensions and Key Performance Indicators. In this way you can analyze the process data according to the most different criteria.

In the **KPIs** tab of the navigation toolbar all available Key Performance Indicators are displayed.
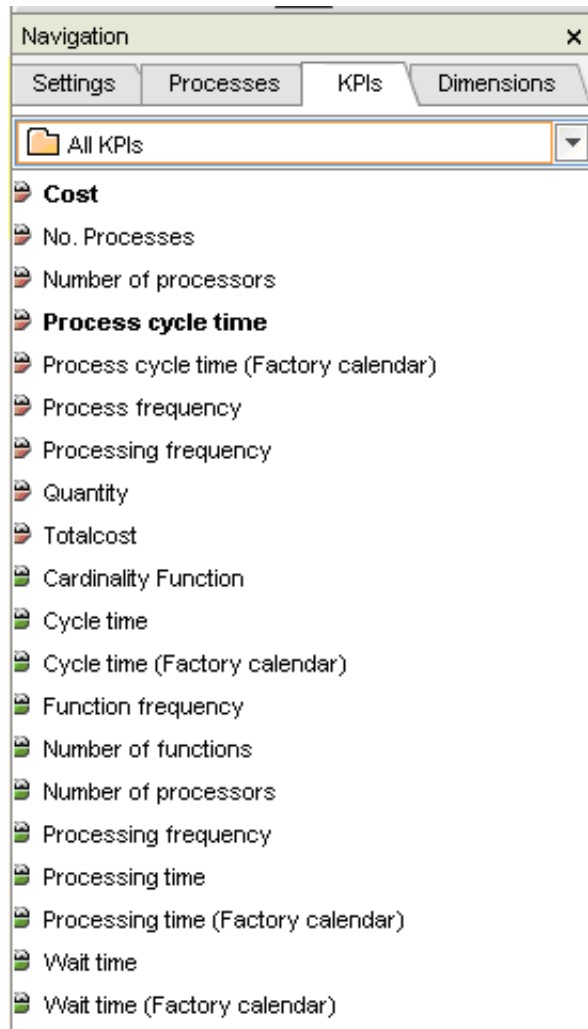

Figure 21: KPIs tab in the ARIS PPM navigation toolbar

The KPIs tab displays the predefined Key Performance Indicators of ARIS PPM. Refer to section *Predefined Key Performance Indicators* on page 37 for details. For adding a Key Performance Indicator to the analysis right click the Key Performance Indicator that you want to add and select **Add Key Performance Indicator**.

In the **Dimensions** tab of the navigation toolbar all available dimensions are displayed.
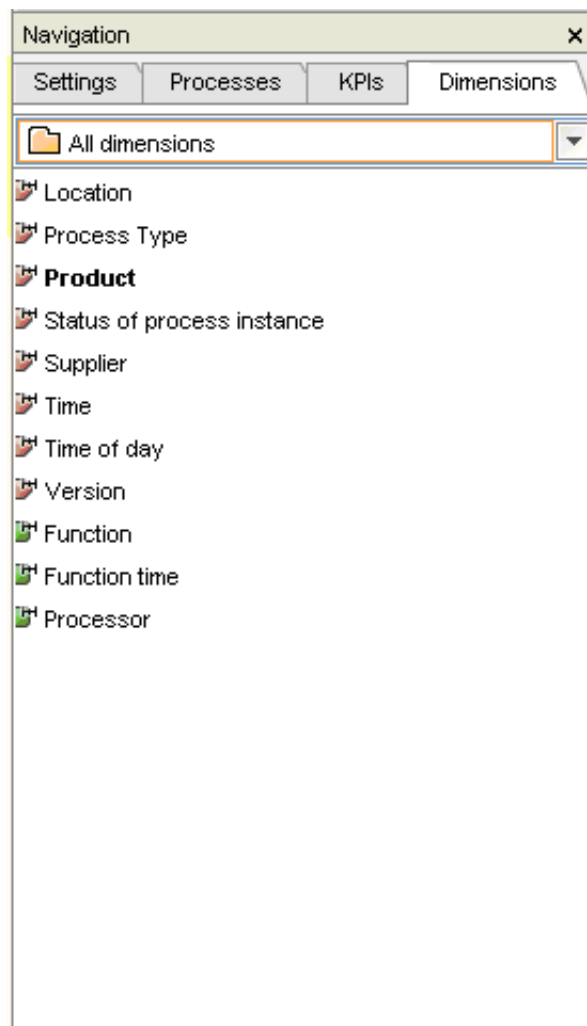

Figure 22: Dimensions tab in the ARIS PPM navigation toolbar

The **Dimensions** tab displays the User Defined Attributes imported from Interstage BPM and the predefined dimensions in ARIS PPM. Refer to section *Predefined Dimensions* on page 36 for details. For adding a dimension to the analysis right click the dimension that you want to add and select **Add Dimension**.

Appendix A: ppmAdapter.properties File

The `ppmAdapter.properties` file contains all configuration settings necessary for the PPM adapter to login to Interstage BPM and to export the specified process instances into an XML file.

The `ppmAdapter.properties` file contains a list of name-value pairs separated by an 'equals' (=) sign.

Lines starting in the `ppmAdapter.properties` file with '#' are ignored and skipped.

> **Note:** Some parameters can have as arguments the boolean-values `true` and `false`. If the values are wrongly written or if other values are used, for example `true1`, then the value is always considered as `false` by default.

A.1 autoConfigPath

Initial value:

`<Interstage BPM Server Installation Directory>/client/ppm/ppmautoconfig/runConfig.bat` on Windows system and

`<Interstage BPM Server Installation Directory>/client/ppm/ppmautoconfig/runConfig.sh` on Solaris

This parameter defines the absolute path to the `runConfig.bat` / `runConfig.sh` file that executes the PPM autoConfig tool.

This parameter must be set, in case the `runAutoConfig` parameter is set to `true`. In the case that the `autoConfigPath` parameter is not set and the `runAutoConfig` parameter is set to `true`, the PPM adapter throws an exception and aborts the execution. The PPM adapter also throws an exception if the `runAutoConfig` parameter is set to `true` and the given path in the `autoConfigPath` parameter is invalid. The PPM adapter then exports the process instances but does not run the PPM autoConfig tool so that the newly exported process instances are not available in ARIS PPM.

A.2 exportUDAasDim

Initial value: `true`

This parameter specifies if User Defined Attributes marked as "dimension" are to be exported from Interstage BPM. Possible values are:

- `true`: User Define Attributes marked as "dimension" are exported.
- `false`: No User Defined Attributes marked as "dimension" are exported.

A.3 exportUDAasKPI

Initial value: `false`

This parameter specifies if User Defined Attributes marked as "measure" are to be exported from Interstage BPM. These User Defined Attributes are called "Key Performance Indicators" (KPI) in ARIS PPM. Possible values are:

- `true`: User Define Attributes marked as "measure" are exported.
- `false`: No User Defined Attributes marked as "measure" are exported.

A.4 host

Initial value:

This parameter denotes the name of machine the Interstage BPM Server is running on.

A.5 ibpmLoginProperties

Initial value:

`<Interstage BPM Server Installation Directory>/client/iFlowClient.properties`

This parameter defines the absolute or relative path to the `iFlowClient.properties` file. The `iFlowClient.properties` file contains initialization information for login sessions. PPM adapter uses this information to generate a connection to the Interstage BPM Server.

A.6 lastExportDate

Initial value: `false`

- `true`: The date of the last export will be maintained in the `lastExportDate.properties` file.

  With the execution of the PPM adapter, it is checked whether the `lastExportDate.properties` file exists. If yes, only the process instances are exported, which were modified since the last export date. After the PPM adapter has been executed successfully the content of the `lastExportDate.properties` file will be updated to the start time of the current export. If no `lastExportDate.properties` file exists, all process instances are to be exported.

  If the `lastExportDate` parameter is set to `true` the `procModDateStart` parameter will be irgnored.

- `false`: The date of the last export will not be maintained or changed.

  With `lastExportDate` set to `false`, the `procModDateStart` parameter can be used.

A.7 logfile

Initial value: `ArisPpmAdapter.log`

This parameter provides the file name for the log file that contains PPM adapter error messages. The log file is created in the installation directory of the PPM adapter, typically `<Interstage BPM Server Installation Directory>/client/ppm/ppmadapter`.

A.8 loglevel

Initial value: `2`

This parameter sets the log level of the PPM adapter as follows:

- A setting of 0 causes only errors to be logged.
- A setting of 1 causes the PPM adapter to write errors and warnings to the log file.
- A setting of 2 causes the PPM adapter to write all errors, warnings, and other process sequence messages to the log file.

A.9 maxPIFetchSize

Initial value: `500`

This parameter is specified as some number x, where x is the maximum number of process instances that are to be exported in a single session. After the maximum number is reached the Interstage BPM session will be refreshed so that the cache is cleared.

A.10 outfile

Initial value: `PPMexport-`

This parameter sets up the path and file name of the generated XML file.

You can set one of the following:

- A file name

  Example:

  `C:/ProgramFiles/PPM4Interstage/custom/ibpm/data/PPMexport.xml` on Windows systems or `/opt/PPM4Interstage/custom/ibpm/data/PPMexport.xml` on Solaris.

- A prefix of a file name

  Example:

  `C:/ProgramFiles/PPM4Interstage/custom/ibpm/data/PPMexport-` on Windows systems or `/opt/PPM4Interstage/custom/ibpm/data/PPMexport-` on Solaris.

  A prefix is recognized by the fact that at the end of the name `.xml` is missing.

Setting a concrete file name can lead to overwriting a file with the same name when the PPM adapter is executed again, and hence to a loss of data. To avoid this, specify only the path to the directory and a prefix for the XML file.

After execution of the PPM adapter, the current time is added to the defined prefix in the format "`yyyyMMddHHmmss`", for example `PPMexport-20040520084052.xml`.

> **Note:** If you change the path to the XML file in the outfile parameter you also have to change the path in the dataXMLArchive and the `dataXMLPath` parameter in the `ppmAutoConfig.properties` file. Refer to appendix *ppmAutoConfig.properties File* on page 60 for details.

A.11 password

Initial value:

This value identifies the password of an Interstage BPM administration user account. The password is encrypted.

A.12 planName

Initial value: *

This parameter identifies the name of the process definition for which the process instances are to be exported. With the asterisk * all process instances independently of their names are exported. Also a name of a process definition can be used as value for the `planName` parameter, for example `planName=MyPlan`.

> **Note:** If you set the parameter `planName=` , i.e. the value is empty or a blank, the PPM adapter exports all process definitions with the name ' '.

A.13 planState

Initial value: `published`

This parameter identifies the state of the process definition, for which the process instances are to be exported. Possible values are:

- `all`: All process instances from process definitions with the states "draft" and "published" are exported.
- `draft`: Process instances from process definitions in the state "draft" are exported.
- `published`: Process instances from process definitions in the state "published" are exported.

A.14 planUseMaster

Initial value: `false`

This parameter defines which process definition is used during an export to get the information about the User Defined Attributes. This information is made up of type, name, initial value and Analytics setting (User Defined Attribute marked as Dimension or Measure).

Possible values are:

- `false`: The PPM adapter uses the related version of the process definition to get the information about the defined User Defined Attributes.
- `true`: The PPM adapter uses the "master plan" version of the process definition to get the information about the defined User Defined Attributes. The "master plan" of a process definition is the published version of the process definition or, if no version is published, the latest version of the process definition.

  In case, the Analytics settings have been changed for User Defined Attributes from one version of a process definition to the next, you can guarantee by using the option `planUseMaster=true` that the User Defined Attributes are exported as specified in the master process definition.

Note: User Defined Attributes added to a new process definition are ignored during a new export, since the initial process instances did not have these attributes.

A.15 planVersion

Initial value: *

This parameter identifies the version of the process definition, for which the process instances are to be exported. Possible values are:

- *: All versions of a process definition are exported.
- `n.0` with any number `n`: Process instances with a specified version number are exported. The format must be `n.0`, for example `1.0` or `2.0`.

A.16 printCause

Initial value: `false`

This parameter specifies if the cause of an exception is written to the standard output of the application or not. Possible values are:

- `true`: The cause of an exception is written to standard output.
- `false`: The cause of an exception is not written to standard output.

The cause of an exception gives detailed information about the location where the exception occurred in a program. Normally, you don't need to change this setting, as the cause of an exception is not relevant for users

Independently of this setting, the cause of an exception is always written to the log file.

A.17 procModDateStart

Initial value:

With the `procModDateStart` parameter you can define your own start time, from which the modified process instances are to be exported. This parameter will only be evaluated, if the `lastExportDate` parameter is set to `false`.

The format is `procModDateStart =YYYYMMDDhhmmss`.

A.18 procState

Initial value: `closed`

This value identifies the state of the process instances that are to be exported. Possible values are:

- `running`: All process instances in a running state.
- `closed`: All process instances in a closed state.
- `error`: All process instances in an error state.
- `aborted`: All process instances in an aborted state.
- `suspended`: All process instances in a suspended state.

The states can be combined separated by "|", for example "`running|closed`".

A.19 rmiPort

Initial value: `49954`

This parameter specifies the RMI port that is used for the communication with the Interstage BPM Server. This port is specified in the configuration file of the Interstage BPM Server by the `RMIPort` parameter.

A.20 runAutoConfig

Initial value: `true`

With this parameter you can start the PPM autoConfig tool with the PPM adapter. Possible values are:

- `true`: The PPM autoConfig tool will be started automatically by the PPM adapter after the export of the process data from Interstage BPM was successful.
- `false`: The PPM autoConfig tool will not be started by the PPM adapter.

If the parameter `runAutoConfig` is set to `true`, the parameter `autoConfigPath` must be set with an absolute path to the `runConfig.bat` / `runConfig.sh` file.

In the case that the `runAutoConfig` parameter is set to `true` and the `autoConfigPath` parameter is not set, the PPM adapter throws an exception and aborts the execution. The PPM adapter also throws an exception if the `runAutoConfig` parameter is set to `true` and the given path in the `autoConfigPath` parameter is invalid. The PPM adapter then exports the process instances but

does not run the PPM autoConfig tool so that the newly exported process instances are not available in ARIS PPM.

A.21 user

Initial value:

This value identifies the user name of an Interstage BPM administration user account.

Appendix B: ppmAutoConfig.properties File

The `ppmAutoConfig.properties` file contains all configuration settings necessary to extend the XML configurations files of the ARIS PPM Server with regard to the process instances exported by the PPM adapter.

The `ppmAutoConfig.properties` file contains a list of name-value pairs separated by an 'equals' (=) sign.

Lines starting in the `ppmAutoConfig.properties` file with '#' are ignored and skipped.

> **Note:** Some parameters can have as arguments the boolean-values `true` and `false`. If the values are wrongly written or if other values are used, for example `true1`, then the value is always considered as `false` by default.

B.1 client

Initial value: `ibpm`

The name of the ARIS PPM Server.

B.2 commandPath

Initial value: `<ARIS PPM Installation Directory>/bin`

This parameter denotes the path to the command files of ARIS PPM.

B.3 configPath

Initial value: `<ARIS PPM Installation Directory>/config`

Sets up the path to the configuration directory of ARIS PPM.

B.4 dataXMLArchive

Initial value: `<Interstage BPM Server Installation Directory>/client/ppm/data/archive`

Sets up the path to a directory, where all XML files that were once successfully imported to ARIS PPM are stored.

B.5 dataXMLPath

Initial value: `<Interstage BPM Server Installation Directory>/client/ppm/data`

Sets up the path to the directory, where the XML files generated by the PPM adapter are stored.

B.6 dtdPath

Initial value: `<ARIS PPM Installation Directory>/dtd`

Sets up the path to the directory, where the DTDs needed by the XML configuration files of the ARIS PPM Server and the XML data files generated by the PPM adapter are stored.

B.7 generateAttrID

Initial value: `false`

This parameter indicates whether ARIS PPM or the PPM autoConfig tool generates the ID values for the User Defined Attributes. Possible values are:

- `false`: the PPM autoConfig tool generates the IDs.
- `true`: ARIS PPM generates the IDs

B.8 logfile

Initial value: `PpmAutoConfig.log`

This parameter provides the file name for the log file that contains PPM autoConfig error messages. The log file is created in the installation directory of the PPM autoConfig tool, typically `<Interstage BPM Server Installation Directory>//client/ppm/ppmautoconfig`.

B.9 loglevel

Initial value: `2`

This parameter sets the log level of the PPM autoConfig tool as follows:

- A setting of 0 causes only errors to be logged.
- A setting of 1 causes the PPM autoConfig tool to write errors and warnings to the log file.
- A setting of 2 causes the PPM autoConfig tool to write all errors, warnings, and other process sequence messages to the log file.

B.10 password

Initial value: `manager` (encrypted)

The password of an ARIS PPM administration user account. The password is encrypted.

B.11 printCause

Initial value: `false`

This parameter specifies if the cause of an exception is written to the standard output of the application or not. Possible values are:

- `true`: The cause of an exception is written to standard output.
- `false`: The cause of an exception is not written to standard output.

The cause of an exception gives detailed information about the location where the exception occurred in a program. Normally, you don't need to change this setting, as the cause of an exception is not relevant for users.

Independently of this setting, the cause of an exception is always written to the log file.

B.12 user

Initial value: `system`

The user name of an ARIS PPM administration user account.

B.13 xmlArchivePath

Initial value: `<ARIS PPM Installation Directory>/custom/ibpm/xml/archive`

Sets up the path to the archived XML configuration files of the ARIS PPM Server.

When the PPM autoConfig tool is executed, it saves the current XML configuration files of the ARIS PPM Server in this directory. If an error occurs during the execution of the PPM autoConfig tool, the configuration of the ARIS PPM Server can be restored with these files.

Index