

FUJITSU Software

Symfoware Analytics Server V12.0.0

A decorative horizontal band with a red-to-dark-red gradient, featuring abstract white and light red curved lines and glowing points.

User's Guide

Linux(64)

J2UL-1960-01ENZO(00)
September 2014

Preface

Purpose of this Document

This document provides an overview of Symfoware Analytics Server and explains installation, operation, and data utilization.

Intended Readers

This document is intended for those who:

- Require an overview of Symfoware Analytics Server
- Manage the installation and operations of Symfoware Analytics Server
- Manage data utilization using Symfoware Analytics Server

Readers of this document are assumed to have general knowledge of the following:

- PostgreSQL
- SQL
- Windows

Structure of This Document

This document is structured as follows:

Chapter 1 Overview of Symfoware Analytics Server

Provides an overview of Symfoware Analytics Server and explains the system configuration.

Chapter 2 Installation and Operations

Explains the operating environment and procedures required for installing and operating Symfoware Analytics Server.

Chapter 3 Utilization

Explains how to store and convert data using Symfoware Analytics Server.

Appendix A Quantitative Limits

Explains the quantitative limits of Symfoware Analytics Server.

Appendix B Application Development

Explains how to develop applications that will connect to Symfoware Analytics Server.

Appendix C Data Coordination

Explains how to connect between Symfoware Analytics Server and mission-critical systems.

Appendix D Estimating Resource Requirements

Explains how to estimate the hardware resources required for Symfoware Analytics Server.

Appendix E Data Format

Explains the data formats that can be stored in Symfoware Analytics Server.

Appendix F Reference

Explains the system commands, system views, and system functions provided by Symfoware Analytics Server.

Appendix G Messages

Explains the messages output by Symfoware Analytics Server.

Appendix H Default System Values

Explains the default system values configured by executing the installation and setup commands of Symfoware Analytics Server.

Appendix I Collecting Failure Investigation Information

Explains how to collect information for initial investigation in response to problems that occur while building the Symfoware Analytics Server environment or during operation.

Abbreviations

This document uses the following Fujitsu product name abbreviation:

Official name	Abbreviation
FUJITSU Software Symfoware Analytics Server Standard Edition V12.0.0	Symfoware Analytics Server

This document uses the following abbreviations for other product names:

Official name	Abbreviation
Red Hat(R) Enterprise Linux(R) 5 (for Intel64) Red Hat(R) Enterprise Linux(R) 5 (for x86) Red Hat(R) Enterprise Linux(R) 6 (for Intel64) Red Hat(R) Enterprise Linux(R) 6 (for x86)	Linux
Red Hat(R) Enterprise Linux(R) 5 (for Intel64)	RHEL5(Intel64)
Red Hat(R) Enterprise Linux(R) 5 (for x86)	RHEL5(x86)
Red Hat(R) Enterprise Linux(R) 6 (for Intel64)	RHEL6(Intel64)
Red Hat(R) Enterprise Linux(R) 6 (for x86)	RHEL6(x86)
Red Hat(R) Enterprise Linux(R) 5 (for Intel64) Red Hat(R) Enterprise Linux(R) 5 (for x86)	RHEL5
Red Hat(R) Enterprise Linux(R) 6 (for Intel64) Red Hat(R) Enterprise Linux(R) 6 (for x86)	RHEL6
Windows(R) 7 Home Premium Windows(R) 7 Professional Windows(R) 7 Enterprise Windows(R) 7 Ultimate	Windows(R) 7
Windows(R) 8, Windows(R) 8 Pro and Windows(R) 8 Enterprise	Windows(R) 8
Windows(R) 8.1 Windows(R) 8.1 Pro Windows(R) 8.1 Enterprise	Windows(R) 8.1
Microsoft(R) Windows Server(R) 2008 Standard Microsoft(R) Windows Server(R) 2008 Enterprise Microsoft(R) Windows Server(R) 2008 Datacenter Microsoft(R) Windows(R) Web Server 2008 Microsoft(R) Windows Server(R) 2008 Standard without Hyper-V Microsoft(R) Windows Server(R) 2008 Enterprise without Hyper-V	Windows Server(R) 2008

Official name	Abbreviation
Microsoft(R) Windows Server(R) 2008 Datacenter without Hyper-V	
Microsoft(R) Windows Server(R) 2008 Standard, Microsoft(R) Windows Server(R) 2008 Enterprise Microsoft(R) Windows Server(R) 2008 Datacenter Microsoft(R) Windows(R) Web Server 2008 Microsoft(R) Windows Server(R) 2008 Standard without Hyper-V Microsoft(R) Windows Server(R) 2008 Enterprise without Hyper-V Microsoft(R) Windows Server(R) 2008 Datacenter without Hyper-V	Windows Server(R) 2008 for x64
Microsoft(R) Windows Server(R) 2008 R2 Datacenter Microsoft(R) Windows Server(R) 2008 R2 Enterprise Microsoft(R) Windows Server(R) 2008 R2 Standard Microsoft(R) Windows Server(R) 2008 R2 Foundation Microsoft(R) Windows(R) Web Server 2008 R2	Windows Server(R) 2008 R2
Microsoft(R) Windows Server(R) 2012 Datacenter Microsoft(R) Windows Server(R) 2012 Standard Microsoft(R) Windows Server(R) 2012 Essentials Microsoft(R) Windows Server(R) 2012 Foundation	Windows Server(R) 2012
Microsoft(R) Windows Server(R) 2012 R2 Datacenter Microsoft(R) Windows Server(R) 2012 R2 Standard Microsoft(R) Windows Server(R) 2012 R2 Essentials Microsoft(R) Windows Server(R) 2012 R2 Foundation	Windows Server(R) 2012 R2
Windows(R) 7 Home Premium Windows(R) 7 Professional Windows(R) 7 Enterprise Windows(R) 7 Ultimate Windows(R) 8 Windows(R) 8 Pro Windows(R) 8 Enterprise Windows(R) 8.1 Windows(R) 8.1 Pro Windows(R) 8.1 Enterprise Microsoft(R) Windows Server(R) 2008 Standard Microsoft(R) Windows Server(R) 2008 Enterprise Microsoft(R) Windows Server(R) 2008 Datacenter Microsoft(R) Windows(R) Web Server 2008 Microsoft(R) Windows Server(R) 2008 Standard without Hyper-V Microsoft(R) Windows Server(R) 2008 Enterprise without Hyper-V	Windows(R)

Official name	Abbreviation
Microsoft(R) Windows Server(R) 2008 Datacenter without Hyper-V Microsoft(R) Windows Server(R) 2008 R2 Datacenter Microsoft(R) Windows Server(R) 2008 R2 Enterprise Microsoft(R) Windows Server(R) 2008 R2 Standard Microsoft(R) Windows Server(R) 2008 R2 Foundation Microsoft(R) Windows(R) Web Server 2008 R2 Microsoft(R) Windows Server(R) 2012 Datacenter Microsoft(R) Windows Server(R) 2012 Standard Microsoft(R) Windows Server(R) 2012 Essentials Microsoft(R) Windows Server(R) 2012 Foundation Microsoft(R) Windows Server(R) 2012 R2 Datacenter Microsoft(R) Windows Server(R) 2012 R2 Standard Microsoft(R) Windows Server(R) 2012 R2 Essentials Microsoft(R) Windows Server(R) 2012 R2 Foundation	
Microsoft(R) Internet Explorer 8.0 Microsoft(R) Internet Explorer 9.0 Internet Explorer(R) 10.0	Internet Explorer
Java Naming and Directory Interface	JNDI
Java(TM) 2 SDK, Standard Edition Java(TM) 2 Platform, Enterprise Edition Java(TM) Platform, Standard Edition Java(TM) Development Kit	JDK
Java(TM) 2 Runtime Environment, Standard Edition Java(TM) Runtime Environment	JRE
Microsoft(R) Visual Basic(R) for Applications	VBA
Microsoft(R) Visual Basic	Visual Basic
Microsoft(R) Visual Basic.NET	Visual Basic.NET
Interstage Application Server Enterprise Edition Interstage Application Server Standard-J Edition Interstage Web Server	Interstage Application Server
Linkexpress Linkexpress Enterprise Edition Linkexpress Standard Edition	Linkexpress
Symfoware Server Standard Edition Symfoware Server Standard Edition (64-bit)	SE or Symfoware Server Standard Edition
Symfoware Server Lite Edition Symfoware Server Lite Edition (64-bit)	LE or Symfoware Server Lite Edition

Official name	Abbreviation
PRIMECLUSTER Global Disk Services	PRIMECLUSTER GDS or GDS
PRIMECLUSTER Global Link Services	GLS
Interstage Business Analytics Modeling Server V1	Interstage Business Analytics Modeling Server
Interstage Information Integrator Standard Edition V11	Interstage Information Integrator

Bundled Product Manuals

The following manuals are bundled with this product:

Product name	Manual title
Symfoware Server	Symfoware Server V12.0.0 Software Release Notes
	Symfoware Server V12.0.0 Documentation Road Map
	Symfoware Server V12.0.0 General Description
	Symfoware Server V12.0.0 Installation and Setup Guide for Server
	Symfoware Server V12.0.0 Installation and Setup Guide for Client
	Symfoware Server V12.0.0 Operation Guide
	Symfoware Server V12.0.0 Cluster Operation Guide
	Symfoware Server V12.0.0 Application Development Guide
	Symfoware Server V12.0.0 Reference
	Symfoware Server V12.0.0 Glossary
	Symfoware Server V12.0.0 Messages
	PostgreSQL 9.2.4 Documentation
	Java API Reference
Interstage Information Integrator	Interstage Information Integrator V11.0.0 Software Release Guide
	Interstage Information Integrator V11.0.0 Documentation Road Map
	Interstage Information Integrator V11.0.0 System Design Guide
	Interstage Information Integrator V11.0.0 Setup Guide
	Interstage Information Integrator V11.0.0 Operation Guide
	Interstage Information Integrator V11.0.0 Command Reference
	Interstage Information Integrator V11.0.0 Transfer Accelerator Setup Guide
	Interstage Information Integrator V11.0.0 Message Guide
	Interstage Information Integrator V11.0.0 Glossary
	Interstage Information Integrator V11.0.0 Operation Management Client Help

When you read this manual, refer to the following manuals also.

These are included in the manuals of this product in the CD-ROM.

- Systemwalker Runbook Automation
- Interstage Application Server

- Interstage Business Process Manager
- Interstage Business Process Manager Analytics

While using the following products, refer the related product manual.

- Interstage Big Data Parallel Processing Server
- Systemwalker Centric Manager
- Systemwalker Service Catalog Manager

Notes on This Document

Some of the screen samples contained in this document are representative only and are not complete images.

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Chapter 1 Overview of Symfoware Analytics Server

This chapter provides an overview of Symfoware Analytics Server.

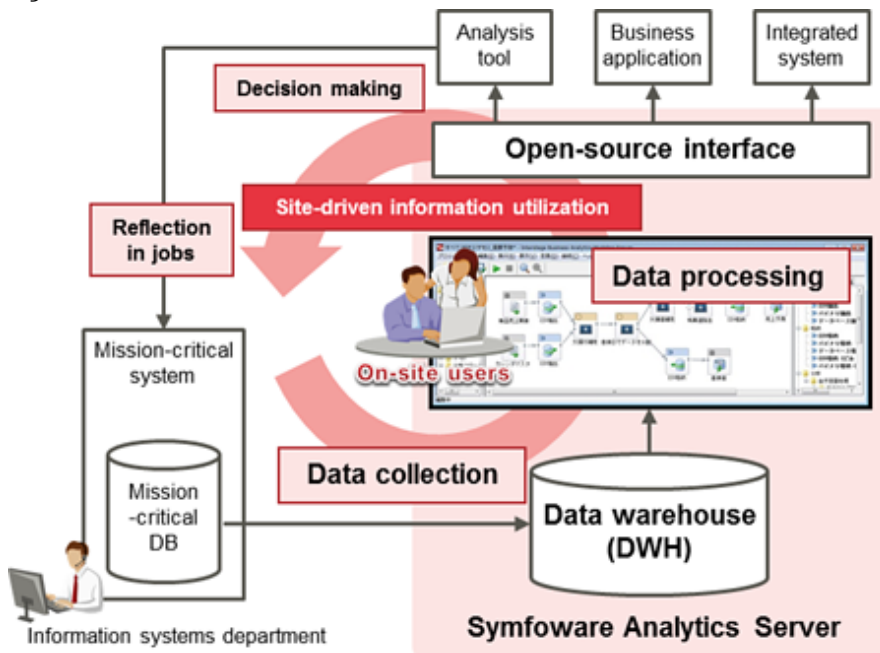
1.1 What is Symfoware Analytics Server?

Symfoware Analytics Server is database software that is suited to data warehouses (DWHs).

It processes large volumes of data from mission-critical systems to the required format before storing it.

Symfoware Analytics Server incorporates a high-speed query engine ideal for analysis jobs. It enables you to extract and utilize the information you require from a large volume of stored data at high speed by using an analysis tool or business application. It therefore supports faster job-related decision making.

Figure 1.1 Product overview



Conventionally, those engaged in information utilization have requested their information systems department to obtain the required data. The disadvantages with that approach are that it was time-consuming and users were not able to obtain the required data when they needed it. Symfoware Analytics Server provides solutions to such problems with the following features:

High-speed query engine

The query engine provided by Symfoware Analytics Server handles columnar tables, which make it possible to access specific columns within a large volume of data, reducing disk input/output during data retrieval.

The query engine can aggregate, search, and analyze stored data at high speed to suit any purpose.

Simple Data Processing definition

Symfoware Analytics Server provides a feature that places the user in control of processing the required data.

By using the GUI, the user can easily define the processing procedure for converting stored data to the data format required for analysis jobs. Furthermore, even users without any particular skill can define a procedure because a Data Processing definition is provided as a template.

The following features are also provided:

Open interface

Symfoware Analytics Server uses an open standard interface. Users can employ a variety of tools, increasing productivity and enhancing the portability of information-based analytics applications.

1.2 Symfoware Analytics Server Features

1.2.1 Columnar Tables

Information-based analytics applications are characterized by having a high number of column-based data processes such as the sales aggregation process.

Generic relational databases access data by row. Therefore, if you use a generic relational database to perform column-based aggregation processing of a table containing a large number of columns, accessing unnecessary columns may increase disk input/output, resulting in reduced response.

Symfoware Analytics Server provides columnar tables, which access data by column, in addition to the tables provided by Symfoware Server.

It can execute queries from information-based analytics applications at high speed by utilizing columnar tables for storing the data generated each day as time-series data without modifying it.

1.2.2 Data Processing

Before data from mission-critical systems can be analyzed using an analysis tool or application, it may need to be processed and/or formatted to a data format that is easy to analyze.

For example, to use an axis for analysis that sets out data by year, month, and day for analyzing a column that stores sales dates, you would have to split the data into three columns showing the year, month, and day. It would be difficult to prepare the data in a fixed format beforehand because the axis for analysis would change depending on the requirements of the analyst.

Symfoware Analytics Server provides a Data Processing feature that enables the analyst to prepare the data required for analysis.

The Data Processing feature provides a GUI by which the analyst can define the processing and formatting as a Data Processing Flow. The defined Data Processing Flow can be managed by the server, enabling it to be reused and shared with other analysts.

In addition, a Data Processing Flow that enables the analyst to perform basic Data Processing procedures is provided as a template. The analyst can perform Data Processing simply by setting the required parameters in the template.

1.2.3 Data Coordination

In companies that utilize information, the data required for analysis may be located in various corporate systems.

Symfoware Analytics Server provides a Data Coordination feature that collects the data generated by the various corporate systems and stores it in a data warehouse.

By merely creating a simple definition, the analyst can collect data and files from databases in different platforms when needed.

1.2.4 Simplified Backup and Restore

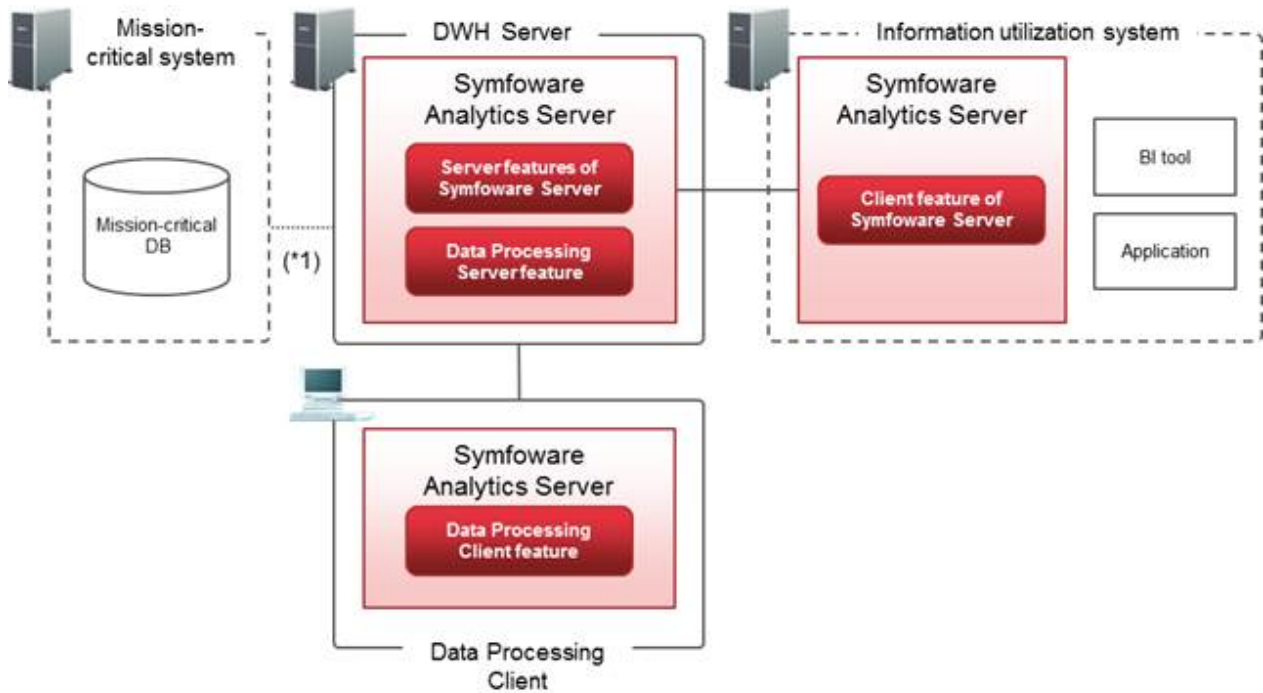
Symfoware Analytics Server provides a feature that simplifies complicated maintenance tasks performed during operation.

It enables everything from the configuration of the columnar tables to the Data Processing definitions to be backed up at one time and even restored in one step if the system fails. To resume the job, the analyst only needs to reload the columnar table data.

1.3 System Configuration of Symfoware Analytics Server

This section explains the system configuration of Symfoware Analytics Server.

Figure 1.2 System configuration



Location	Feature	Description
DWH Server	Server features of Symfoware Server	Large-volume data storage feature and high-speed query feature
	Data Processing Server feature	Feature that processes and formats the data stored in the DWH Server to the required data format where the information is actually being utilized
Information utilization system	Client feature of Symfoware Server (*2)	Client feature for connecting from various information utilization applications to the DWH Server
Data Processing Client	Data Processing Client feature	Feature for defining the Data Processing procedure

*1: Can be used when data must be integrated with a mission-critical system. Refer to "[Appendix C Data Coordination](#)" for details.

*2: Refer to "[Appendix B Application Development](#)" for information on how to develop information-based analytics applications that connect to a DWH Server.

Chapter 2 Installation and Operations

2.1 Installation

2.1.1 Mandatory Hardware

This chapter lists the mandatory hardware for installing Symfoware Analytics Server.

Required memory capacity

Location	Required memory capacity
DWH Server	24 GB or more
Data Processing Client	2 GB or more
Information utilization system	256 MB or more (for installations on Windows) 70 MB or more (for installations on Linux)

Required disk space

Location	Required disk space
DWH Server	16 GB or more
Data Processing Client	750 MB or more
Information utilization system	270 MB or more (for installations on Windows) 137 MB or more (for installations on Linux)

2.1.2 Mandatory Software

This section lists the mandatory software for Symfoware Analytics Server.

Operating systems

The table below lists the operating systems that are mandatory to use Symfoware Analytics Server.

Location	Operating systems
DWH Server	Red Hat Enterprise Linux 6.3 or later (for Intel64)
Data Processing Client	Windows(R) 7 Home Premium edition Windows(R) 7 Professional edition Windows(R) 7 Enterprise edition Windows(R) 7 Ultimate edition Windows(R) 8 Windows(R) 8 Pro edition Windows(R) 8 Enterprise edition Windows(R) 8.1 Windows(R) 8.1 Pro edition Windows(R) 8.1 Enterprise edition Microsoft(R) Windows Server(R) 2008 R2 Datacenter edition

Location	Operating systems
	Microsoft(R) Windows Server(R) 2008 R2 Enterprise edition Microsoft(R) Windows Server(R) 2008 R2 Standard edition Microsoft(R) Windows Server(R) 2012 Datacenter edition Microsoft(R) Windows Server(R) 2012 Standard edition
Information utilization system	Windows 7 Home Premium edition Windows 7 Professional edition Windows 7 Enterprise edition Windows 7 Ultimate edition Windows 8 Windows 8 Pro edition Windows 8 Enterprise edition Windows 8.1 Windows 8.1 Pro edition Windows 8.1 Enterprise edition Microsoft Windows Server 2008 Standard edition Microsoft Windows Server 2008 Enterprise edition Microsoft Windows Server 2008 Datacenter edition Microsoft Windows Server 2008 Foundation edition Microsoft Windows Web Server 2008 edition Microsoft Windows Server 2008 Standard without Hyper-V edition Microsoft Windows Server 2008 Enterprise without Hyper-V edition Microsoft Windows Server 2008 Datacenter without Hyper-V edition Microsoft Windows Server 2008 R2 Datacenter edition Microsoft Windows Server 2008 R2 Enterprise edition Microsoft Windows Server 2008 R2 Standard edition Microsoft Windows Server 2008 R2 Foundation edition Microsoft Windows Web Server 2008 R2 edition Microsoft Windows Server 2012 Datacenter edition Microsoft Windows Server 2012 Standard edition Microsoft Windows Server 2012 Essentials edition Microsoft Windows Server 2012 Foundation edition Microsoft Windows Server 2012 R2 Datacenter edition Microsoft Windows Server 2012 R2 Standard edition Microsoft Windows Server 2012 R2 Essentials edition Microsoft Windows Server 2012 R2 Foundation edition Red Hat(R) Enterprise Linux(R) 5 (for Intel64) Red Hat(R) Enterprise Linux(R) 5 (for x86)

Location	Operating systems
	Red Hat(R) Enterprise Linux(R) 6 (for Intel64) Red Hat(R) Enterprise Linux(R) 6 (for x86)

Mandatory software

The table below lists the packages included in the operating system and that are mandatory.

Location	Mandatory software
DWH Server	alsa-lib package (32-bit) alsa-lib package (64-bit) audit-libs package (32-bit) cairo package (64-bit) cloog-ppl package (64-bit) compat-libtermcap package (32-bit) compat-libtermcap package (64-bit) compat-readline5 package (32-bit) compat-readline5 package (64-bit) cpp package (64-bit) cracklib package (32-bit) db4 package (32-bit) elfutils-libelf package (32-bit) expat package (32-bit) expat package (64-bit) file package (64-bit) fontconfig package (64-bit) freetype package (64-bit) gcc package (64-bit) gcc-c++ package (64-bit) gdb package (64-bit) glibc package (32-bit) glibc package (64-bit) glibc-devel package (32-bit) glibc-headers package (64-bit) kernel-headers package (64-bit) libICE package (32-bit) libICE package (64-bit) libSM package (32-bit) libSM package (64-bit) libX11 package (32-bit)

Location	Mandatory software
	libX11 package (64-bit) libX11-common package libXau package (32-bit) libXau package (64-bit) libXdamage package (64-bit) libXext package (32-bit) libXext package (64-bit) libXfixes package (64-bit) libXi package (32-bit) libXi package (64-bit) libXp package (32-bit) libXp package (64-bit) libXrender package (64-bit) libXt package (32-bit) libXt package (64-bit) libXtst package (32bit) libXxf86vm package (64-bit) libattr package (32-bit) libcap package (32-bit) libdrm package (64-bit) libgcc package (32-bit) libgcc package (64-bit) libgfortran package (64-bit) libgomp package (64-bit) libjpeg package (64-bit) or libjpeg-turbo package (64-bit) libpng package (64-bit) libselinux package (32-bit) libstdc++ package (32-bit) libstdc++ package (64-bit) libstdc++-devel package (64-bit) libtool-ltdl package (64-bit) libuuid package (32-bit) libuuid package (64-bit) libxcb package (32-bit) libxcb package (64-bit) libxml2 package (64-bit) make package (64-bit)

Location	Mandatory software
	mesa-libGL package (64-bit) mesa-libGLU package (64-bit) mpfr package (64-bit) ncurses-libs package (32-bit) ncurses-libs package (64-bit) nss-softokn-freebl package (32-bit) pam package (32-bit) perl package (64-bit) perl-Module-Pluggable package (64-bit) perl-Pod-Escapes package (64-bit) perl-Pod-Simple package (64-bit) perl-libs package (64-bit) perl-version package (64-bit) pixman package (64-bit) ppl package (64-bit) readline package (32-bit) readline package (64-bit) redhat-lsb package (64-bit) strace package (64-bit) tcsh package (64-bit) unixODBC package (32-bit) zlib package (32-bit) zlib package (64-bit) python-libs (64-bit) (if using PL/Python) tcl (32-bit) (if using PL/Tcl) tcl (64-bit) (if using PL/Tcl) xz-libs (32-bit) xz-libs (64-bit)

The table below lists the software that is mandatory to run the Symfoware Server client feature on Linux.

Location	Mandatory software
Information utilization system	The following packages are mandatory to run the Symfoware Server client feature on RHEL5(x86): <ul style="list-style-type: none"> - glibc - libgcc - libstdc++ - libtermcap

Location	Mandatory software
	<ul style="list-style-type: none"> - libxml2 (if using XPath queries and the XSLT feature) - libxslt (if using XPath queries and the XSLT feature) - unixODBC (if using ODBC drivers) - zlib <p>The following packages are mandatory to run the Symfoware Server client feature on RHEL5(Intel64):</p> <ul style="list-style-type: none"> - glibc - libgcc - libstdc++ - libtermcap - libxml2 (if using XPath queries and the XSLT feature) - libxslt (if using XPath queries and the XSLT feature) - unixODBC (if using ODBC drivers) - zlib <p>The following packages will be required to run the Symfoware Server client feature on RHEL6(x86):</p> <ul style="list-style-type: none"> - glibc - libgcc - libstdc++ - libtool-ltdl - ncurses-libs - nss-softokn-freebl - unixODBC (if using ODBC drivers) - xz-libs - zlib <p>The following packages are mandatory to run the Symfoware Server client feature on RHEL6(Intel64):</p> <ul style="list-style-type: none"> - glibc - libgcc - libstdc++ - libtool-ltdl - ncurses-libs - nss-softokn-freebl - unixODBC (if using ODBC drivers) - xz-libs - zlib

Related software

The table below lists the products that can be combined (run) with the Symfoware Server client feature.

Before using these products, check which operating system each one supports.

Note

JDK or JRE bundled with Interstage Application Server, and Oracle JDK or JRE, can be used, but we recommend using the one bundled with Interstage Application Server.

Windows client

Product name	Version
Visual Studio	2008 2010 2012
.NET Framework	3.5SP1 or later 4 4.5
JDK or JRE	Java SE 6/7 or later

Linux client

Product name	Package name	Version
C compiler (*1)	gcc Other related packages	-
JDK or JRE	-	Java SE 6/7 or later

*1: Only the compiler provided in the operating system has the guaranteed behavior.

2.1.3 Conflicting Software

Symfoware Analytics Server cannot be installed on the same machine on which any versions of SAP Sybase IQ are already installed. Additionally, refer to the following manuals that are attached with this product for information on other conflicting software:

Manual name	Reference
Symfoware Server V12.0.0 Installation and Setup Guide for Server	Section 2.3, "Excluded software"
Interstage Information Integrator V11.0.0 Software Release Guide	Section 1.3, "Notes of included products"

The conflicting software list also given below:

Conflicting Software

Products	V/L
Systemwalker IT Process Master	All versions
Interstage Application Server - INTERSTAGE Application Server Standard Edition - INTERSTAGE Application Server Enterprise Edition - INTERSTAGE Application Server Web Edition	All versions

Products	V/L
<ul style="list-style-type: none"> - INTERSTAGE Application Server Web-J Edition - Interstage Application Server Standard Edition - Interstage Application Server Standard-J Edition - Interstage Application Server Enterprise Edition - Interstage Application Server Plus - Interstage Application Server Plus Developer - Interstage Application Server Web-J Edition 	
Interstage Application Framework Suite <ul style="list-style-type: none"> - Interstage Application Framework Suite Standard Edition - Interstage Application Framework Suite Enterprise Edition - Interstage Application Framework Suite Web Edition 	All versions
Interstage Business Application Server <ul style="list-style-type: none"> - Interstage Business Application Server Standard Edition - Interstage Business Application Server Enterprise Edition 	All versions
Interstage Job Workload Server	All versions
Interstage BPM Flow	All versions
Interstage Business Process Manager	All versions
Interstage Shunsaku Data Manager	All versions
Interstage Traffic Director	All versions
Interstage Service Integrator	All versions
Interstage Service Integrator Standard Edition	All versions
Interstage Service Integrator Enterprise Edition	All versions
Interstage Web Server	All versions
Systemwalker Centric Manager <ul style="list-style-type: none"> - Systemwalker Centric Manager Global Enterprise Edition - Systemwalker Centric Manager Enterprise Edition - Systemwalker Centric Manager Standard Edition 	Only Systemwalker Centric Manager Enterprise Edition and Systemwalker Centric Manager Standard Edition V10.0L21 or later (for x86) can coexist (*1) In all other cases, the listed products cannot coexist
Systemwalker Runbook Automation <ul style="list-style-type: none"> - Systemwalker Runbook Automation (Management Server) - Systemwalker Runbook Automation (Linked Server/Relay Server) - Systemwalker Runbook Automation (Business Server) 	All versions
Systemwalker Software Configuration Manager <ul style="list-style-type: none"> - Systemwalker Software Configuration Manager (Admin Server) - Systemwalker Software Configuration Manager (Business Server) 	All versions
Systemwalker Service Quality Coordinator Enterprise Edition (Dashboard Server)	Cannot coexist if versions are V13.4.0 or later

Products	V/L
Cloud Infrastructure Management Software	All versions
Interstage Business Process Manager Analytics	All versions

*1:Refer to "[Appendix J Installing Operation Management Product](#)" for information on how to install Systemwalker CentricMGR V10.0L21 or later on the same machine

2.1.4 Installation

This section explains the procedure to install the DWH Server and client.

Note

In Microsoft(R) Windows Server(R) 2008 R2, if installing a remote desktop service in application server mode, perform the following procedure:

Execute the following command to switch to the install mode before the installation is performed:

```
CHANGE USER /INSTALL
```

Execute the following command to switch to the execute mode after the installation was performed:

```
CHANGE USER /EXECUTE
```

2.1.4.1 Installing the DWH Server

Pre-installation checks

Before performing the installation, refer to the pre-installation notes in the following manuals:

Manual name	Reference
Symfoware Server V12.0.0 Installation and Setup Guide for Server	Chapter 3, "Initial Installation"
Interstage Information Integrator V11.0.0 Software Release Guide	Section 4.2.1, "Before Installation" Section 4.2.2, "Installation Considerations"

The pre-instllation procedures also given below:

Port Number

Ensure the port number which is listed in "[Appendix H Default System Values](#)" is not already used.

If the port number is already used, refer the port number which is listed in "[Appendix H Default System Values](#)" and follow the procedure as below :

- If changing the port number is possible after the setup, refer to "[Appendix H Default System Values](#)" for changing the value.
- If changing the port number is not possible after the setup, contact Fujitsu technical support.

Information

Execute the below given command to check the port numbers in use:

```
netstat -a -n
```

However, the port number might be used in the other software even though the port number is not displayed in the result.

Firewall

If the firewall is running in the installation environment, it must be setup to allow the communication for the necessary port.

Refer to the operating system manual for the information on how to set up the firewall.

The ports listed in "Mandatory port numbers that accept external access" of "[Appendix H Default System Values](#)" should be allowed.

Operating System Setting

- Check for LANG in /etc/sysconfig/i18n is set to "en_US.UTF-8".
- During Symfoware Analytics Server installation, following users are registered as operating system user. If the users have been already registered in operating system, delete them if not required.
 - swrbadbuser
 - bpmapps
- If "ibamsservice" has been registered as operating system user, the user will be deleted and registered again during the set up of Symfoware Analytics Server.



Note

Countermeasure if the Network Adapter is disabled when the Data Processing Server is running

If the Network Adapter is disabled when the Data Processing Server is running, the log in is not possible from the Analytics Flow Editor and executing the Operation Management command will fail. In this case, enable the Network Adapter and execute the following commands.

```
irepstop -R ibamsrep
irepstart -R ibamsrep
```

Checking the hosts file settings

The IP address must be correctly identified using the local host name (a host name that can be confirmed using the hostname or uname -n command). Check the hosts file settings before the installation, and confirm that the name can be resolved correctly.



Note

To install in an IPv6 environment, do not set the local host name or "localhost" in the IPv6 address in the hosts file. Set the local host name or "localhost" only in the IPv4 address. Additionally, set "localhost" in the local loopback address "127.0.0.1".



Example

In the following example, the IP address is "192.168.1.2", and the local host name is "myserver".



```
127.0.0.1    localhost
192.168.1.2 myserver
```

Editing the system parameters

Before installing the DWH Server, open the /etc/sysctl.conf file and edit the following system parameters:

Shared memory

Parameter	Value set	Type
shmmax	2684354560	Maximum
shmall	(shmmax value)/(PAGE_SIZE value)	Maximum

Parameter	Value set	Type
	Round up to the nearest integer.  Example When PAGE_SIZE is 4096 655360  Information To obtain PAGE_SIZE, execute the following: # getconf PAGE_SIZE	
shmmni	76	Addition

Semaphores

Parameter	Value set	Type
semmsl	4096	Maximum
semmns	46356	Addition
semopm	256	Maximum
semmni	11748	Addition

Message queues

Parameter	Value set	Type
msgmax	16384	Maximum
msgmnb	6273024	Maximum
msgmni	2599	Addition

TCP/IP send and receive buffer

Parameter	Value set	Type
net.core.rmem_max	2097152	Maximum

Information

Note about types:

- Maximum
This value is required as a minimum requirement. There is no need to change the value if the value that has already been set (either the initial value or the previous setting) is equal to or greater than the value in the table.
- Addition
Add the value in the table to the value that has already been set (either the initial value or the previous setting).



Example

An example of the system parameter settings is shown below.

```
kernel.shmmax = 68719476736
kernel.shmall = 4294967296
kernel.shmmni = 4172
kernel.sem = 4096 78356 256 11876
kernel.msgmax = 65536
kernel.msgmnb = 6273024
kernel.msgmni = 18336
net.core.rmem_max = 2097152
```

To enable the edited content, execute the following command:

```
# /sbin/sysctl -p /etc/sysctl.conf
```

Execute the following command to ensure that the parameter that was set was reflected:

```
# /sbin/sysctl -a
```

Creating the DWH Server administrator user

Determine the operating system user account to be used as the DWH Server administrator. Use either a new user, or a user that already exists. Note however that you cannot use the operating system superuser (root) as the DWH Server administrator.

Create the DWH Server administrator user in the root group.

The following example shows how to create an operating system user account with the name "symfoas" that will be the DWH Server administrator.

Example

```
# adduser -g root symfoas
# passwd symfoas
```

Installation

Login as the superuser, and then perform the installation according to the following procedure:

1. Copy the install command (symassvinstall.sh)
Insert the following DVD in the DVD drive, and then mount the DVD:
 - Symfoware Analytics Server Standard Edition Media Pack (64-bit) V12.0.0 Server Program 4

Copy the install command stored in the following directory to any directory on the local disk:

- [DISK_MOUNT_POINT]/symassvinstall.sh

Unmount the DVD.

2. Run the installation
Execute the install command in the directory to which it was copied.

```
# ./symassvinstall.sh [DEVICE] [DISK_MOUNT_POINT] [IBAMS_DATA_MNG_DIR]
```

Example

```
# ./symassvinstall.sh /dev/sr0 /mnt/dvdrom /symfoas/data
```



See

Refer to "F.1.1 symassvinstall" in Appendix F, "Reference" for information on the install command.

3. Swap the DVDs

A directive to swap the DVDs in the order shown below is output while the install command is executing, so swap the DVDs according to this directive.

1. If the message "NOTICE: Please insert installation media SERVER PROGRAM 1." is output, remove the DVD and insert the following DVD in the DVD drive, and then press the ENTER key:
 - Symfoware Analytics Server Standard Edition Media Pack (64-bit) V12.0.0 Server Program 1
2. If the message "NOTICE: Please insert installation media SERVER PROGRAM 2." is output, remove the DVD and insert the following DVD in the DVD drive, and then press the ENTER key:
 - Symfoware Analytics Server Standard Edition Media Pack (64-bit) V12.0.0 Server Program 2
3. If the message "NOTICE: Please insert installation media SERVER PROGRAM 3." is output, remove the DVD and insert the following DVD in the DVD drive, and then press the ENTER key:
 - Symfoware Analytics Server Standard Edition Media Pack (64-bit) V12.0.0 Server Program 3
4. If the message "NOTICE: Please insert installation media SERVER PROGRAM 4." is output, remove the DVD and insert the following DVD in the DVD drive, and then press the ENTER key:
 - Symfoware Analytics Server Standard Edition Media Pack (64-bit) V12.0.0 Server Program 4

Information

If the ENTER key was pressed after the DVD swap failed, the message "SERVER PROGRAM [number] installer not found. Please insert the correct media." is output.

Insert the DVD for the output number in the DVD drive, and then press the ENTER key.

4. Finish the installation

The following message is displayed when the installation is complete.

```
Symfoware Analytics Server installation has finished.
```

5. Restart

Restart the machine.

Information

If the installation failed, reexecute the installation according to the following procedure:

1. Restart the machine.
2. Insert the following DVD in the DVD drive, and then mount the DVD:
 - Symfoware Analytics Server Standard Edition Media Pack (64-bit) V12.0.0 Server Program 4
3. After logging in as the superuser, copy the following uninstall command (symassvuninstall.sh) to any directory on the local disk:
 - [DISK_MOUNT_POINT]/symassvuninstall.sh
4. Execute the following command in the directory to which the uninstall command was copied:

```
# ./symassvuninstall.sh
```

5. Once the uninstallation is complete, restart the machine.
6. Check the log file, remove the cause of the failure, and then reexecute the install command.

2.1.4.2 Installing the Client

This section explains how to install the client.

Note

If the autorun feature of Windows is disabled, or if the operating system is a remote desktop service (terminal service), the installation program is not automatically started. Execute the following file using [Run] or Windows Explorer.

```
Z:\autorun.exe
```

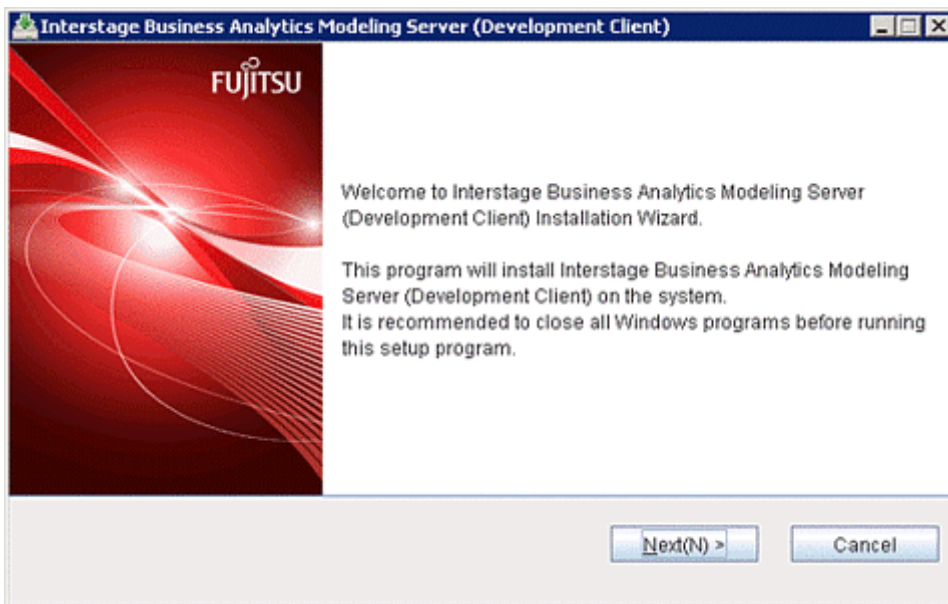
For Z, specify the drive name of the drive where the DVD has been inserted.

2.1.4.2.1 Data Processing Client feature

This section explains how to install the Data Processing Client feature.

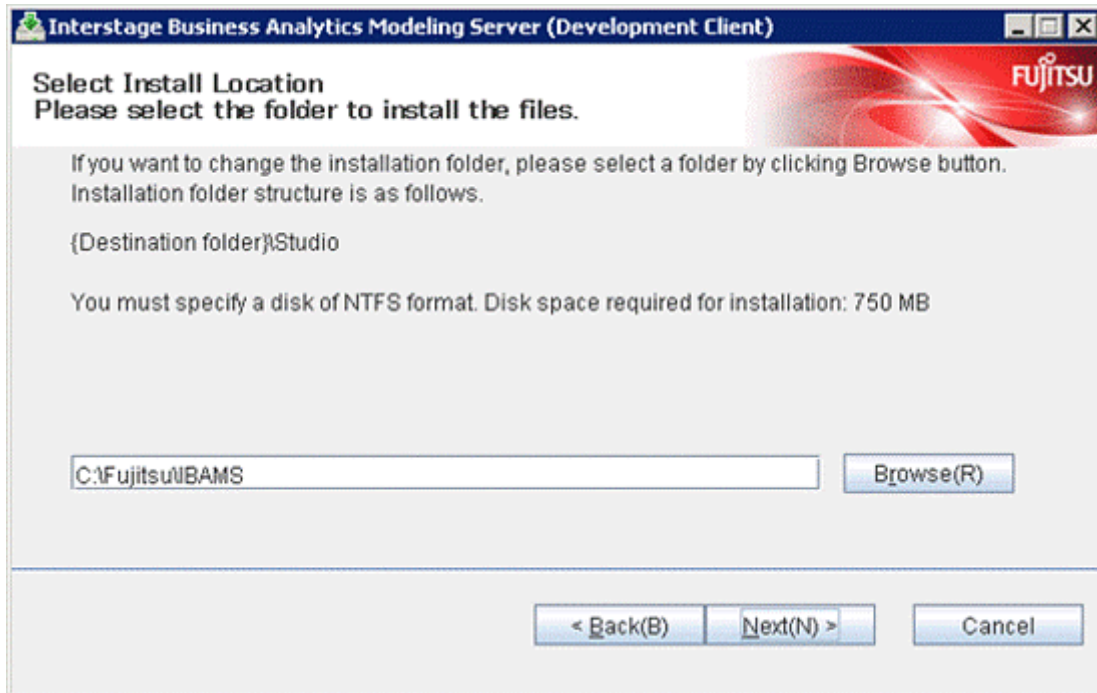
Use the following procedure to perform the installation.

1. Log in using an account that belongs to the Administrators group.
2. Start the installer.
The installer will start automatically when the following DVD is inserted in the DVD drive:
 - Symfoware Analytics Server Standard Edition Media Pack (64-bit) V12.0.0 Client Program 2
3. Select [Installation of Development Client].
4. The [Welcome] dialog box will be displayed. Check the content, and then click [Next].

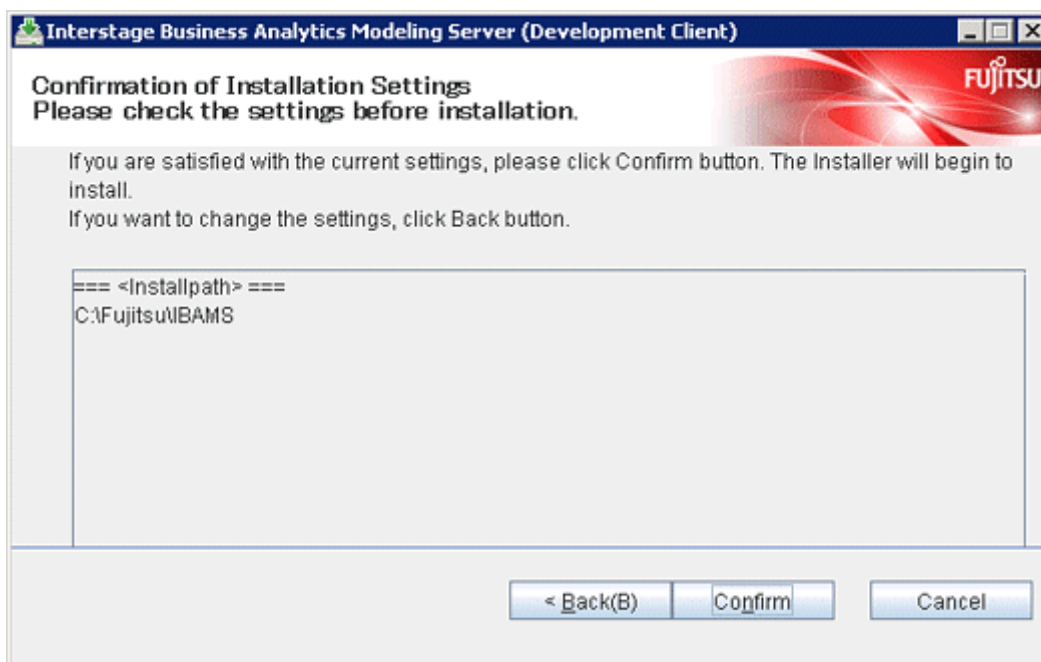


5. Specify the installation directory. In the [Select Install Location] window, specify the installation directory, and then click [Next].
The paths that can be specified for the installation directory are as follows:
 - The maximum length of the path to the installation directory is 17 bytes.
 - Specify an NTFS format disk for the installation directory.
 - Paths that start with "\\", and relative paths, cannot be specified.

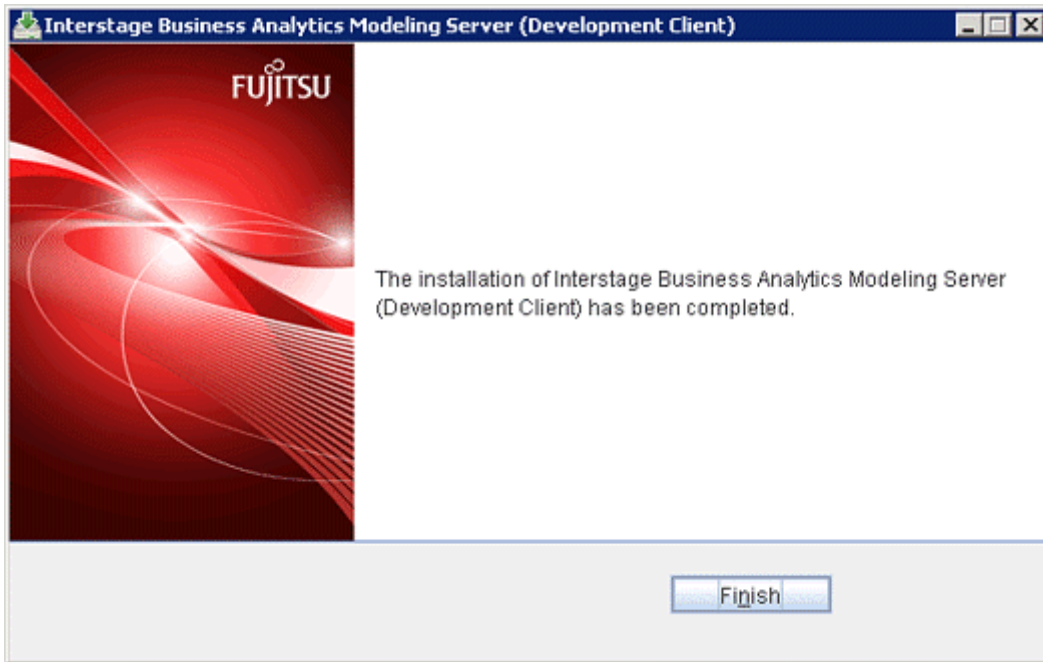
- The following characters can be specified for the directory name: Alphanumeric, hyphens ("-"), and underscores ("_").



6. Check the content that was entered in the [Confirmation of Installation Settings] window. If there are no errors, click [Confirm]. Installation will start.



7. When the installation completes, the following window will be displayed. Click [Finish].



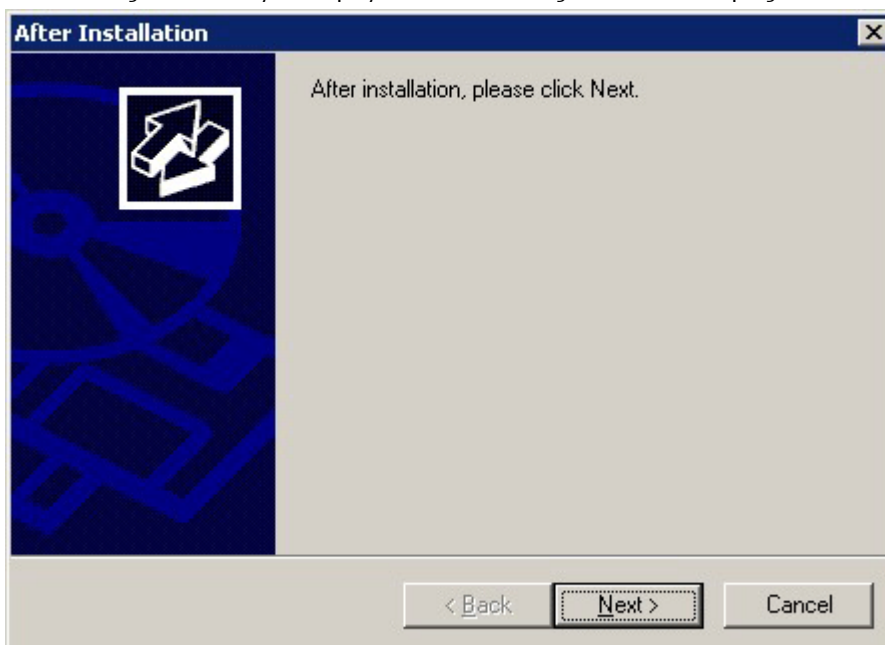
2.1.4.2.2 Client feature of Symfoware Server

This section explains the installation procedure.

Installing the Windows client



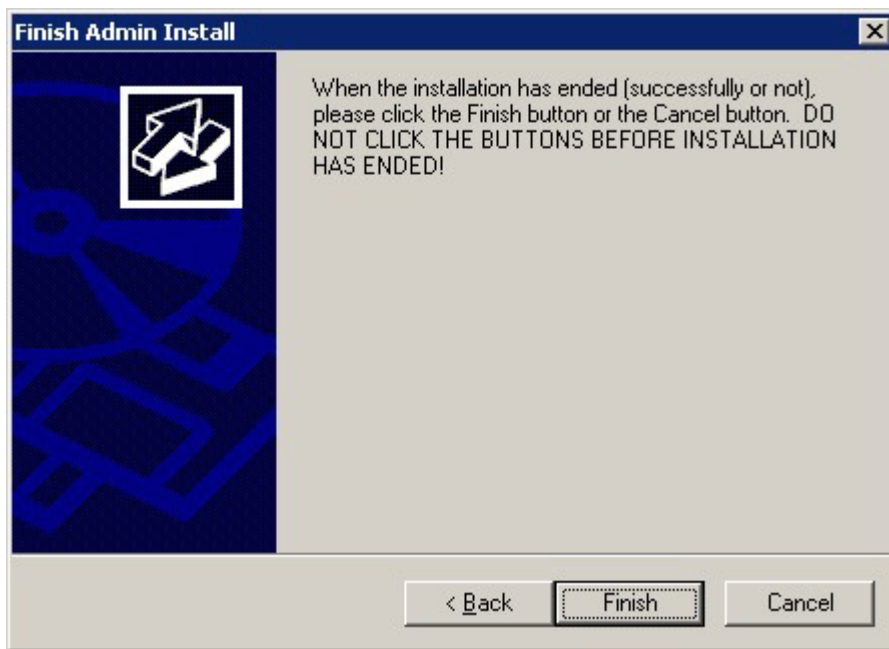
The following window may be displayed when executing the installation program.



If this window is displayed, perform the following operations:

1. Perform the installation steps until the [InstallShield Wizard Complete] window is displayed.
2. In the above window, click [Next].

3. The following window will be displayed. Click [Finish].



4. Restart the machine.

Use the following procedure to perform the installation.

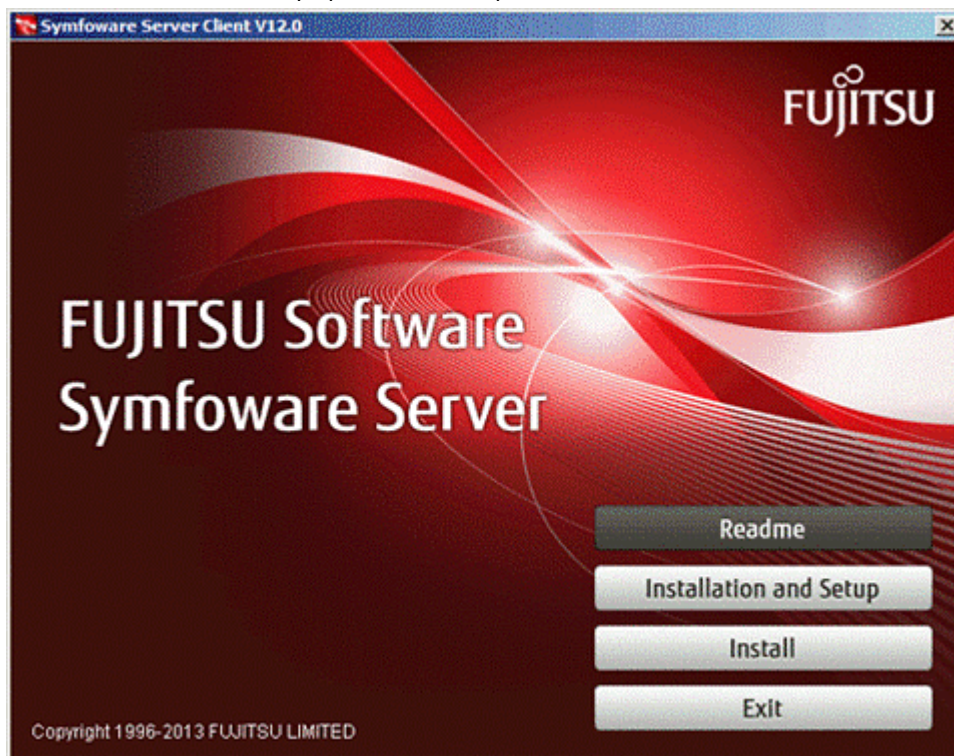
1. Log in using an account that belongs to the Administrators group.

2. Start the installer.

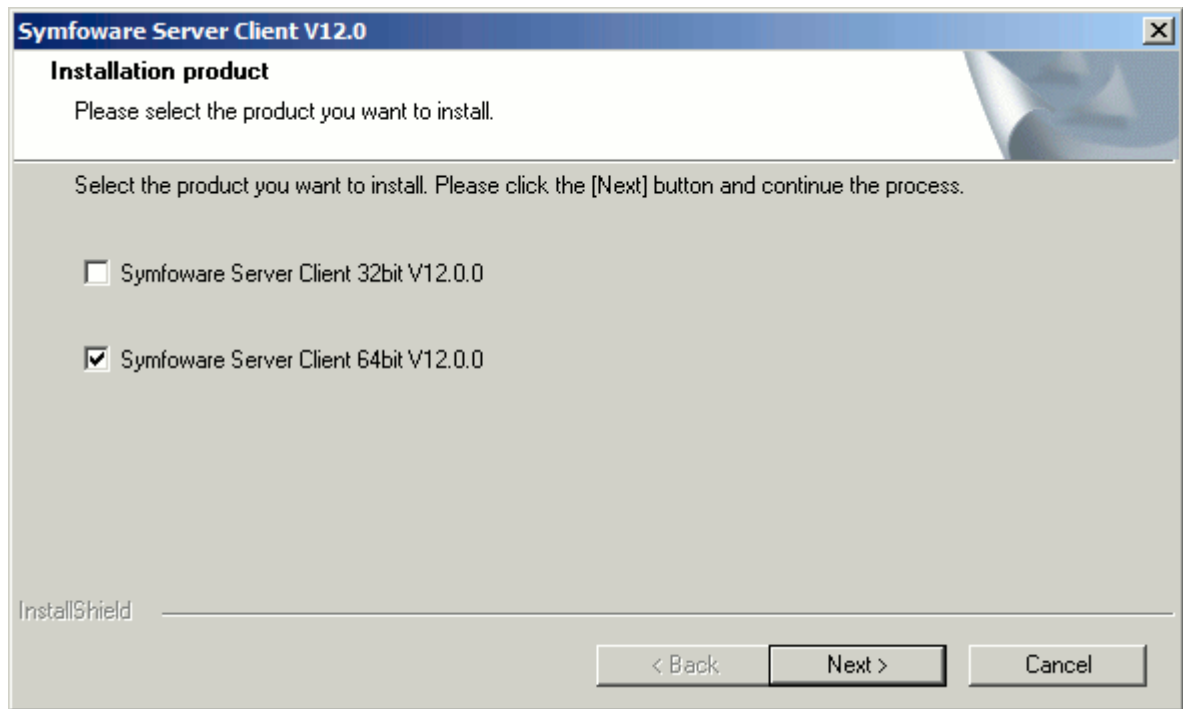
Insert the following DVD in the DVD drive:

- Symfoware Analytics Server Standard Edition Media Pack (64-bit) V12.0.0 Client Program 1

The [Install Menu] will be displayed automatically when the client feature DVD is inserted in the DVD drive. Click [Install].



3. The [Installation product] window will be displayed. After checking that there is sufficient available space in the installation directory, select the product to be installed, and then click [Next].

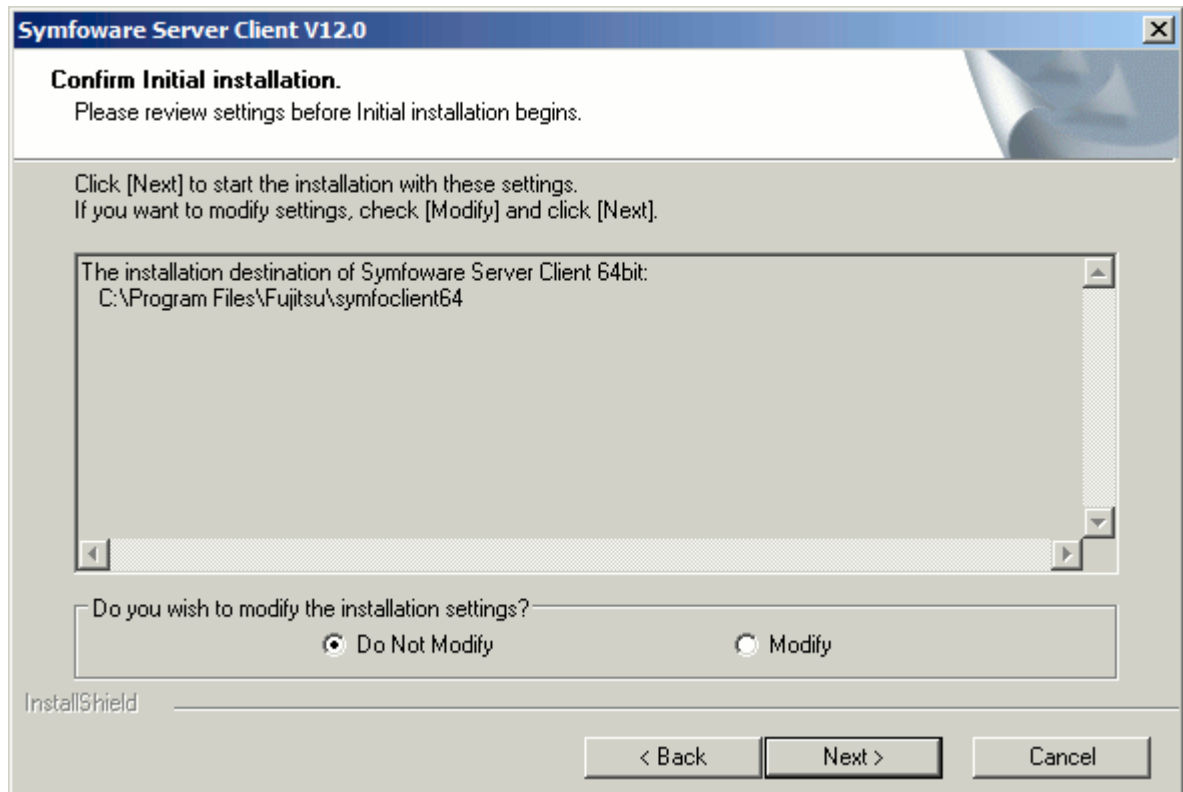


Information

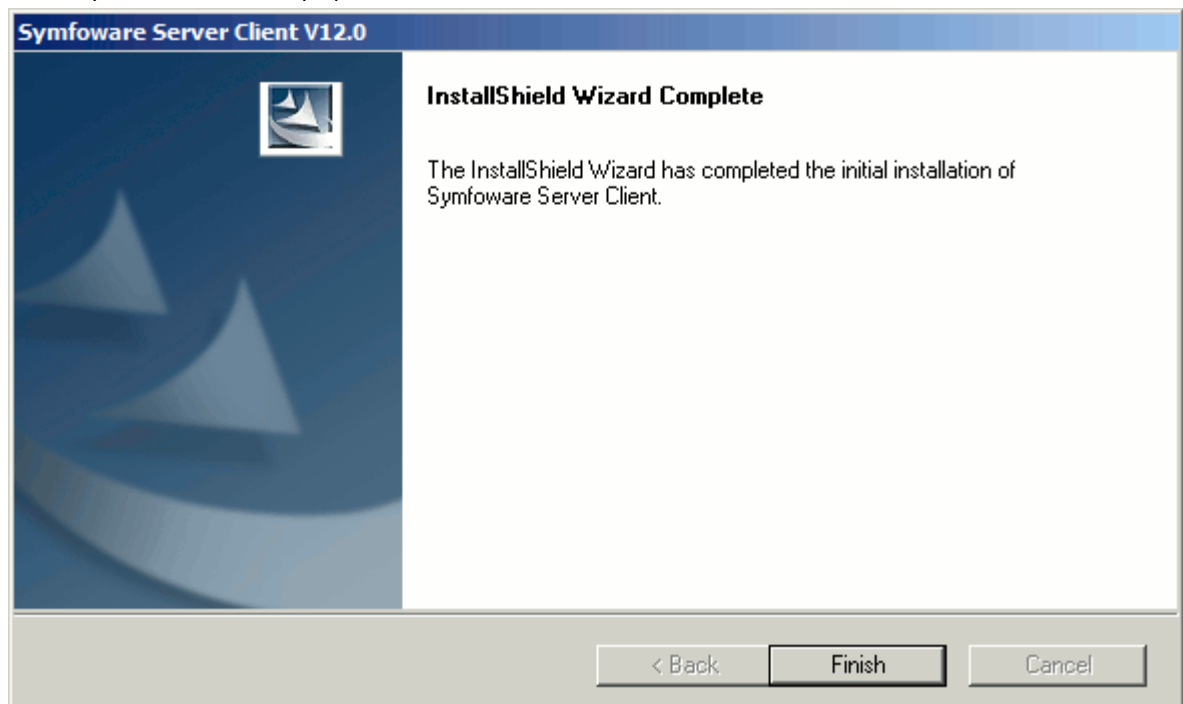
To create a 32-bit application in a 64-bit environment, Symfoware Server Client 32-bit will be required. For this reason, we recommend selecting and installing both products.

4. The [Confirm Setup Information] window will be displayed. If there are no problems with the settings content, select [Do Not Modify], and then click [Next]. Clicking [Next] will start

the installation process.



5. The completion window is displayed. Click [Finish].



Installing the Linux client

Use the following procedure to perform the installation.

1. Change to the superuser.
Execute the following command to change to the superuser:

```
$ su -  
Password:*****
```

2. Mount the DVD drive.
Insert the following DVD in the DVD drive:
 - Symfoware Analytics Server Standard Edition Media Pack (64-bit) V12.0.0 Client Program 1

Note

If the automatic mount daemon (autofs) is used to mount DVDs automatically, the installer fails to start because "noexec" is set as the mount option. In this case, use the mount command to remount the DVD properly and then run the installation. The mount options of the mounted DVD can be checked by executing the mount command without any arguments.

Example

```
# mount -t iso9660 -r -o loop /dev/dvd /media/dvd
```

3. Start the installation processing.
Execute the install.sh command to start the installation.

Example

```
# LANG=en_US.UTF-8;export LANG
# cd /media/dvd
# ./install.sh
```

4. Select the product for installation.
The list of products to be installed is displayed as shown below.
If multiple products are selected, steps 4 to 10 will be repeated.

```
The following products can be installed:
1: Symfoware Server Client 32bit V12.0.0
2: Symfoware Server Client 64bit V12.0.0

Select the product to be installed.
To select multiple products, separate using commas (,). (Example: 1,2)
[1,2,all,q] (The default value is all): 2
```

Information

To create a 32-bit application in a 64-bit environment, Symfoware Server Client 32-bit will be required. For this reason, we recommend selecting the default value "all" to install all products.

5. Check the installation target product.
The selected installation target product is displayed as shown below.

```
Selected product
  Symfoware Server Client 64bit V12.0.0

Do you want to install the above product?
y: Proceed to the next step
n: Select product again
q: Quit without installing
[y,n,q] (The default value is y): y
```

6. Check the displayed product name and the installation environment.
The confirmation message for the product name and the installation environment is displayed as shown below.

```
=====
Symfoware Server Client 64bit V12.0.0
=====
Installation environment check will start.
Installation environment check has completed.
```

7. An start message will be displayed as follows:

```
Initial installation will start.
```

8. Change the installation information.

The window for checking the installation information is displayed as shown below.

```
Installation directory information
  Installation directory: /opt/symfoclient64

Start installation using the above information?
y: Start the installation
c: Change the information
q: Quit without installing
[y,c,q] (The default value is y): y
```

If "y: Start the installation" was selected, refer to step 11 for details.

If "c: Change the information" was selected, the window shown below will be displayed.

9. Enter the installation directory.

The window to enter the installation directory is displayed as follows:

```
Specify the installation directory.
[directory name,q] (The default value is /opt/symfoclient64):
```

10. Confirm the installation information.

The installation information is displayed as shown below. The directory name that was entered in the above window will be displayed in the installation directory.

Enter "y" to start installation using the displayed installation information.

```
Installation directory information
  Installation directory: /opt/symfoclient64

Start installation using the above information?
y: Start the installation
c: Change the information
q: Quit without installing
[y,c,q] (The default value is y): y
```

11. The installation status is displayed as follows:

```
Starting installation.
Installation is complete.
```

12. A completion message will be displayed.

When installation completes, a message is displayed showing the installation results.

When successful

The following message is displayed when installation completes successfully.

```
Initial installation has completed successfully.
```

When the process fails

The following message is displayed when an error occurs during installation.

```
The following message is displayed when an error occurs during
installation.error: ./CLIENT64/packages/r60x64/FJSVsymcil2006-12006E.6-2.x86_64.rpm: not an
rpm
package (or package manifest):
ERROR: An error occurred in FJSVsymcil2006 installation.
```

Initial installation has terminated abnormally.

Information

If an error occurs during the installation process, take the following corrective actions:

1. Resolve the cause of the error, as indicated by the error message.
2. Reexecute the install.sh command.

2.1.5 Setting up the DWH Server

This section explains how to set up the DWH Server.

Set up Symfware Analytics Server according to the following procedure:

Linux

1. Prepare the raw devices
Prepare the following three raw devices to store the columnar table data:
 - Raw device for storing main data of the columnar table
 - Raw device for storing temporary data of the columnar table
 - Raw device for storing database space of the columnar table

Ensure that the raw device that was created can be read and written to by the DWH Server administrator.

Example

An example of creating the raw device `/dev/raw/raw1` on the disk `/dev/sdb` is shown below.

```
# parted /dev/sdb
GNU Parted 2.1
Using /dev/sdb
Welcome to GNU Parted! Type help to view a list of commands.
(parted) mklabel
New disk label type? gpt
(parted) mkpart
Partition name? []? part1
File system type? [ext2]? ext4
Start? 0%
End? 10GB
(parted) print
Model: VMware Virtual disk (scsi)
Disk /dev/sdb: 107GB
Sector size (physical/logical): 512B/512B
Partition table: gpt

No.  Start    End      Size    File system  Name    Flag
   1   1049kB   10.0GB   9999MB
                                part1

(parted) quit
Information: You may need to update /etc/fstab.
#raw -qa
#raw /dev/raw/raw1 /dev/sdb1
/dev/raw/raw1: bound to major 8, minor 17
#raw -qa
/dev/raw/raw1: bound to major 8, minor 17
```

Edit the file `/etc/udev/rules.d/60-raw.rules` so that the raw devices created after the server was restarted can also be used.

In the example below, the raw device "/dev/raw/raw1" that was created is persisted, and read and execution privileges are set for the DWH Server administrator "symfoas".

```
ACTION=="add",KERNEL=="sdb1",RUN+="/bin/raw /dev/raw/raw1 %N"
ACTION=="add",KERNEL=="raw1",OWNER="symfoas",GROUP="root",MODE="0660"
```

2. Set the access privileges

Grant read and execution privileges to other users for all directories accessed between the root directory and the Data Management directory of the Data Processing Server.

In the example below, read and execution privileges are added for "/symfoas/data".

```
# chmod o+rx /symfoas
# chmod o+rx /symfoas/data
```

3. Execute the setup command

Log in to the DWH Server as the superuser and execute the following command:

```
/opt/FJSVsyms/bin/symassetup.sh \  
[ROWBASEDB_DATADIR] \  
[ROWBASEDB_BKUPDIR] \  
[COLUMNARDB_CTLGDATA_DIR] \  
[COLUMNARDB_MAINDATA_RAWDEVICE] \  
[COLUMNARDB_TEMPDATA_RAWDEVICE] \  
[COLUMNARDB_DBSPACE_RAWDEVICE] \  
[DWHSERVER_MANAGE_USERNAME] \  
[COLUMNARDB_AVAILABLE_MEM]
```

Example

```
# /opt/FJSVsyms/bin/symassetup.sh /rowdata/data /rowdbbkup/data /colddbdata/data \  
/dev/raw/raw1 /dev/raw/raw2 /dev/raw/raw3 symfoas 4028
```

Note

Take disk failures into consideration and put the database backup data storage destination directory on a different disk to the following storage destinations:

- Database data storage destination directory
- Data directory for storing catalog data of the columnar table
- Raw device for storing main data of the columnar table
- Raw device for storing temporary data of the columnar table
- Raw device for storing database space of the columnar table
- Data Management directory of the Data Processing Server

Point

[COLUMNARDB_AVAILABLE_MEM] can be omitted. In this case, a value that is 50% of the installed memory will be set.

See

Refer to "F.1.3 symassetup" in Appendix F, "Reference" for information on the setup command.

4. Enter a password
You will be prompted twice to enter a password. Enter "manager" both times.

```
-> NOTICE: Administrator DN password for Repository is "manager"  
Password:  
Retype:
```

5. Setup is complete
The following message is displayed when setup completes:

```
Symfoware Analytics Server setup has finished.
```

Information

If the setup reexecute the setup according to the following procedure:

1. Restart the machine.
2. Execute the unsetup command (symasunsetup).
3. Once the unsetup is complete, delete the following directories:
 - Database data storage destination directory
 - Database backup data storage destination directory
 - Data directory for storing catalog data of the columnar table
4. Reexecute the setup.

See

Refer to "[Appendix H Default System Values](#)" for information on the values that are set automatically during the setup.

2.1.6 Removing the DWH Server Setup

This section explains how to remove the DWH Server setup.

Tasks prior to removing setup

This section explains the notes on removing the setup.

- Environment for removing the setup
Confirm the following items with regard to the environment for removing the setup:
 - Login is performed as the superuser
 - The required services are started
Execute the following command, and ensure that the STATUS of all displayed services is "execute".

```
# /opt/FJSVtd/bin/isstat
```

Note

If these conditions are not met in the environment for removing the setup, the removal of the setup will fail.

See

Refer to the Interstage Application Server Reference Manual (Command Edition) for information on the isstat command.

- Backing up the user resources

When the setup is removed, all files containing the user assets, and the settings information, will be deleted. To preserve the assets of the existing settings information, for example, back up the existing assets beforehand.



Refer to "[2.2.8 Backing up the DWH Server](#)" for information on the backup procedure.

- To remove the setup after the setup has failed
If the setup has failed for some reason, restart the machine before removing the setup.

Removing the setup

Log in to the DWH Server as the superuser and execute the following command:

```
# /opt/FJSVsymas/bin/symasunsetup.sh
```



Refer to "[F.1.4 symasunsetup](#)" in Appendix F, "Reference" for information on the unsetup command.

Tasks after removing the setup

Delete the following directories:

- Database data storage destination directory
- Database backup data storage destination directory
- Data directory for storing catalog data of the columnar table

2.1.7 Uninstallation

2.1.7.1 Uninstalling the Client

2.1.7.1.1 Data Processing Client feature

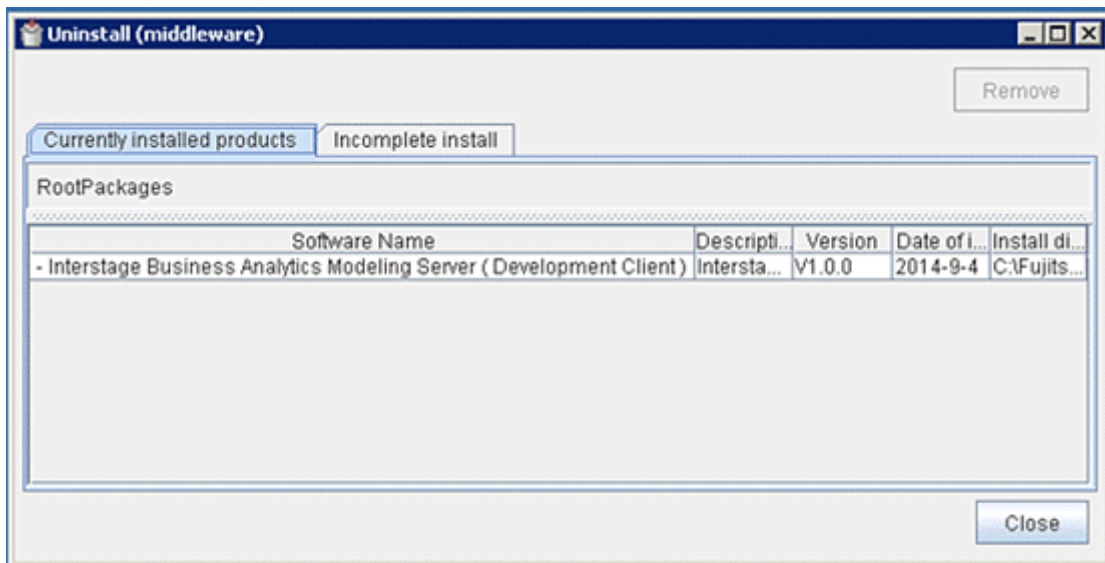
Uninstallation

This section explains how to uninstall the Data Processing Client feature.

1. Log in using an account that belongs to the Administrators group.

2. Start the uninstaller.

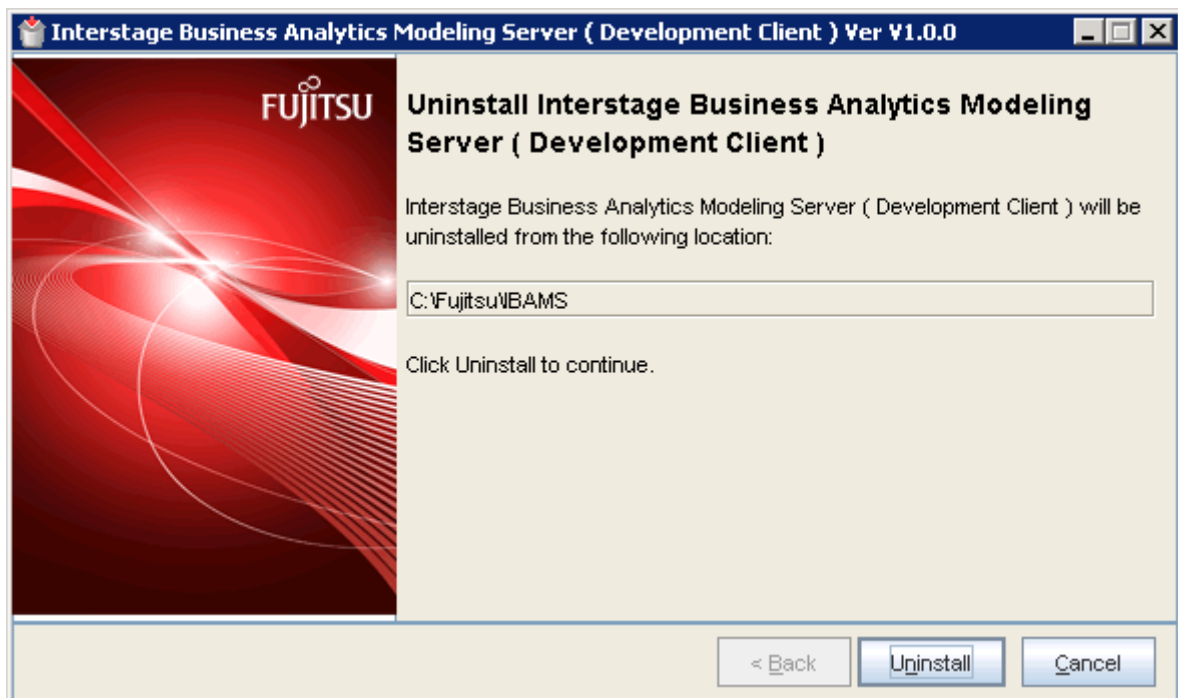
In the [Start] menu, select [Programs] or [All Programs], then [Fujitsu], and then [Uninstall (middleware)].



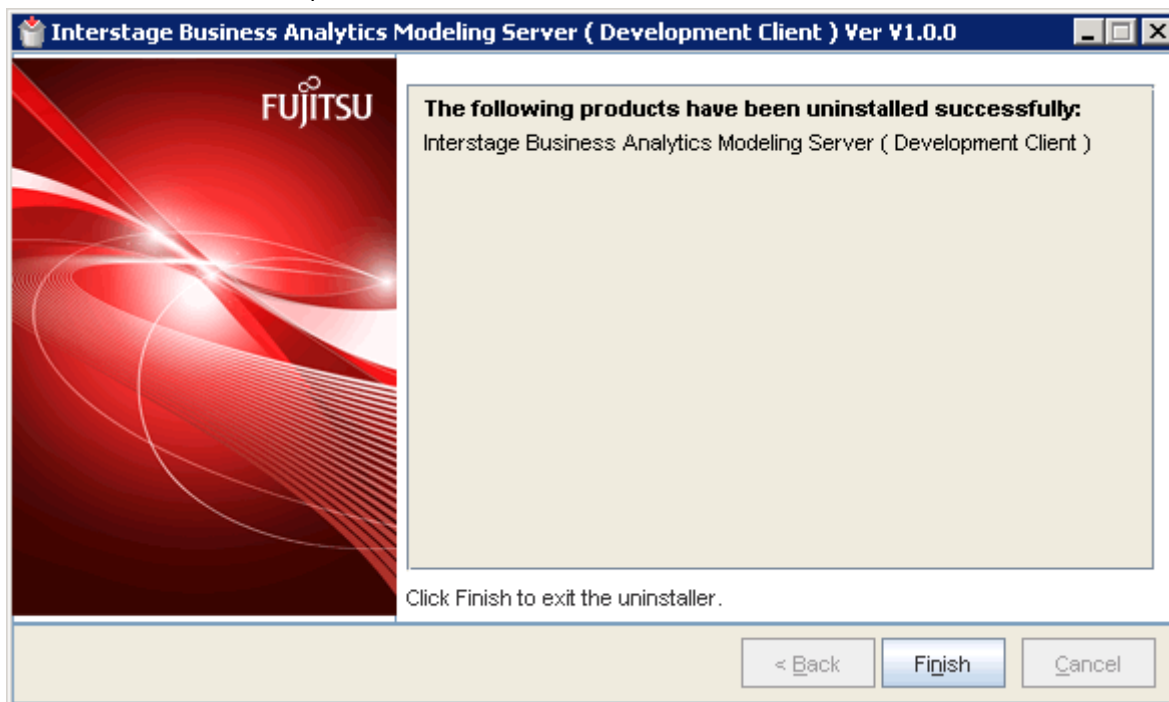
Note

When the uninstallation is performed after the installation of this product has failed, for example, Interstage Business Analytics Modeling Server may be displayed in the [Incomplete install] tab. If this is not displayed in the list of already installed software, click the [Incomplete install] tab and check if it is displayed there. The procedure for uninstallation afterwards is still the same.

3. Select [Interstage Business Analytics Modeling Server(Development Client)], and click [Remove]. If it is OK to remove the software, click [Uninstall].



4. Once the uninstallation is complete, click [Finish] to exit the uninstaller.



Note

If the corrective action indicated by the message cannot be taken, collect the following log file and send it to Fujitsu technical support:

- All files in %ProgramData%\Fujitsu\FujitsuF4CR\cir\log (% ProgramData% is the path indicated in the ProgramData environment variable)

Post-uninstallation tasks

This section explains the post-uninstallation tasks for the Data Processing Client feature.

Deleting directories and files

After the uninstallation, some files and directories may still remain. Delete the following directory (including any files and directories contained in it) and files:

- %APPDATA%\Fujitsu\ibams (%APPDATA% is the path indicated in the APPDATA environment variable)
This is the directory that saves the server information history file that is displayed in the login window of the Analytics Flow Editor which is a Data Processing Client feature.
If the Analytics Flow Editor was used by multiple user accounts on the same machine, this directory must be deleted for each user account.

Example

```
C:\Users\User001\AppData\Roaming\Fujitsu\ibams
```

2.1.7.1.2 Client feature of Symfoware Server

Uninstalling the Windows client

This section explains the procedure to uninstall the Windows client.

The uninstallation must be performed by a user with administrator privileges (a user with an ID that belongs to the Administrators group).

The uninstallation procedure is described below.

1. Stop the applications
Stop use of the Client feature of Symfoware Server.
2. Start the uninstaller

Windows(R) 7

1. Display the Control Panel
Click [Control Panel] in the [Start] menu.
2. Start the uninstaller
Double-click the [Programs] icon in [Control Panel].
Double-click the [Programs and Features] icon in [Programs].
Double-click the following from the list:
 - Symfoware Server Client (Open Interface) (32-bit) V12.0.0
 - Symfoware Server Client (Open Interface) (64-bit) V12.0.0

Microsoft(R) Windows Server(R) 2008 or Microsoft(R) Windows Server(R) 2008 R2

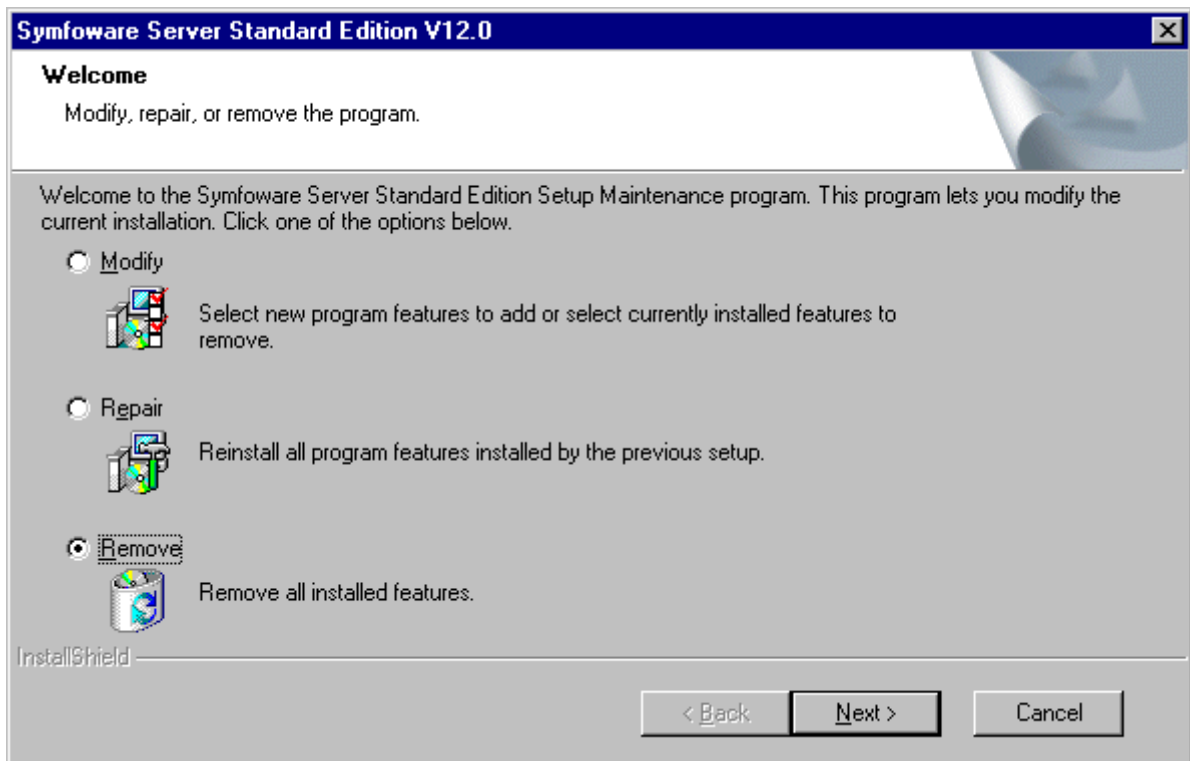
1. Display the Control Panel
Click [Control Panel] in the [Start] menu.
2. Start the uninstaller
Click [Programs], and then click [Programs and Features].
Select the following from the list box, and then click [Uninstall/Change]:
 - Symfoware Server Client (Open Interface) (32-bit) V12.0.0
 - Symfoware Server Client (Open Interface) (64-bit) V12.0.0

Windows(R) 8, Windows(R) 8.1, Microsoft(R) Windows Server(R) 2012, or Microsoft(R) Windows Server(R) 2012 R2

1. Display the Control Panel
Right-click the [Start] window, and then click [All apps] that is displayed at the bottom-right of the window. Click [Control Panel] in the [Apps] window.
2. Start the uninstaller
Click [Programs], and then click [Programs and Features].
Select the following from the list box, and then click [Uninstall/Change]:
 - Symfoware Server Client (Open Interface) (32-bit) V12.0.0
 - Symfoware Server Client (Open Interface) (64-bit) V12.0.0

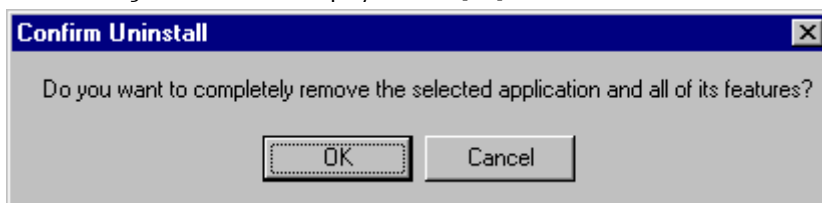
3. Run the uninstaller

The [Welcome] window is displayed. Select [Remove] and then click [Next].

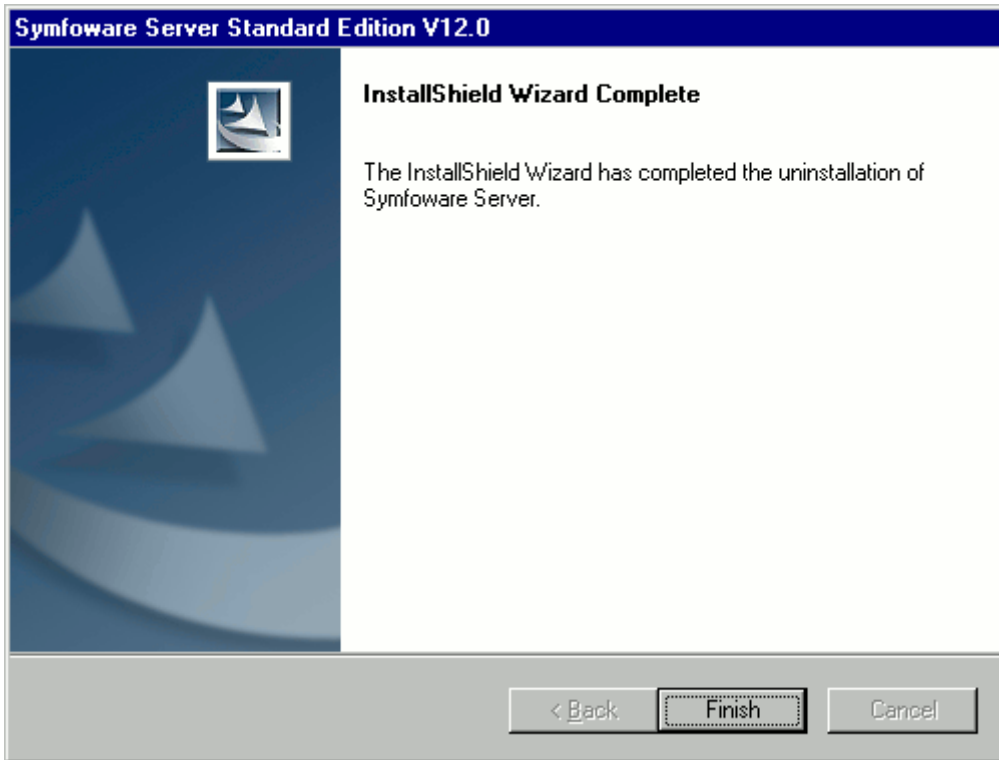


4. Run the uninstallation

The following window will be displayed. Click [OK].



5. Complete the uninstallation
The completion window is displayed. Click [Finish].



Note

- The installation directory may remain after uninstallation. If it is not required, delete it.
- In Windows(R) 7, Microsoft(R) Windows Server(R) 2008, or Microsoft(R) Windows Server(R) 2008 R2, an empty directory may remain in the [Start] menu after uninstallation. In the [Start] menu, select [All Programs], right-click the following, and then click [Delete]:
 - Symfoware Server Client (Open Interface) (32-bit) V12.0.0, or
 - Symfoware Server Client (Open Interface) (64-bit) V12.0.0

Uninstalling the Linux client

This section explains the procedure to uninstall the Linux client.

The uninstallation procedure is described below.

1. Stop the applications
2. Change to the superuser
3. Uninstall

Note

- Align the LANG environment variable of the console where the symfo_remove command is executed and the display environment. If the settings have not been set correctly, there may be some corruption of the characters displayed.
- Do not enter fullwidth characters or the following halfwidth characters, as entering them may cause symfo_remove to not work correctly:
", #, \$, &, ' (,), ^, ~, \, |, @, ` , [, { , } , ; , : , < , > , tab

- The installation directory may remain after uninstallation. If it is not required, delete it.

Stop the applications

Stop all applications that are using the product to be uninstalled.

Change to the superuser

Execute the following command:

```
$ su -  
Password:*****
```

Uninstall

Use the following procedure to uninstall.

1. Start the uninstallation processing
Execute the following command to start uninstallation:
Example

```
# LANG=en_US.UTF-8;export LANG  
# installDir/setup/symfo_remove
```

2. Confirm the uninstallation
The confirmation message for the uninstallation environment is displayed as follows:

```
"Symfoware Server Client 64bit V12.0.0" will be uninstalled.  
Do you want to uninstall the above product?  
y: Start the uninstallation  
q: Quit without uninstalling  
[y,q] (The default value is q): y
```

3. Display the uninstallation status
The uninstallation status is displayed as follows:

```
Starting uninstallation.  
Uninstallation is complete.
```

Information

Cancel (CTRL+C or kill -15) is prohibited when the above operation is running.

To forcibly stop the process, operate according to the following procedure:

1. Execute the following command to identify the process ID:

```
# ps -af | grep symfo_remove
```

Display example

```
root 19040 18612 0 23:54 pts/0 00:00:00 /bin/sh /opt/symfoclient64/setup/symfo_remove  
root 19071 17480 0 23:55 pts/1 00:00:00 grep symfo_remove
```

2. Execute the following command to forcibly stop the process:

```
# kill -9 19040
```

4. Confirm the results of uninstallation

A message is displayed showing the results of uninstallation when uninstallation completes.

When successful

The following message is displayed when uninstallation completes successfully.

```
"Symfoware Server Client 64-bit V12.0.0" is now uninstalled.
```

When the process fails

The following message is displayed when an error occurs during uninstallation.

```
"Symfoware Server Client 64-bit V12.0.0" uninstallation ended abnormally.
```

Information

If an error occurs during the uninstallation process, take the following corrective actions:

1. Resolve the cause of the error, as indicated by the error message.
2. Reexecute the `symfo_remove` command.

2.1.7.2 Uninstalling the DWH Server

2.1.7.2.1 Uninstalling the DWH Server

Tasks prior to uninstallation

- Refer to the following, and then perform the tasks prior to uninstalling the Data Coordination feature:

Manual name	Reference
Interstage Information Integrator V11.0.0 Software Release Guide	Section 7.1.1, "Before Uninstallation"

- Execute the DWH Server `unsetup` command. Refer to ["2.1.6 Removing the DWH Server Setup"](#) for information on the `unsetup` command.

Uninstall

Log in to the DWH Server as the superuser and execute the following command:

```
# /opt/FJSSVsymas/bin/symassvuninstall.sh
```

See

Refer to ["F.1.2 symassvuninstall"](#) in Appendix F, "Reference" for information on the `uninstall` command.

Post-uninstallation tasks

- Perform the following tasks after uninstallation:

Manual name	Reference
Symfoware Server V12.0.0 Installation and Setup Guide for Server	Section 6.2, "Uninstallation in Silent Mode"

Manual name	Reference
Interstage Information Integrator V11.0.0 Software Release Guide	Section 7.1.2, "Considerations of Uninstallation"

- Delete the following directories:
Some directories and files may remain after the unistallation which has to be manually deleted.
However, if the Systemwalker Service Catalog Manager or Systemwalker Centric Manager is being used, don't delete the following directories and files untill they are uninstalled.
 - <root account home directory >/InstallShield
 - /etc/opt/FJSVawjkb
 - /etc/opt/FJSVbamsr
 - /etc/opt/FJSVcmdba
 - /etc/opt/FJSVcmdbm
 - /etc/opt/FJSVejb
 - /etc/opt/FJSVextp
 - /etc/opt/FJSVihs
 - /etc/opt/FJSVirep
 - /etc/opt/FJSVisas
 - /etc/opt/FJSVisgui
 - /etc/opt/FJSVisjee
 - /etc/opt/FJSVispw
 - /etc/opt/FJSVisscs
 - /etc/opt/FJSVj2ee
 - /etc/opt/FJSVjms
 - /etc/opt/FJSVjs2su
 - /etc/opt/FJSVlnkbs
 - /etc/opt/FJSVod
 - /etc/opt/FJSVsoap
 - /etc/opt/FJSVsoac
 - /etc/opt/FJSVsoaz
 - /etc/opt/FJSVsofs
 - /etc/opt/FJSVssosv
 - /etc/opt/FJSVtd
 - /opt/FJSVawjkb
 - /opt/FJSVbamsr
 - /opt/FJSVcmdba
 - /opt/FJSVcmdbm
 - /opt/FJSVejb
 - /opt/FJSVena
 - /opt/FJSVextp

- /opt/FJSVibpm
 - /opt/FJSVihs
 - /opt/FJSVirep
 - /opt/FJSVirepc
 - /opt/FJSVisas
 - /opt/FJSVisgui
 - /opt/FJSVisjee
 - /opt/FJSVispw
 - /opt/FJSVj2ee
 - /opt/FJSVjms
 - /opt/FJSVjs2su
 - /opt/FJSVlnkbs
 - /opt/FJSVmqd
 - /opt/FJSVod
 - /opt/FJSVsoap
 - /opt/FJSVssoac
 - /opt/FJSVssoaz
 - /opt/FJSVssocm
 - /opt/FJSVssofs
 - /opt/FJSVssosv
 - /opt/FJSVtd
- (Note) If the Systemwalker Centric Manager Operation Management Server has been installed, then don't delete /opt/FJSVtd/
var/IRDB.
- /var/opt/FJSVawjbk
 - /var/opt/FJSVbamsr
 - /var/opt/FJSVcmdba
 - /var/opt/FJSVcmdbm
 - /var/opt/FJSVejb
 - /var/opt/FJSVena
 - /var/opt/FJSVextp
 - /var/opt/FJSVihs
 - /var/opt/FJSVirep
 - /var/opt/FJSVirepc
 - /var/opt/FJSVisas
 - /var/opt/FJSVisgui
 - /var/opt/FJSVisjee
 - /var/opt/FJSVisjmx
 - /var/opt/FJSVispw
 - /var/opt/FJSVj2ee

- /var/opt/FJSVjms
- /var/opt/FJSVjs2su
- /var/opt/FJSVlnkbs
- /var/opt/FJSVod
- /var/opt/FJSVsoap
- /var/opt/FJSVsoac
- /var/opt/FJSVsoaz
- /var/opt/FJSVsocm
- /var/opt/FJSVsofs
- /var/opt/FJSVssosv
- /var/opt/FJSVswrbam
- /etc/opt/FJSVswrbac
- /var/opt/FJSVswrbac
- /var/opt/FJSVtd
- /var/opt/FJSVibpma/eventdb
- Delete the following users and groups:
 - User : bpmapps
 - Group : swadmin
- Refer to the following for information on how to delete Symfoware Server when it is used for the internal control for the Data Coordination feature:

Manual name	Reference
Interstage Information Integrator V11.0.0 Software Release Guide	Section 7.1.4, "Uninstall Symfoware"

- Delete the path name including [INSTALL_DIR] from the following environment variable value:
 - PATH
- Delete the following environment variables:
 - SCT_INSTDIR
 - SYBASE
 - SYBROOT
- After the above tasks are completed, restart the machine to complete the uninstallation.
- After the machine has restarted, delete the following resources:
 - DWH Server installation directory
 - Data Management directory of the Data Processing Server

2.1.7.3 Other Uninstallations

Uninstalling SMEE

This section explains the procedure for uninstalling SMEE. Ensure that no other products are using SMEE before uninstalling it.

1. Log in to the system as the superuser.
2. Using the rpm command, delete the FJSVmee package.

```
# rpm -e FJSVsmee
```

Uninstalling the Securecrypto library runtime

This section explains the procedure for uninstalling the Securecrypto library runtime. Ensure that no other products are using the Securecrypto library runtime before uninstalling it.

1. Log in to the system as the superuser.
2. Using the rpm command, delete the FJSVslcr package.

```
# rpm -e FJSVslcr
```

2.2 Operations

2.2.1 Starting the DWH Server

To start the DWH Server, use the symasstart command.

Log in to the DWH Server as the superuser and execute the following command:

```
/opt/FJSVsymas/bin/symasstart.sh
```



See

Refer to "F.1.5 symasstart" in Appendix F, "Reference" for information on the symasstart command.

2.2.2 Stopping the DWH Server

To stop the DWH Server, use the symasstop command.

Log in to the DWH Server as the superuser and execute the following command:

```
/opt/FJSVsymas/bin/symasstop.sh
```



See

Refer to "F.1.6 symasstop" in Appendix F, "Reference" for information on the symasstop command.

2.2.3 Checking the DWH Server Status

2.2.3.1 Server Features of Symfoware Server

Execute the following commands to check the status of the server features of Symfoware Server:

- pg_ctl
- ps -C iqsrv16

pg_ctl

Check the status of the database according to the following procedure:

1. Connect to the DWH Server
Log in to the DWH Server as the DWH Server administrator.
2. Set the environment variable
Set the following environment variable:

- PATH environment variable
Add /opt/symfoserver64/bin.
- MANPATH environment variable
Add /opt/symfoserver64/share/man.
- LD_LIBRARY_PATH environment variable
Add /opt/symfoserver64/lib.

Example

Examples of environment variable settings are shown below.

sh, bash

```
$ PATH=/opt/symfoserver64/bin:$PATH ; export PATH
$ MANPATH=/opt/symfoserver64/share/man:$MANPATH ; export MANPATH
$ LD_LIBRARY_PATH=/opt/symfoserver64/lib:$LD_LIBRARY_PATH ; export LD_LIBRARY_PATH
```

csch, tcsh

```
$ setenv PATH /opt/symfoserver64/bin:$PATH
$ setenv MANPATH /opt/symfoserver64/share/man:$MANPATH
$ setenv LD_LIBRARY_PATH /opt/symfoserver64/lib:$LD_LIBRARY_PATH
```

3. Execute the pg_ctl command

Execute the pg_ctl command. If "pg_ctl: server is running" is displayed, the server is running normally.

Specify the following in the pg_ctl command:

- Specify "status" as the mode.
- Specify the database data storage destination directory in the -D option. If the -D option is omitted, the value of the PGDATA environment variable is.

Example 1: When the instance is active:

```
$ pg_ctl status -D /rowdata/data
pg_ctl: server is running (PID: 1234)
```

Example 2: When the instance is inactive:

```
$ pg_ctl status -D /rowdata/data
pg_ctl: no server running
```

ps -C iqsrv16

Check the status of the service to use the columnar table.

Log in to the DWH Server with DWH Server administrator privileges, and execute the following command:

```
$ ps -C iqsrv16
  PID TTY          TIME CMD
12510 ?                02:07:24 iqsrv16
```

If the columnar table service is running, the process "iqsrv16" will be displayed in the output result of the command. If the columnar table service is not running, the process "iqsrv16" will not be displayed in the output result of the command.

2.2.3.2 Data Processing Server Feature

Log in to the DWH Server as the superuser and execute the following command:

```
/opt/FJSVbamsr/bin/ibamsoperationmgr status
```

As the output information, the operational status of each service that comprises the Data Processing Server feature is output in standard output in the format shown below. If the operational status of all services is "running", the Data Processing Server feature is running normally.

```
[04/01/2013_00:00:00] FSP_IBAMS_COMMAND: INFO: 20514: "serviceName" : "status"
```

One of the following is output for "status":

Displayed status	Meaning
RUNNING	Running
STOPPED	Stopped
START PENDING	Waiting to start
STOP PENDING	Waiting to stop
UNKNOWN	Unknown

Example

```
[04/01/2013_00:00:00] FSP_IBAMS_COMMAND: INFO: 20514: Interstage Business Analytics Modeling Server (Dispatcher) : RUNNING
[04/01/2013_00:00:00] FSP_IBAMS_COMMAND: INFO: 20514: Interstage Business Analytics Modeling Server (Repository Manager) :RUNNING
[04/01/2013_00:00:00] FSP_IBAMS_COMMAND: INFO: 20514: Interstage Business Analytics Modeling Server (Data Manager) :RUNNING
[04/01/2013_00:00:00] FSP_IBAMS_COMMAND: INFO: 20514: Interstage Business Analytics Modeling Server (Flow Controller) :RUNNING
[04/01/2013_00:00:00] FSP_IBAMS_COMMAND: INFO: 20514: Interstage Business Analytics Modeling Server (Parts Executor) :RUNNING
```

2.2.4 User Definitions

The users of Symfoware Analytics Server are shown below.

- Database user
- Data Processing user

Database user

Refer to the manuals below for information on the Database user to be added.

Manual name	Reference
PostgreSQL 9.2.4 Documentation	Chapter 20, "Database Roles"

Data Processing User

Data Processing user is a user who uses the Data Processing Client feature.

Refer the following information to add, delete the user and change the password.

Adding the Data Processing User

Refer the following procedure to add the Data Processing user:

1. Log in to the Data Processing Server as a user with administrator privileges.
2. Create LDIF file
Copy the following sample file, and then edit in the text editor.

```
/opt/FJSVbamsr/etc/adduser_en.ldif
```

- Replace the "NEW_USER_ID" by the new user name and replace the "PASSWORD" by the password for the new user.
- Specify the user name and password within the range as below:

Item	Number of characters	Supported characters
NEW_USER_ID	255 characters	- Alphanumeric characters - Symbols ('_', ':', '!')
PASSWORD	128 characters	- Alphanumeric characters - Symbols except following : '<', '>', '&', '"', "'", ' ', whitespace

- Do not remove any newline character or whitespace in the LDIF file.

3. Register the user information using ldapmodify command. It must be executed as administrator user.

```
/opt/FJSVirepc/bin/ldapmodify -H ldap://localhost:389 -D
cn=manager,ou=interstage,o=fujitsu,dc=com -w [DN password of the administrator] -f "Edited LDIF
file"
```



Note

It may take up to 90 minutes for the refistration results to get reflected in the repository. To reflect the registration results immediately, restart Symfoware Analytics Server.

Deleting the Data Processing User

To delete the added Data Processing user, execute the ldapdelete command as administrator user.

Specify the common name (cn) of the user which you want to delete in the "USER_NAME".

```
/opt/FJSVirepc/bin/ldapdelete -H ldap://localhost:389 -D cn=manager,ou=interstage,o=fujitsu,dc=com -
w [DN password of the administrator] "uid=USER_NAME,ou=User,ou=interstage,o=fujitsu,dc=com"
```

Changing the Password of Data Processing User

When changing the password for the default Data Processing user (default user name is "ibamsadmin"), refer "User account" in Appendix H, "Default System Values".

Use the following procedure to change the password for the added Data Processing user:

1. Log in to the Data Processing Server as a user with administrator privileges.
2. Create LDIF file for changing user password.
Copy the following sample file, and then edit it in the text editor.

```
/opt/FJSVbamsr/etc/changeuserpassword_en.ldif
```

- Replace the "USER_ID" by the user name for which you want to change the password and replace the "NEW_PASSWORD" by the new password.
- Specify the password within the range as below:

Item	Number of Characters	Supported Characters
NEW_PASSWORD	128 characters	- Alphanumeric characters - Symbols except following : '<', '>', '&', '"', "'", ' ', whitespace

3. Register the user information by using `ldapmodify` command. It must be executed as administrator.

```
/opt/FJSVirepc/bin/ldapmodify -H ldap://localhost:389 -D
cn=manager,ou=interstage,o=fujitsu,dc=com -w [DN password of the administrator] -f "Edited LDIF
file "
```

2.2.5 Privilege Settings

Privileges can be set for the objects created in the database. Refer to the following manuals for details:

Manual name	Reference
PostgreSQL 9.2.4 Documentation	Section 5.6, "Privileges"

2.2.6 Creating the Database

This section explains how to create a database.



Note

Create the database as the DWH Server administrator.

An example of the operation on the server is shown below.

1. Use the `psql` command to connect to the "postgres" database.
Execute "`psql postgres`".

```
> psql postgres
psql (9.2.4)
Type "help" for help.
```

2. Create the database.
To create the database, execute the statement "`CREATE DATABASE databaseName;`".

```
postgres=# CREATE DATABASE db01;
CREATE DATABASE;
```

3. Confirm that the database was created.
Enter "`\l`" to confirm that the database created in step 2 is displayed.

```
postgres=# \l
```

4. Disconnect from the postgres database.
Enter "`\q`" to terminate the `psql` command.

```
postgres=# \q
```

Note that the database can also be created using the `createdb` command.



See

- Refer to Section 1.3, "Creating a Database" in the PostgreSQL 9.2.4 Documentation for information on how to create the database using the `createdb` command.
- Refer to "`psql`" in the PostgreSQL 9.2.4 Documentation for information on the `psql` command.

2.2.7 Deleting a Database

This section explains how to delete a database.

To delete a database, delete all objects contained in the database. Once deleted, a database cannot be restored.

Note

Delete the database as the DWH Server administrator.

An example of the operation on the server is shown below.

1. Use the `psql` command to connect to the "postgres" database.
Execute "`psql postgres`".

```
> psql postgres
psql (9.2.4)
Type "help" for help.
```

2. Delete the database.
To delete the database, execute the statement "`DROP DATABASE databaseName;`".

```
postgres=# DROP DATABASE db01;
DROP DATABASE;
```

3. Disconnect from the postgres database.
Execute `\q` to terminate the `psql` command.

```
postgres=# \q
```

Note that the database can also be deleted using the `dropdb` command.

See

- Refer to "dropdb" in the PostgreSQL 9.2.4 Documentation for information on how to delete the database using the `dropdb` command.
- Refer to "psql" in the PostgreSQL 9.2.4 Documentation for information on the `psql` command.

Note

- If you are connected to the database you are trying to delete, `DROP DATABASE` cannot be executed. Connect to another database, such as `template1`, and then execute `DROP DATABASE`.
- To delete the final user database in the cluster, connect to `template1` and then execute `DROP DATABASE`.

2.2.8 Backing up the DWH Server

This section explains how to back up the DWH Server.

By performing a backup using the `symasbackup` command, recovery can be performed to the state immediately before the disk device was physically damaged or the data was logically damaged, or at the point of the backup.

Note

Execute the backup as the superuser.

Execute the DWH Server backup using the method shown below.

Preparation for the backup

Ensure that the Symfoware Server feature and the Data Processing Server feature are started.



See

Refer to "2.2.3 Checking the DWH Server Status" for information on how to check this.

How to perform the backup

Perform the backup as the superuser according to the following procedure:

1. symasbackup command

Using the symasbackup command, back up the following resources:

- Database resources other than the data stored in the columnar table
- Definition information for the Data Processing feature

2. Export the data

To back up data stored in a columnar table, export the data stored in the columnar table.



See

- Refer to "F.1.7 symasbackup" in Appendix F, "Reference" for information on the symasbackup command.
- Refer to "2.2.10 Exporting Data" for information on exporting data from the columnar table.

Backup cycle

This will vary according to the business content, but in Symfoware Analytics Server, it is recommended to operate the backup cycle as one day.



Note

- The symasbackup command does not back up data stored in columnar tables. To back up data stored in columnar tables, export the columnar table data.
- Take disk failures into consideration and put the backup destination directory on a different disk to the following storage destinations:
 - Database data storage destination directory
 - Data directory for storing catalog data of the columnar table
 - Raw device for storing main data of the columnar table
 - Raw device for storing temporary data of the columnar table
 - Raw device for storing database space of the columnar table
 - Data Management directory of the Data Processing Server
- As the backup destination directory, specify a directory with a larger amount of space than the backup data. Estimate the amount of space for the backup data using the following formula:

```
Amount of space for the backup data
= (Size of the Data Management directory of the Data Processing Server
+ Size of /var/opt/FJSVena/DStores/FJSVirep/ibamsrep/data
+ Size of /var/opt/FJSVirep/ibamsrep/log
+ 100MB)
x 1.3
```

- If the backup destination directory exists, the symasbackup command will request that the following values be input:

Request for input (select from the following values)	Meaning
Y	Deletes the objects from the backup destination directory and then executes the backup.
N	Cancels the backup command.

- Do not execute the symasbackup command while the other Symfoware Analytics Server commands, that include the symasbackup command, are executing.
- Do not execute the symasbackup command if the setup has already been removed, or the setup has not been performed yet.
- The Data Processing Server feature will stop during the backup, so it cannot be used. When the backup is finished, the Data Processing Server will start automatically.

2.2.9 Restoring the DWH Server

This section explains how to restore the DWH Server.



Note

Restore the DWH Server as the superuser.

Restore the DWH Server using the method shown below.

Preparation for the restoration

Ensure that the DWH Server has stopped.



See

Refer to "2.2.3 Checking the DWH Server Status" for information on how to check this.

How to perform the restoration

Restore the database as the superuser according to the following procedure:

1. symasrestore command
Specify the backup obtained using the symasbackup command, and then restore the DWH Server resources. The possible timing for restoring the resources is as follows:

Resource to be backed up	Point to which it can be restored
Database resources other than the data stored in the columnar table	Immediately before the disk device is physically destroyed or the data is logically destroyed
Definition information for the Data Processing feature	Point at which the backup is performed

2. Create the columnar table
To create the columnar table, obtain the table name for the foreign table that corresponds to the columnar table. The method used to obtain the table name for the foreign table in order to create the columnar table is explained below.

1. Use the psql command on the DWH Server to connect to the "postgres" database.
Execute "psql postgres".

```
> psql postgres
psql (9.2.4)
Type "help" for help.
```

2. Use the \d command to obtain the list of tables.

Example

```
postgres=# \d
                List of relations
 Schema | Name      | Type          | Owner
-----+-----+-----+-----
 public | tbl01     | Table         | Administrator
 public | f_tbl01   | Foreign table | Administrator
 public | f_tbl02   | Foreign table | Administrator
 public | dual      | View          | Administrator
(4 rows)
```

3. In the list of tables, make a note of "Schema" and "Name" in the rows in which the value for "Type" is "Foreign table".
4. Use "Schema" and "Name" that were obtained in step 3 to execute the pgxa_create_table system function and create the columnar table.

Example

In the following example, "public" is specified for "Schema", and "f_tbl01" is specified for "Name".

```
postgres=# SELECT pgxa_create_table('public.f_tbl01');
 pgxa_create_table
-----
 t
(1 row)
```

 See

.....
Refer to "F.3.1 pgxa_create_table" in Appendix F, "Reference" for information on the pgxa_create_table system function.
.....

3. Import the data
Import the data that was exported during the backup to the columnar table.

 See

- Refer to "F.1.8 symasrestore" in Appendix F, "Reference" for information on the symasrestore command.
 - Refer to "psql" in the PostgreSQL 9.2.4 Documentation for information on the psql command.
 - Refer to "2.2.11 Importing Data" for information on importing data to the columnar table.
-

 Note

- The symasrestore command does not restore data in columnar tables. To restore data in columnar tables, import the data that was exported when backing up the data in the columnar tables.
 - As the restoration source directory, specify the directory that was specified as the backup destination using the symasbackup command.
 - Perform the restoration while the DWH Server is stopped. The restoration will fail if performed while the DWH Server is running.
 - Do not execute the symasrestore command while the other Symfoware Analytics Server commands, that include the symasrestore command, are executing.
 - Do not execute the symasrestore command if the setup has already been removed, or the setup has not been performed yet.
-

2.2.10 Exporting Data

This section explains how to export the data that is stored in the database.



Note

Execute this task as the DWH Server administrator.

Exporting the data that is stored in the table

To export the data that is stored in the table, use the COPY command.



See

Refer to the following manual for information on the arguments that can be specified in the COPY command:

Manual name	Reference
PostgreSQL 9.2.4 Documentation	Part VI. Reference

Exporting the data that is stored in the columnar table

To export the data that is stored in the columnar table, execute the `pgxa_export_from_table` system function.

An example of the operation on the server is shown below.

1. Use the `psql` command to connect to the "postgres" database.
Execute `"psql postgres"`.

```
> psql postgres
psql (9.2.4)
Type "help" for help.
```

2. Export the data that is stored in the columnar table.
To export the data that is stored in the columnar table, execute the `pgxa_export_from_table` system function.

```
postgres=# SELECT pgxa_export_from_table('scm.tb11', '/data/output.csv', 'where col1>0 and
col2=''abc'' ');
pgxa_export_from_table
-----
t
(1 row)
```

3. Disconnect from the postgres database.
Execute `\q` to terminate the `psql` command.

```
postgres=# \q
```



See

- Refer to "[F.3.4 pgxa_export_from_table](#)" in Appendix F, "Reference" for information on the `pgxa_export_from_table` system function.
- Refer to "`psql`" in the PostgreSQL 9.2.4 Documentation for information on the `psql` command.

2.2.11 Importing Data

This section explains how to import data to a file database on the DWH Server.



Note

Execute this task as the DWH Server administrator.

Importing data to a table

To import data to a table, execute the COPY FROM command.



See

Refer to the following manual for information on the arguments that can be specified in the COPY FROM command:

Manual name	Reference
PostgreSQL 9.2.4 Documentation	Part VI. Reference

Importing data to a columnar table

To import data to a columnar table, execute the pgxa_import_to_table system function.

An example of the operation on the server is shown below.

1. Use the psql command to connect to the "postgres" database.
Execute "psql postgres".

```
> psql postgres
psql (9.2.4)
Type "help" for help.
```

2. Import the data to the columnar table.
To import data to a columnar table, execute the pgxa_import_to_table system variable.

```
postgres=# SELECT pgxa_import_to_table('scm.tbl1', '/data/input.csv', true, ',', 'LF' );
pgxa_import_to_table
-----
t
(1 row)
```

3. Disconnect from the postgres database.
Execute \q to terminate the psql command.

```
postgres=# \q
```



See

- Refer to "F.3.3 pgxa_import_to_table" in Appendix F, "Reference" for information on the pgxa_import_to_table system variable.
- Refer to "psql" in the PostgreSQL 9.2.4 Documentation for information on the psql command.

2.2.12 Monitoring

2.2.12.1 Database Errors

In Symfoware Analytics Server, database errors and warnings, for example, are output to the event log or system log. This information is helpful for identifying whether an error has occurred and the cause of an error. Check the event log or system log periodically, and monitor if an error has occurred.

Using a product that monitors the messages, to monitor the messages that are output by Symfoware Analytics Server, configure the settings so that SQLSTATE is monitored, not the message body. This is because the message body may be changed in line with a version upgrade of Symfoware Analytics Server.



See

Refer to "Appendix G Messages", and Symfoware Server V12.0.0 Messages, for information on the error messages.



Information

While this product is running, a message that contains "IQ 16.0" may be output to the event log or system log. If a warning level or error message is output, contact Fujitsu technical support.

2.2.12.2 Disk Space

This section explains how to check the disk usage.



Note

Execute this task as the DWH Server administrator.

Tables

As the DWH Server administrator, execute the df command that is provided in the operating system to check the disk usage of tables.

Example

```
$ df
Filesystem      1K- block    Used   Available Used % Mount location
/dev/sda2       20642428    7525436 12068416   39% /
tmpfs           4030912      0    4030912    0% /dev/shm
/dev/sda1       253871      169698    71066    71% /boot
```

Columnar tables

Use the pgxa_dbSPACE_usage system view to check the columnar table.

An example of the operation on the server is shown below.

1. Use the psql command to connect to the "postgres" database.
Execute "psql postgres".

```
> psql postgres
psql (9.2.4)
Type "help" for help.
```

2. Check the disk usage of the columnar table.
To check the disk usage of the columnar table, execute the pgxa_dbSPACE_usage system view.

```
postgres=# SELECT * FROM pgxa_dbSPACE_usage;
dbspacename | usage | totalsize
-----+-----+-----
SYMFOAS_DBS |    35 | 29.3G
(1 row)
```

3. Disconnect from the postgres database.
Execute \q to terminate the psql command.

```
postgres=# \q
```



- Refer to "F.2.1 pgxa_dbpace_usage" in Appendix F, "Reference" for information on the pgxa_dbpace_usage system view.
- Refer to "psql" in the PostgreSQL 9.2.4 Documentation for information on the psql command.

To add the database space of a columnar table, execute the pgxa_add_dbpace system function.

An example of the operation on the server is shown below.

1. Use the psql command to connect to the "postgres" database.
Execute "psql postgres".

```
> psql postgres
psql (9.2.4)
Type "help" for help.
```

2. Add the database space of the columnar table.
To add the database space of the columnar table, execute the pgxa_add_dbpace system function.

```
postgres=# SELECT pgxa_add_dbpace('SYMFOAS_DBS', '/dev/raw/raw4');
pgxa_add_dbpace
-----
t
(1 row)
```

3. Disconnect from the postgres database.
Execute \q to terminate the psql command.

```
postgres=# \q
```



- Refer to "F.3.6 pgxa_add_dbpace" in Appendix F, "Reference" for information on the pgxa_add_dbpace system variable.
- Refer to "psql" in the PostgreSQL 9.2.4 Documentation for information on the psql command.

2.2.12.3 Connection Status

Use pg_stat_activity to monitor connections where the client has been in the waiting status for an extended period.

The example below displays a connection where the client has been in the waiting status for at least 60 minutes.

However, when considering the continued compatibility of applications, it is better not to reference system catalogs directly in SQL statements.

```
postgres=# select * from pg_stat_activity where state='idle in transaction' and current_timestamp >
cast(query_start +
interval '60 minutes' as timestamp);
-[ RECORD 1 ]-----+-----
datid | 16384
datname | db01
pid | 16875
usesysid | 10
username | symfo
application_name | ap101
```

```

client_addr | 192.33.44.15
client_hostname |
client_port | 51793
backend_start | 2013-05-31 17:40:24.161826+09
xact_start | 2013-05-31 17:40:27.636134+09
query_start | 2013-05-31 17:40:27.636134+09
state_change | 2013-05-31 17:40:27.636402+09
waiting | f
state | idle in transaction
query | begin;

```



See

- Refer to "Appendix A, Precautions when Developing Applications" in the Symfoware Server V12.0.0 Application Development Guide for information on retaining application compatibility.
- Refer to 27.2, "The Statistics Collector" in "Server Administration" in the PostgreSQL 9.2.4 Documentation for information on the pg_stat_activity.

2.2.13 Changing Parameters

Symfoware Analytics Server retains the various information related to the operating environment of the database in the following file:

- postgresql.conf file in [ROWBASEDB_DATADIR]

Edit the parameters in the above file according to the business or operation directly, using a text editor.



Note

The parameters must be changed by the DWH Server administrator.

Error log settings

Parameter name	Settings value	How to enable the settings
logging_collector	Specify "on" so that the messages output by the DWH Server will be output to the server log file. The server log file is created in the pg_log directory in the database cluster.	<ul style="list-style-type: none"> - Execute symasstart (system startup command) - Restart the machine
syslog_ident	Specify the label to be attached to messages, for identifying messages output to the system log when using multiple instances.	reload option of the pg_ctl command
log_destination	Specify "stderr, eventlog" to have the messages output by the DWH Server output to the window and the system log.	
log_line_prefix	<p>Specify the information added at the start of the message that is output by the DWH Server. This information is useful for the automatic monitoring of messages.</p> <p>The SQLSTATE value, output time, executed host, application name, and user ID can be output.</p> <p>Refer to Section 18.8.3, "What To Log" in the PostgreSQL 9.2.4 Documentation for details.</p> <p>Example) log_line_prefix = '%e: %t [%p]: [%l-1] user = %u,db = %d,remote = %r app = %a '</p>	

Settings related to connection

Parameter name	Settings value	How to enable the settings
listen_addresses	<p>Specify the TCP/IP addresses for which the server monitors connections from client applications. You can specify a list of host names delimited by a comma, and/or IP addresses using numeric values. The special entry * corresponds to all IP interfaces that can be used. The entry 0.0.0.0 allows monitoring of all IPv4 addresses, and the entry :: allows monitoring of all IPv6 addresses. If the list is empty, none of the IP addresses are monitored by the server, and only the Unix domain socket will be used for connections.</p> <p>The default value is localhost, and only local TCP/IP "loopback" connections are allowed.</p>	<ul style="list-style-type: none"> - Execute symasstart (system startup command) - Restart the machine
superuser_reserved_connections	<p>This is used to reserve the connections that are used to manage the DWH Server. Add and then set this value based on the following explanations.</p> <ul style="list-style-type: none"> - (connections) Always used while running DWH Server using the automatic vacuum feature: 3 - Connections used by the administrator for maintenance (such as backup or index rebuild): 1 - "Connections used for running pgAdmin" is "the number of clients to be used". <p>The default value is 3.</p>	
max_connections	<p>Specify number of simultaneous connections to the DWH Server + superuser_reserved_connections value.</p> <p>The default value and maximum value is 100.</p>	

Refer to Chapter 18, "Server Configuration" in the PostgreSQL 9.2.4 Documentation for information on the other parameters.

Chapter 3 Utilization

Using mission-critical system data from BI tools requires the data to be stored in a data warehouse (DWH) and processed as required to a data format that is easy to use from BI tools.

Symfoware Analytics Server provides Data Processing feature templates for performing processes using the Data Processing Client feature, such as storing data in a DWH, processing data, adding privileges, or referencing tables.

This chapter explains how to utilize data by using a Data Processing Flow, and how to use the various templates.

Information

This chapter explains how to use the GUI to store data or process data for DWH.

Refer to "F.3 System Functions" in Appendix F, "Reference" for information on creating tables in a DWH using SQL commands, and on the system functions for storing data.

3.1 Basic Knowledge of Data Utilization

3.1.1 What is a Data Processing Flow?

A Data Processing Flow indicates the processing procedure for creating tables and storing, processing, and formatting data.

Create a Data Processing Flow using Analytics Flow Editor provided as the Data Processing Client feature.

What is Analytics Flow Editor?

Analytics Flow Editor is a GUI for creating a Data Processing Flow.

Starting

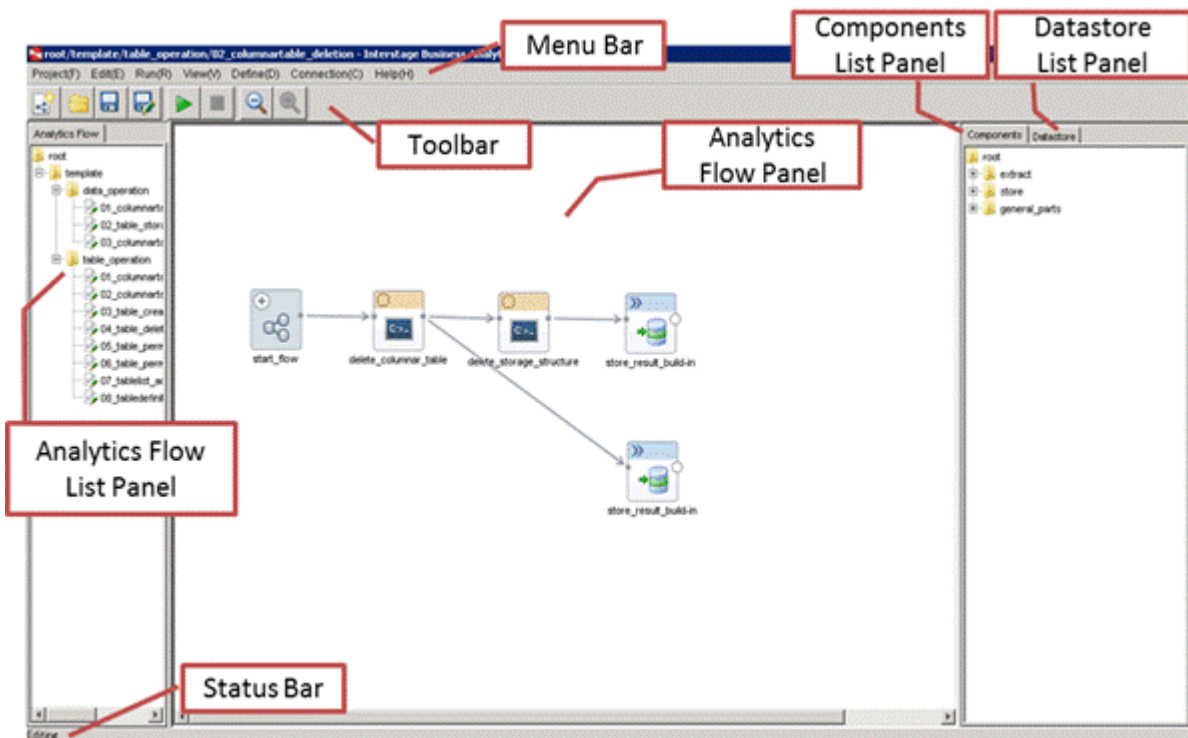
In the [Start] menu, click [Interstage Business Analytics Modeling Server] and then [Analytics Flow Editor].

Logging in

When you start Analytics Flow Editor, the login window will be displayed. Enter the following items and then click [Login].

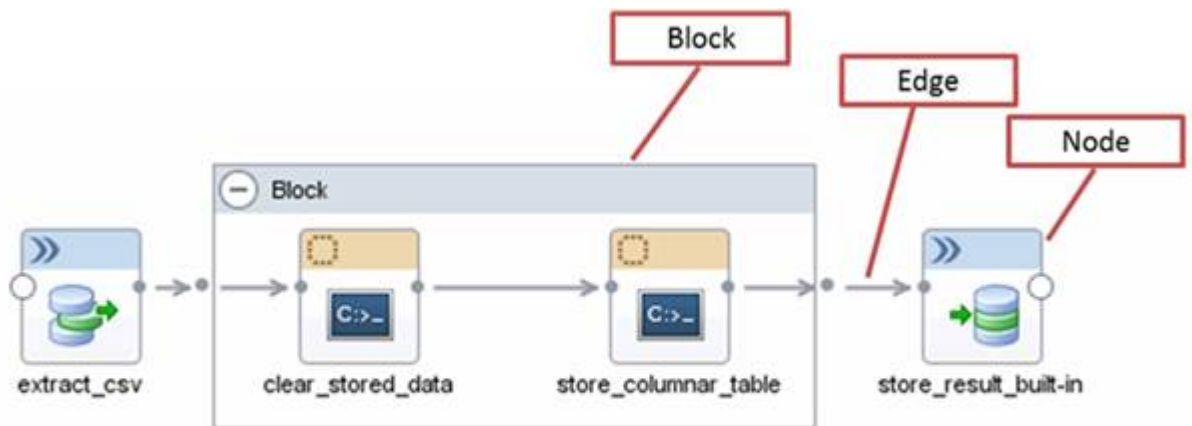
Item	Mandatory/Optional	Value
User ID	Mandatory	Specify the user ID of the Data Processing user. The default is "ibamsadmin".
Password	Optional	Specify the password of the Data Processing user. The default is "ibamsadmin".
Server	Mandatory	Specify the DWH Server to be connected. At subsequent logins, the previous connection destinations are displayed. Specify FQDN, IPv4, or IPv6 format. Alternatively, select a format from the drop-down history.
Port number	Mandatory	Specify the port number for DWH Server communication. The default is 25000. At subsequent logins, the previous port number is displayed. By default, this item is not displayed. Clicking [Option] toggles between show and hide.

Window layout of Analytics Flow Editor



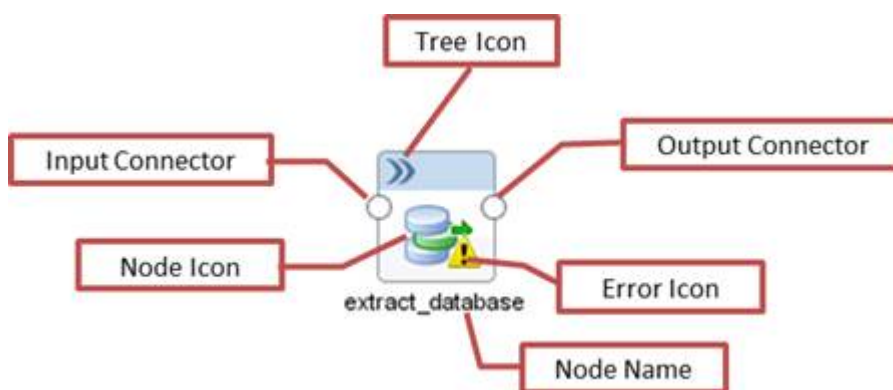
Name	Description
Menu Bar	List of operations in Analytics Flow Editor
Toolbar	Collection of icons assigned to frequently used operations
Analytics Flow List Panel	List of Data Processing Flows
Analytics Flow Panel	Panel for editing Data Processing Flows
Components List Panel	List of components. Click the [Datastore List Panel] tab to switch to that panel.
Datastore List Panel	List of data stores. Click the [Components List Panel] tab to switch to that panel.
Status Bar	<p>Displays the execution status of the Data Processing Flow. The status will be one of the following:</p> <ul style="list-style-type: none"> - Editing The Data Processing Flow is being edited. - Executing The Data Processing Flow is being executed. In this status, you cannot edit the Data Processing Flow. - Finished Normally Execution of the Data Processing Flow ended normally. In this status, you can obtain the execution result. - Terminated Abnormally Execution of the Data Processing Flow terminated abnormally.

The following figure shows the configuration of Analytics Flow Panel.



Name	Description
Node	A component or data store displayed in Analytics Flow Panel
Edge	Arrow indicating the flow of data between nodes

The following figure shows the configuration of a node.



Name	Description
Input connector	Node input displayed to the left of the node
Output connector	Node output displayed to the right of the node
Node name	Node name displayed under the node

3.1.2 What is a Template?

A template is a Data Processing Flow for performing basic data processing procedures. It enables the user to define a Data Processing Flow simply by setting the required parameters.

Templates are stored in the [template] folder of [Analytics Flow List Panel] in Analytics Flow Editor. The following explains how to process data using the provided templates.

Template list

Symfoware Analytics Server provides the following templates:

Category	Template name	Description
Table operation	01_columnartable_creation	Creates a columnar table in a database.
	02_columnartable_deletion	Deletes a columnar table from a database.
	03_table_creation	Creates a table in a database.
	04_table_deletion	Deletes a table from a database.
	05_table_permission	Grants a privilege for the specified table to the specified user.
	06_table_permission_cancellation	Revokes the privilege for the specified table for the specified user.
	07_tablelist_acquisition	Obtains a list of tables from a database and writes it to a text file.
	08_tabledefinition_acquisition	Obtains a table definition from a database and writes it to a text file.
Data operation	01_columnartable_storage	Stores the data written in a CSV file to a columnar table created beforehand.
	02_table_storage	Stores data written in a CSV file to a table created beforehand.
	03_columnartable_row_refinement	Filters data stored in a columnar table by row and stores the data in a columnar table that has the same columns as the extraction target.

3.1.3 Utilizing Data from BI Tools

You may want to, for example, connect to Symfoware Analytics Server from an SAP BusinessObjects application. In this case, use Connection Server provided by the SAP BusinessObjects Business Intelligence platform and set Symfoware Analytics Server as the data source.

Refer to the manual for the SAP BusinessObjects Business Intelligence platform for information on how to set the data source.

3.2 Utilizing Data

This section explains how to use a template to utilize DWH data.

3.2.1 Storing Data from DWH Server to Columnar Table and Utilizing the Data

This section explains how to store data from CSV files on the DWH Server to a columnar table for analysis and utilization, and how to utilize this data using BI tools.

Templates to be used

Use the following templates located in the [template] folder:

- [01_table_operation] >> [01_columnartable_creation]
- [02_data_operation] >> [01_columnartable_storage]

Procedure

Perform the following procedure to store the data written in a CSV file to a columnar table:

1. Use [01_columnartable_creation] to create a Data Processing Flow that will create a columnar table in a database. Refer to "[3.3.1 Creating Columnar Tables](#)" for information on how to create a Data Processing Flow.
2. Execute the Data Processing Flow to create a columnar table in a database.
3. Use [01_columnartable_storage] to create a Data Processing Flow that will store CSV file data from the DWH Server to the columnar table. Refer to "[3.3.9 Storing Columnar Tables](#)" for information on how to create a Data Processing Flow.
4. Execute the Data Processing Flow to store the specified data in the columnar table created in step 2.

- Use BI tools to utilize the data.
Refer to "[3.1.3 Utilizing Data from BI Tools](#)" for details.

3.2.2 Filtering Columnar Table Rows according to User-Defined Conditions and Utilizing the Data

Analyzing and utilizing data is easier if you create a columnar table containing data filtered according to region or certain fixed period from the large volume of data stored in the columnar table. This section explains how to use your preferred conditions to filter the data stored in a columnar table by row and utilize it by using BI tools.

Templates to be used

Use the following templates located in the [template] folder:

- [01_table_operation] >> [01_columnartable_creation]
- [02_data_operation] >> [03_columnartable_row_refinement]

Procedure

Perform the following procedure to use your preferred conditions to filter the data stored in a columnar table by row:

- Use [01_columnartable_creation] to create a Data Processing Flow for creating a columnar table that will store the filtered rows.
Refer to "[3.3.1 Creating Columnar Tables](#)" for information on how to create a Data Processing Flow.
- Execute the Data Processing Flow to create a storage columnar table in a database.
- Use [03_columnartable_row_refinement] to create a Data Processing Flow that uses your preferred conditions to filter the data by row.
Refer to "[3.3.11 Filtering Rows in Columnar Tables](#)" for information on how to create a Data Processing Flow.
- Execute the Data Processing Flow to filter the data and store it in the columnar table created in step 2.
- Use BI tools to utilize the data.
Refer to "[3.1.3 Utilizing Data from BI Tools](#)" for details.

3.3 Using Templates

This section explains how to use the templates.

3.3.1 Creating Columnar Tables

This section explains how to create a columnar table.



Note

- If you cannot reference a columnar table from BI tools, define a view table for the columnar table and reference the defined view table from the BI tools.
Refer to Section VI, "Reference" in the Symfoware Server PostgreSQL 9.2.4 Documentation for information on how to define a view table.
- You cannot update data stored in a columnar table. Therefore, ensure that only data that does not need to be updated is stored in a columnar table.

Template configuration

The following table explains the nodes that make up the template.

Node name	Role of the node	User operation
start_flow	Starts processing.	None.

Node name	Role of the node	User operation
create_columnar_table	Creates a columnar table.	Enter the required parameters.
create_storage_structure	Creates a storage structure in a database.	Enter the required parameters.
store_result_built-in	Terminates processing.	None.

Procedure

Perform the following procedure to create columnar tables:

1. Create a copy of the template

Perform the following procedure to copy the template:

1. In [Analytics Flow List Panel], click [template] >> [01_table_operation] >> [01_columnartable_creation].
2. Right-click, and click [Open].
3. In the Menu Bar, click [Project] >> [Save As].
4. Specify "Analytics Flow Name" and "Location", and then click [OK] to create a copy.

2. Define an Output Datastore

Define an Output Datastore for each [store_result_built-in] node.



1. In the [output_datastore] folder of [Datastore List Panel], select the folder where you want to create the Output Datastore definition.
If the folder where you want to create the definition does not exist, create it. To do this, select the parent folder, right-click, and click [New Folder].
2. Right-click, and click [Define Output Datastore]. Alternatively, click [Define] >> [Define Output Datastore] from the Menu Bar.
3. The [Select the Type of Output Datastore] window will be displayed. Select [File].
The [Define Output Datastore(File)] window will be displayed. Enter the required information. Specify fixed values for the following items:
 - Select [Built-in Datastore] for [Store Type] in the [Data Storage] tab
 - Select [Binary Data] for [Data Format] in the [Data Format] tab
4. Click [Save As].
5. Select the Output Datastore from [Datastore List Panel], right-click, and click [Deploy] to deploy the Output Datastore.

3. Set the parameters for the nodes

Double-click the nodes below to open the properties for each node. In the [Parameter] tab, set the required parameter values and click [OK].


[create_columnar_table] node

Variable name	Parameter name	Mandatory/Optional	Value
DB	Database_Name	Mandatory	Specify the database name assigned by the DWH Server administrator. Consult the DWH Server administrator for information on the databases that can be used.
SCM	Schema_Name	Mandatory	Specify the schema name assigned by the DWH Server administrator. For operations where no schema name will be created, specify "public".

Variable name	Parameter name	Mandatory/ Optional	Value
			Consult the DWH Server administrator for information on the schema names that can be used.
TBL	Table_Name	Mandatory	Specify the name of the columnar table to be created. Refer to "A.1 Server Features of Symfoware Server" in Appendix A, "Quantitative Limits" for information on the characters that can be used.
UserName	User_Name	Mandatory	Specify the name of the database user.
Password	Password	Mandatory	Specify the password of the user.
Cols1	Column_Name Data_Type NOTNULL	Mandatory	<p>Specify the column names of the columnar table to be created, separated by a comma. The specification format is as follows:</p> <p><i>columnName dataType</i> [NOT NULL]</p> <p>Example: To specify the column names "col1", "col2", and "col3":</p> <pre>col1 integer NOT NULL, col2 char(1), col3 char(1) NOT NULL</pre> <p>Refer to "A.1 Server Features of Symfoware Server" in Appendix A, "Quantitative Limits" for information on the characters that can be used in column names and the upper limit on the number of items.</p> <p>Refer to "E.1 Data Types" in Appendix E, "Data Formats" for information on the data types that can be used.</p> <p> Point</p> <p>.....</p> <p>Specifying the NOT NULL constraint</p> <p>Specify the NOT NULL constraint to set a constraint that requires a value to be specified for a column.</p> <p>If the NOT NULL constraint is not required, specify the column names and data types only.</p> <p>.....</p> <p> Note</p> <p>.....</p> <p>Do not delete the variable if there is no value to be specified.</p> <p>.....</p>
Cols2	Column_Name Data_Type NOTNULL	Optional	
Cols3			
Cols4			
Cols5			
Cols6			
Cols7			
Cols8			
Cols9			
Cols10			

Variable name	Parameter name	Mandatory/Optional	Value
InstallPath	SymfowareAnalyticsServer_Install_Path	Mandatory	Specify the absolute path of the installation directory for the DWH Server.

[create_storage_structure] node

Variable name	Parameter name	Mandatory/Optional	Value
DB	Database_Name	Mandatory	Specify the database name specified in the [create_columnar_table] node.
SCM	Schema_Name	Mandatory	Specify the schema name specified in the [create_columnar_table] node.
TBL	Table_Name	Mandatory	Specify the columnar table name specified in the [create_columnar_table] node.
Cols1	Column_Name Data_Type NOTNULL	Mandatory	Enter the same values as "Column_Name Data_Type NOTNULL" specified in the [create_columnar_table] node.  Note Do not delete the variable if there is no value to be specified.
Cols2	Column_Name Data_Type NOTNULL	Optional	
Cols3			
Cols4			
Cols5			
Cols6			
Cols7			
Cols8			
Cols9			
Cols10			
InstallPath	SymfowareAnalyticsServer_Install_Path	Mandatory	Specify the absolute path of the installation directory for the DWH Server.

Information

.....

Create columnar tables to be created in the [create_columnar_table] node according to the data to be stored as described in "3.3.9 Storing Columnar Tables".

.....

Note

-
- Enter up to 256 characters for each value.
 - You can enter multiple items for the values of Cols1 to Cols10. To enter more than 256 characters for a value, end the first item with a comma as shown below and then enter subsequent items in the succeeding Cols values.

```
Cols1=col1 char(1) NOT NULL,col2 date NOT NULL,col3 time,....,coln integer,
Cols2=coln1 integer,coln2 float NOT NULL
```

The values for Cols2 to Cols10 can be left blank.

.....

4. Connect to the template
Perform the following procedure to connect the template and the Output Datastore created above:
 1. Drag and drop the Output Datastore from [Datastore List Panel] to Analytics Flow Panel.
 2. Drag and drop from the output connector of the [store_result_built-in] node to the input connector of the Output Datastore to connect them with an edge (arrow). Connect one Output Datastore to each [store_result_built-in] node.
5. Execute the Data Processing Flow
Perform the following procedure to execute the Data Processing Flow:
 1. In the Menu Bar, click [Project] >> [Save] to save the Data Processing Flow.
 2. Select the saved Data Processing Flow from [Analytics Flow List Panel], right-click, and click [Deploy] to deploy the Data Processing Flow.
 3. In the Menu Bar, click [Run] >> [Run]. The status in the status bar changes to "Executing".
If the columnar table is created normally, the message "Analytics Flow execution is completed." will be displayed in the [Information] dialog box will be displayed.

Information

If the columnar table cannot be created, the status in the status bar changes to "Terminated Abnormally" and the [Error] dialog box will be displayed. Investigate the cause of the error and correct the Data Processing Flow. Refer to "[Corrective action if execution of the Data Processing Flow fails](#)" of "3.3.12 Notes on Using Templates" for information on how to investigate errors. Refer to the error message in Symfoware Server V12.0.0 Messages or check the contents provided in the error message, and correct the parameters for the node. Also correct the template as required. If the problem cannot be resolved, contact Fujitsu technical support.

3.3.2 Deleting Columnar Tables

This section explains how to delete a columnar table.

Note

If you have defined a view table for a columnar table, delete the view table before deleting the columnar table. Refer to Section VI, "Reference" in the Symfoware Server PostgreSQL 9.2.4 Documentation for information on how to delete a view table.

Template configuration

The following table explains the nodes that make up the template.

Node name	Role of the node	User operation
start_flow	Starts processing.	None.
delete_columnar_table	Deletes a columnar table.	Enter the required parameters.
delete_storage_structure	Deletes the storage structure of a database.	Enter the required parameters.
store_result_built-in	Terminates processing.	None.

Procedure

Perform the following procedure to delete columnar tables:

1. Create a copy of the template
Perform the following procedure to copy the template:
 1. In [Analytics Flow List Panel], click [template] >> [01_table_operation] >> [02_columnartable_deletion].

2. Right-click, and click [Open].
 3. In the Menu Bar, click [Project] >> [Save As].
 4. Specify "Analytics Flow Name" and "Location", and then click [OK] to create a copy.
2. Define an Output Datastore
Define an Output Datastore for each [store_result_built-in] node. Refer to "2. Define an Output Datastore" under "[Procedure](#)" in Section 3.3.1, "Creating Columnar Tables" for the procedure.
 3. Set the parameters for the nodes
Double-click the nodes below to open the properties for each node. In the [Parameter] tab, set the required parameter values and click [OK].

[delete_columnar_table] node

Variable name	Parameter name	Mandatory/Optional	Value
DB	Database_Name	Mandatory	Specify the name of the database containing the columnar table to be deleted.
SCM	Schema_Name	Mandatory	Specify the schema name of the columnar table to be deleted.
TBL	Table_Name	Mandatory	Specify the name of the columnar table to be deleted.
UserName	User_Name	Mandatory	Specify the name of the user who created the columnar table to be deleted.
Password	Password	Mandatory	Specify the password of the user.
InstallPath	SymfowareAnalyticsServer_Install_Path	Mandatory	Specify the absolute path of the installation directory for the DWH Server.

[delete_storage_structure] node

Variable name	Parameter name	Mandatory/Optional	Value
DB	Database_Name	Mandatory	Specify the database name specified in the [delete_columnar_table] node.
SCM	Schema_Name	Mandatory	Specify the schema name specified in the [create_columnar_table] node.
TBL	Table_Name	Mandatory	Specify the columnar table name specified in the [create_columnar_table] node.
InstallPath	SymfowareAnalyticsServer_Install_Path	Mandatory	Specify the absolute path of the installation directory for the DWH Server.

Note

Enter up to 256 characters for each value.

4. Connect to the template
Refer to "4. Connect to the template" under "[Procedure](#)" in Section 3.3.1, "Creating Columnar Tables" for the procedure, and connect the Output Datastore created above to the template node.

5. Execute the Data Processing Flow

Refer to "5. Execute the Data Processing Flow" under "Procedure" in Section 3.3.1, "Creating Columnar Tables" for the procedure.

3.3.3 Creating Tables

This section explains how to create tables.

Template configuration

The following table explains the nodes that make up the template.

Node name	Role of the node	User operation
start_flow	Starts processing.	None.
create_table	Creates a table.	Enter the required parameters.
store_result_built-in	Terminates processing.	None.

Procedure

Perform the following procedure to create tables:

1. Create a copy of the template

Perform the following procedure to copy the template:

1. In [Analytics Flow List Panel], click [template] >> [01_table_operation] >> [03_table_creation].
2. Right-click, and click [Open].
3. In the Menu Bar, click [Project] >> [Save As].
4. Specify "Analytics Flow Name" and "Location", and then click [OK] to create a copy.

2. Define an Output Datastore



Define an Output Datastore for the [store_result_built-in] node. Refer to "2. Define an Output Datastore" under "Procedure" in Section 3.3.1, "Creating Columnar Tables" for the procedure.

3. Set the parameters for the node

Double-click the node below to open the properties for the node. In the [Parameter] tab, set the required parameter values and click [OK].

[create_table] node

Variable name	Parameter name	Mandatory/Optional	Value
DB	Database_Name	Mandatory	Specify the database name assigned by the DWH Server administrator. Consult the DWH Server administrator for information on the databases that can be used.
SCM	Schema_Name	Mandatory	Specify the schema name assigned by the DWH Server administrator. For operations where no schema name will be created, specify "public". Consult the DWH Server administrator for information on the schema names that can be used.
TBL	Table_Name	Mandatory	Specify the name of the table to be created. Refer to "A.1 Server Features of Symfoware Server" in Appendix A,

Variable name	Parameter name	Mandatory/Optional	Value
			"Quantitative Limits" for information on the range of characters that can be used.
UserName	User_Name	Mandatory	Specify the name of the database user.
Password	Password	Mandatory	Specify the password of the user.
Cols1	Column_Name Data_Type NOTNULL	Mandatory	<p>Specify the column names of the tables to be created, separated by a comma. The specification format is as follows:</p> <p><i>columnName dataType</i> [NOT NULL]</p> <p>Example: To specify the column names "col1", "col2", and "col3":</p> <pre>col1 integer NOT NULL, col2 char(1), col3 char(1) NOT NULL</pre> <p>Refer to "A.1 Server Features of Symfoware Server" in Appendix A, "Quantitative Limits" for information on the characters that can be used in column names and the upper limit on the number of items.</p> <p>Refer to "E.1 Data Types" in Appendix E, "Data Formats" for information on the data types that can be used.</p> <p> Point</p> <p>.....</p> <p>Specifying the NOT NULL constraint</p> <p>Specify the NOT NULL constraint to set a constraint that requires a value to be specified for a column. If the NOT NULL constraint is not required, specify the column names and data types only.</p> <p>.....</p> <p> Note</p> <p>.....</p> <p>Do not delete the variable if there is no value to be specified.</p> <p>.....</p>
Cols2	Column_Name Data_Type NOTNULL	Optional	
Cols3			
Cols4			
Cols5			
Cols6			
Cols7			
Cols8			
Cols9			
Cols10			
InstallPath	SymfowareAnalyticsServer_Install_Path	Mandatory	Specify the absolute path of the installation directory for the DWH Server.

Information

Create a table in the [create_table] node according to the data to be stored as described in "3.3.10 Storing Tables".

Note

- Enter up to 256 characters for each value.
- You can enter multiple items for the values of Cols1 to Cols10. To enter more than 256 characters for a value, end the first item with a comma as shown below and then enter subsequent items in the succeeding Cols values.

```
Cols1=col1 char(1) NOT NULL,col2 date NOT NULL,col3 time,...,coln integer,  
Cols2=coln1 integer,coln2 float NOT NULL
```

The values for Cols2 to Cols10 can be left blank.

4. Connect to the template
Refer to "4. Connect to the template" under "Procedure" in Section 3.3.1, "Creating Columnar Tables" for the procedure, and connect the Input Datastore, and Output Datastore created above, to the template node.
5. Execute the Data Processing Flow
Refer to "5. Execute the Data Processing Flow" under "Procedure" in Section 3.3.1, "Creating Columnar Tables" for the procedure.

3.3.4 Deleting Tables

This section explains how to delete tables.

Template configuration

The following table explains the nodes that make up the template.

Node name	Role of the node	User operation
start_flow	Starts processing.	None.
delete_table	Deletes a table.	Enter the required parameters.
store_result_built-in	Terminates processing.	None.

Procedure

Perform the following procedure to delete tables:

1. Create a copy of the template
Perform the following procedure to copy the template:
 1. In [Analytics Flow List Panel], click [template] >> [01_table_operation] >> [04_table_deletion].
 2. Right-click, and click [Open].
 3. In the Menu Bar, click [Project] >> [Save As].
 4. Specify "Analytics Flow Name" and "Location", and then click [OK] to create a copy.
2. Define an Output Datastore
Define an Output Datastore for the [store_result_built-in] node. Refer to "2. Define an Output Datastore" under "Procedure" in Section 3.3.1, "Creating Columnar Tables" for the procedure.
3. Set the parameters for the node
Double-click the node below to open the properties for the node. In the [Parameter] tab, set the required parameter values and click [OK].
[delete_table] node

Variable name	Parameter name	Mandatory/Optional	Value
DB	Database_Name	Mandatory	Specify the name of the database containing the table to be deleted.
SCM	Schema_Name	Mandatory	Specify the schema name of the table to be deleted.
TBL	Table_Name	Mandatory	Specify the name of the table to be deleted.
UserName	User_Name	Mandatory	Specify the user name of the table to be deleted.
Password	Password	Mandatory	Specify the password of the user.
InstallPath	SymfowareAnalyticsServer_Install_Path	Mandatory	Specify the absolute path of the installation directory for the DWH Server.

Note

Enter up to 256 characters for each value.

4. Connect to the template
Refer to "4. Connect to the template" under "**Procedure**" in Section 3.3.1, "Creating Columnar Tables" for the procedure, and connect the Output Datastore created above to the template node.
5. Execute the Data Processing Flow
Refer to "5. Execute the Data Processing Flow" under "**Procedure**" in Section 3.3.1, "Creating Columnar Tables" for the procedure.

3.3.5 Granting Table Privileges

This section explains how to grant privileges for a specified columnar table or table to a specified user.

Template configuration

The following table explains the nodes that make up the template.

Node name	Role of the node	User operation
start_flow	Starts processing.	None.
grant_table_privileges	Grants a privilege for the specified table to the specified user.	Enter the required parameters.
store_result_built-in	Terminates processing.	None.

Procedure

Perform the following procedure to grant table privileges:

1. Create a copy of the template
Perform the following procedure to copy the template:
 1. In [Analytics Flow List Panel], click [template] >> [01_table_operation] >> [05_table_permission].
 2. Right-click, and click [Open].
 3. In the Menu Bar, click [Project] >> [Save As].
 4. Specify "Analytics Flow Name" and "Location", and then click [OK] to create a copy.

2. Define an Output Datastore


Define an Output Datastore for the [store_result_built-in] node. Refer to "2. Define an Output Datastore" under "Procedure" in Section 3.3.1, "Creating Columnar Tables" for the procedure.

3. Set the parameters for the node

Double-click the node below to open the properties for the node. In the [Parameter] tab, set the required parameter values and click [OK].

[grant_table_privileges] node

Variable name	Parameter name	Mandatory/Optional	Value
DB	Database_Name	Mandatory	Specify the name of the database containing the table for which you want to grant a privilege.
SCM	Schema_Name	Mandatory	Specify the schema name of the table for which you want to grant a privilege.
TBL	Table_Name	Mandatory	Specify the name of the table for which you want to grant a privilege.
UserName	User_Name	Mandatory	Specify the name of the user who created the table for which you want to grant a privilege.
Password	Password	Mandatory	Specify the password of the user.
Permission	Granted_Privileges	Mandatory	<p>Select at least one of the privileges below. If selecting multiple privileges, separate them with a comma.</p> <p>When changing the privileges for a columnar table, you can select only SELECT.</p> <ul style="list-style-type: none"> - SELECT Privilege to search rows in a table - INSERT Privilege to create rows in a table - UPDATE Privilege to update rows in a table - DELETE Privilege to delete rows from a table - TRUNCATE Privilege to clear tables - REFERENCES Privilege to create table reference constraints

Variable name	Parameter name	Mandatory/ Optional	Value
			<ul style="list-style-type: none"> - TRIGGER Privilege to create triggers in the specified table - ALL All the above privileges <p> See</p> <p>.....</p> <p>Refer to "GRANT" in the Symfoware Server PostgreSQL 9.2.4 Documentation for information on privileges.</p> <p>.....</p>
PermittedUserName	Granted_User_Name	Mandatory	Specify the name of the user to be granted privilege.
InstallPath	SymfowareAnalyticsServer_Install_Path	Mandatory	Specify the absolute path of the installation directory for the DWH Server.

Note

Enter up to 256 characters for each value.

4. Connect to the template
Refer to "4. Connect to the template" under "[Procedure](#)" in Section 3.3.1, "Creating Columnar Tables" for the procedure, and connect the Output Datastore created above to the template node.
5. Execute the Data Processing Flow
Refer to "5. Execute the Data Processing Flow" under "[Procedure](#)" in Section 3.3.1, "Creating Columnar Tables" for the procedure.

3.3.6 Revoking Table Privileges

This section explains how to revoke privileges for a specified columnar table or table from a specified user.

Template configuration

The following table explains the nodes that make up the template.

Node name	Role of the node	User operation
start_flow	Starts processing.	None.
revoke_table_privileges	Revokes the privilege for the specified table for the specified user.	Enter the required parameters.
store_result_built-in	Terminates processing.	None.

Procedure


Perform the following procedure to revoke table privileges:

1. Create a copy of the template
Perform the following procedure to copy the template:
 1. In [Analytics Flow List Panel],
click [template] >> [01_table_operation] >> [06_table_permission_cancellation].

2. Right-click, and click [Open].
 3. In the menu bar, click [Project] >> [Save As].
 4. Specify "Analytics Flow Name" and "Location", and then click [OK] to create a copy.
2. Define an Output Datastore
Define an Output Datastore for the [store_result_built-in] node. Refer to "2. Define an Output Datastore" under "[Procedure](#)" in Section 3.3.1, "Creating Columnar Tables" for the procedure.
 3. Set the parameters for the node
Double-click the node below to open the properties for the node. In the [Parameter] tab, set the required parameter values and click [OK].

[revoke_table_privileges] node

Variable name	Parameter name	Mandatory/ Optional	Value
DB	Database_Name	Mandatory	Specify the name of the database containing the table for which you want to revoke a privilege.
SCM	Schema_Name	Mandatory	Specify the schema name of the table for which you want to revoke a privilege.
TBL	Table_Name	Mandatory	Specify the name of the table for which you want to revoke a privilege.
UserName	User_Name	Mandatory	Specify the name of the user who created the table for which you want to revoke a privilege.
Password	Password	Mandatory	Specify the password of the user.
Permission	Revoked_Privileges	Mandatory	<p>Select at least one of the privileges below. If selecting multiple privileges, separate them with a comma.</p> <p>When changing the privileges for a columnar table, you can select only SELECT.</p> <ul style="list-style-type: none"> - SELECT Privilege to search rows in a table - INSERT Privilege to create rows in a table - UPDATE Privilege to update rows in a table - DELETE Privilege to delete rows from a table - TRUNCATE Privilege to clear tables - REFERENCES Privilege to create table reference constraints - TRIGGER Privilege to create triggers in the specified table

Variable name	Parameter name	Mandatory/Optional	Value
			- ALL All the above privileges  See Refer to "GRANT" in the Symfoware Server PostgreSQL documentation for Symfoware Server for information on the above privileges.
PermittedUserName	Revoked_User_Name	Mandatory	Specify the name of the user whose privilege is to be revoked.
InstallPath	SymfowareAnalyticsServer_Install_Path	Mandatory	Specify the absolute path of the installation directory for the DWH Server.

 **Note**

Enter up to 256 characters for each value.

- Connect to the template
Refer to "4. Connect to the template" under "[Procedure](#)" in Section 3.3.1, "Creating Columnar Tables" for the procedure, and connect the Output Datastore created above to the template node.
- Execute the Data Processing Flow
Refer to "5. Execute the Data Processing Flow" under "[Procedure](#)" in Section 3.3.1, "Creating Columnar Tables" for the procedure.

3.3.7 Obtaining Table Lists

This section explains how to obtain a list of columnar tables and a list of tables from a database.

Template configuration

The following table explains the nodes that make up the template.

Node name	Role of the node	User operation
start_flow	Starts processing.	None.
get_table_list	Obtains a list of tables from a database.	Enter the required parameters.
get_columnar_table_list	Obtains a list of columnar tables from a database.	Enter the required parameters.
store_table_list_built-in	Stores the list of tables in the Output Datastore that is set.	None.
store_columnar_table_list_built-in	Stores the list of columnar tables in the Output Datastore that is set.	None.

Procedure

Perform the following procedure to obtain table lists:

- Create a copy of the template
Perform the following procedure to copy the template:
 - In [Analytics Flow List Panel], click [template] >> [01_table_operation] >> [07_table_list_acquisition].

2. Right-click, and click [Open].
 3. In the Menu Bbar, click [Project] >> [Save As].
 4. Specify "Analytics Flow Name" and "Location", and then click [OK] to create a copy.
2. Define an Output Datastore
Define an Output Datastore for the [store_table_list_built-in] node and the [store_columnar_table_list_built-in] node. Refer to "2. Define an Output Datastore" under "Procedure" in Section 3.3.1, "Creating Columnar Tables" for the procedure.
 3. Set the parameters for the nodes
Double-click the nodes below to open the properties for each node. In the [Parameter] tab, set the required parameter values and click [OK].

[get_table_list] node

Variable name	Parameter name	Mandatory/Optional	Value
DB	Database_Name	Mandatory	Specify the name of the database from which to obtain a list of tables.
SCM	Schema_Name	Mandatory	Specify the name of the schema from which to obtain a list of tables.
UserName	User_Name	Mandatory	Specify the name of the database user.
Password	Password	Mandatory	Specify the password of the user.
InstallPath	SymfowareAnalyticsServer_Install_Path	Mandatory	Specify the absolute path of the installation directory for the DWH Server.

[get_columnar_table_list] node

Variable name	Parameter name	Mandatory/Optional	Value
DB	Database_Name	Mandatory	Specify the database name specified in the [get_table_list] node.
SCM	Schema_Name	Mandatory	Specify the schema name specified in the [get_table_list] node.
UserName	User_Name	Mandatory	Specify the name of the database user.
Password	Password	Mandatory	Specify the password of the user.
InstallPath	SymfowareAnalyticsServer_Install_Path	Mandatory	Specify the absolute path of the installation directory for the DWH Server.

Note

Enter up to 256 characters for each value.

4. Connect to the template
Refer to "4. Connect to the template" under "Procedure" in Section 3.3.1, "Creating Columnar Tables" for the procedure, and connect the Output Datastore created above to the template node.
5. Execute the Data Processing Flow
Refer to "5. Execute the Data Processing Flow" under "Procedure" in Section 3.3.1, "Creating Columnar Tables" for the procedure.
6. Check the tables

Note

You must perform this step immediately after step 5. You can no longer check the tables once you have opened a different Data Processing Flow in Analytics Flow Editor, or closed Analytics Flow Editor.

Perform the following procedure to check the tables:

1. In the Menu Bar, click [Run] >> [Download Results].
2. In the [Download Result File] dialog box, select the Output Datastore defined in step 2, and then click [OK].
3. A dialog box for selecting the file save destination will be displayed. Select the save destination, and then click [Save]. The file is downloaded to the specified save destination.
4. Browse the file using a text editor. The following information can be viewed:

- [relname]: Table name
- [username]: User name

Example 1: Columnar table list

When the table name is "table1" and the user name is "symfoasuser"

```
relname | username
-----+-----
table1  | symfoasuser
(1 row)
```

Example 2: Table list

When the table name is "table2" and the user name is "symfoasuser"

```
relname | username
-----+-----
table2  | symfoasuser
(1 row)
```

3.3.8 Obtaining Table Definitions

This section explains how to obtain table definitions for columnar tables and tables from a database.

Template configuration

The following table explains the nodes that make up the template.

Node name	Role of the node	User operation
start_flow	Starts processing.	None.
get_table_definition	Obtains a table definition from a database.	Enter the required parameters.
modify_table_definition	Processes the table definition to an easy to read format.	None.
store_table_definition_built-in	Stores the obtained table definition in the Output Datastore that is set.	None.

Procedure

Perform the following procedure to obtain table definitions:

1. Create a copy of the template
Perform the following procedure to copy the template:
 1. In [Analytics Flow List Panel], click [template] >> [01_table_operation] >> [08_table_definition_acquisition].

2. Right-click, and click [Open].
 3. In the Menu Bar, click [Project] >> [Save As].
 4. Specify "Analytics Flow Name" and "Location", and then click [OK] to create a copy.
2. Define an Output Datastore
Define an Output Datastore for the [store_table_definition_built-in] node. Refer to "2. Define an Output Datastore" under "Procedure" in Section 3.3.1, "Creating Columnar Tables" for the procedure.
 3. Set the parameters for the node
Double-click the node below to open the properties for the node. In the [Parameter] tab, set the required parameter values and click [OK].

[get_table_definition] node

Variable name	Parameter name	Mandatory/Optional	Value
DB	Database_Name	Mandatory	Specify the name of the database containing the table for which you want to obtain a definition.
SCM	Schema_Name	Mandatory	Specify the schema name of the table for which you want to obtain a definition.
TBL	Table_Name	Mandatory	Specify the name of the table for which you want to obtain a definition.
UserName	User_Name	Mandatory	Specify the name of the database user.
Password	Password	Mandatory	Specify the password of the user.
InstallPath	SymfowareAnalyticsServer_Install_Path	Mandatory	Specify the absolute path of the installation directory for the DWH Server.

Note

Enter up to 256 characters for each value.

4. Connect to the template
Refer to "4. Connect to the template" under "Procedure" in Section 3.3.1, "Creating Columnar Tables" for the procedure, and connect the Output Datastore created above to the template node.
5. Execute the Data Processing Flow
Refer to "5. Execute the Data Processing Flow" under "Procedure" in Section 3.3.1, "Creating Columnar Tables" for the procedure.
6. Check the definition

Note

You must perform this step immediately after step 5. You can no longer browse the analysis result once you have opened a different Data Processing Flow in Analytics Flow Editor, or closed Analytics Flow Editor.

Perform the following procedure to check the data:

1. In the Menu Bar, click [Run] >> [Download Results].
2. In the [Download Result File] dialog box, select the Output Datastore defined in step 2, and then click [OK].
3. A dialog box for selecting the file save destination will be displayed. Select the save destination, and then click [Save]. The file is downloaded to the specified save destination.

4. Browse the file using a text editor. The following information can be viewed:

- First column from the left: Column name
- Second column from the left: Data type
- Third column from the left: Whether NOTNULL constraints exist

Information

Ignore the fourth column from the left in a columnar table.

Example 1: Columnar table with three items

```
col1 | integer      | not null      |
col2 | character(1) |               |
col3 | character(1) | not null      |
Server: symfoas
FDW Options: (database 'symfoas', schema 'DBA', "table" 'symfoasdb_public_table1')
```

Example 2: Table with three items

```
col1 | integer      | not null
col2 | character(1) |
col3 | character(1) | not null
```

3.3.9 Storing Columnar Tables

This section explains how to store the data written in a CSV file to a columnar table.

Note

You cannot update data stored in a columnar table. Therefore, ensure that only data that does not need to be updated is stored in a columnar table.

Template configuration

The following table explains the nodes that make up the template.

Node name	Role of the node	User operation
extract_csv	Extracts all data from the Input Datastore that is set.	None.
clear_stored_data	Deletes data from a columnar table.	Enter the required parameters.
store_columnar_table	Stores data in a columnar table.	Enter the required parameters.
store_result_built-in	Terminates processing.	None.

Information

If you do not want to delete data from a columnar table before storing data in the table, perform the following procedure to delete the [clear_stored_data] node:

1. Select the [clear_stored_data] node, right-click, and click [Delete] to delete the node.
2. Connect the output connector of the [extract_csv] node and the input connector of the [store_columnar_table] node.

Procedure

Perform the following procedure to store columnar tables:

1. Create a copy of the template

Perform the following procedure to copy the template:

1. In [Analytics Flow List Panel], click [template] >> [02_data_operation] >> [01_columnartable_storage].
2. Right-click, and click [Open].
3. In the Menu Bar, click [Project] >> [Save As].
4. Specify "Analytics Flow Name" and "Location", and then click [OK] to create a copy.

2. Define an Input Datastore

This procedure is not required if the Input Datastore to be used already exists.

Perform the following procedure to define an Input Datastore:

1. In the [input_datastore] folder of [Datastore List Panel], select the folder where you want to create the Input Datastore definition.
If the folder does not exist, create it. To do this, select the parent folder, right-click, and click [New Folder].
2. Right-click, and click [Define Input Datastore]. Alternatively, click [Define] >> [Define Input Datastore] from the Menu Bar.
3. The [Select the Type of Input Datastore] window will be displayed. Select [File].

The [Define Input Datastore(File)] window will be displayed. Set the following information:

- [Data Storage] tab
In [File Path on the Analytics Server], specify the absolute path of the file on the DWH Server.
- [Data Format] tab
Select Text Data.
Specify the same character set and delimiter as the character set of the input file.
- [Data Structure] tab
In [Data Structure], enter header information corresponding to the input file. Then enter all column names that exist in the input file to the column name information. If a header exists, you must enter the same header name as the header name of the CSV file. Refer to "A.1 Server Features of Symfoware Server" in Appendix A, "Quantitative Limits" for information on the characters that can be used in the header name.

4. Click [Save As].

5. Select the Input Datastore created above from [Datastore List Panel], right-click, and click [Deploy] to deploy the Input Datastore.

3. Define an Output Datastore

Define an Output Datastore for the [store_result_built-in] node. Refer to "2. Define an Output Datastore" under "Procedure" in Section 3.3.1, "Creating Columnar Tables" for the procedure.

4. Set the parameters for the nodes


Double-click the nodes below to open the properties for each node. In the [Parameter] tab, set the required parameter values and click [OK].

[clear_stored_data] node

Variable name	Parameter name	Mandatory/ Optional	Value
DB	Database_Name	Mandatory	Specify the name of the database containing the columnar table that is to store the data.
SCM	Schema_Name	Mandatory	Specify the schema name of the columnar table that is to store the data.
TBL	Table_Name	Mandatory	Specify the name of the columnar table that is to store the data.

Variable name	Parameter name	Mandatory/Optional	Value
InstallPath	SymfowareAnalyticsServer_Install_Path	Mandatory	Specify the absolute path of the installation directory for the DWH Server.

[store_columnar_table] node

Variable name	Parameter name	Mandatory/Optional	Value
DB	Database_Name	Mandatory	Specify the database name specified in the [clear_stored_data] node.
SCM	Schema_Name	Mandatory	Specify the schema name specified in the [clear_stored_data] node.
TBL	Table_Name	Mandatory	Specify the columnar table name specified in the [clear_stored_data] node.
Cols1	Column_Name	Mandatory	Specify all the column names of the columnar table, separated by a comma. Example: To specify the column names "col1", "col2", and "col3": <code>col1, col2, col3</code>  Note Do not delete the variable if there is no value to be specified.
Cols2	Column_Name	Optional	
Cols3			
Cols4			
Cols5			
Cols6			
Cols7			
Cols8			
Cols9			
Cols10			
InstallPath	SymfowareAnalyticsServer_Install_Path	Mandatory	Specify the absolute path of the installation directory for the DWH Server.

Note

- Enter up to 256 characters for each value.
- You can enter multiple items for the values of Cols1 to Cols10. To enter more than 256 characters for a value, end the first item with a comma as shown below and then enter subsequent items in the succeeding Cols values.

```
Cols1=col1,col2,col3,....,coln,
Cols2=coln1,coln2
```

The values for Cols2 to Cols10 can be left blank.

5. Connect to the template

Refer to "4. Connect to the template" under "Procedure" in Section 3.3.1, "Creating Columnar Tables" for the procedure, and connect the Input Datastore and Output Datastore created above to the template node.

Information

You may want to complete row filtering, joining, and other data processing for the data written in a CSV file before you store the data in the columnar table. In this case, you can add a node between the [extract_csv] node and the [clear_stored_data] node.

If adding a node will change the output items, you must first create a columnar table to suit the processed output items and specify it in the [store_columnar_table] node.

- Execute the Data Processing Flow
Refer to "5. Execute the Data Processing Flow" under "Procedure" in Section 3.3.1, "Creating Columnar Tables" for the procedure.

Note

- If an invalid value is specified for "SymfowareAnalyticsServer_Install_Path" in a node where an error has occurred, specify a valid value.
- If the disk space required specified in the Data Management directory of the Data Processing Server is insufficient, take the following actions:
 - Prepare a disk with available disk space.
 - Change the setting for the Data Management directory of the Data Processing Server. Refer to "Corrective action if execution of the Data Processing Flow fails" in "3.3.12 Notes on Using Templates". This section has the details of the procedure to change the setting for the Data Management directory.

See

Refer to "2.2.12.2 Disk Space" for information on how to check the disk space.

3.3.10 Storing Tables

This section explains how to store data written in a CSV file to a table.

Template configuration

The following table explains the nodes that make up the template.

Node name	Role of the node	User operation
extract_csv	Extracts all data from the Input Datastore that is set.	None.
clear_stored_data	Deletes data from a table in the storage destination database.	Enter the required parameters.
store_table	Stores data to the table that is set.	Enter the required parameters.

Information

If you do not want to delete data from a table before storing data in the table, perform the following procedure to delete the [clear_stored_data] node:

- Select the [clear_stored_data] node, right-click, and click [Delete] to delete the node.
- Connect the output connector of the [extract_csv] node and the input connector of the [store_table] node.

Procedure

Perform the following procedure to store tables:

- Create a copy of the template
Perform the following procedure to copy the template:
 - In [Analytics Flow List Panel], click [template] >> [02_data_operation] >> [02_table_storage].

2. Right-click, and click [Open].
 3. In the Menu Bar, click [Project] >> [Save As].
 4. Specify "Analytics Flow Name" and "Location", and then click [OK] to create a copy.
2. Define an Input Datastore
- This procedure is not required if the Input Datastore to be used already exists. Refer to "2. Define an Input Datastore" under "Procedure" in Section 3.3.9, "Storing Columnar Tables" for the procedure.
3. Define an Output Datastore
- Define an Output Datastore for the [store_table] node. Perform the following procedure to define an Output Datastore:
1. In the [output_datastore] folder of [Datastore List Panel], select the folder where you want to create the Output Datastore definition.
If the folder does not exist, create it. To do this, select the parent folder, right-click, and click [New Folder].
 2. Right-click, and click [Define Output Datastore]. Alternatively, click [Define] >> [Define Output Datastore] from the Menu Bar.
 3. The [Select the Type of Output Datastore] window will be displayed. Select [Database].
The [Define Output Datastore(DB)] window will be displayed. Enter the required information. Set the following information as described:
 - Select "Symfoware Server (Open Interface)" for [Database Type] in the [DB connection] tab
 - Set "localhost" as the host name of [Connection] in the [DB connection] tab
 - Set the port number to be used for communicating with the connected DWH Server for [Port Number] in the [DB connection] tab (the default value is 26500)
 - Set the column names to be entered in the [Data Structure] tab. All information must be the same as the column names for the data in the Input Datastore
 4. Click [Save As].
 5. Select the Output Datastore created above from [Datastore List Panel], right-click, and click [Deploy] to deploy the Output Datastore.
4. Set the parameters for the nodes
- Double-click the nodes below to open the properties for each node. Set values for the required parameters in the [Parameter] tab for the [clear_stored_data] node, and in the [Node] tab for the [store_table] node. Then click [OK].

[clear_stored_data] node

Variable name	Parameter name	Mandatory/Optional	Value
DB	Database_Name	Mandatory	Specify the name of the database containing the table that is to store the data.
SCM	Schema_Name	Mandatory	Specify the schema name of the table that is to store the data.
TBL	Table_Name	Mandatory	Specify the name of the table that is to store the data.
UserName	User_Name	Mandatory	Specify the name of the user who created the table that is to store the data, or the name of the user who was granted TRUNCATE privilege for the table.
Password	Password	Mandatory	Specify the password of the user.
InstallPath	SymfowareAnalyticsServer_Install_Path	Mandatory	Specify the absolute path of the installation directory for the DWH Server.

[store_table] node

Parameter name	Mandatory/Optional	Value
JDBC_Path	Mandatory	/opt/symfoclient64/jdbc/lib/postgresql-jdbc4.jar

Note

Enter up to 256 characters for each value.

- Connect to the template
Refer to "4. Connect to the template" under "Procedure" in Section 3.3.1, "Creating Columnar Tables" for the procedure, and connect the Input Datastore and Output Datastore created above to the template node.

Information

You may want to complete row filtering, joining, and other data processing for the data written in a CSV file before you store the data in the columnar table. In this case, you can add a node between the [extract_csv] node and the [clear_stored_data] node.

If adding a node will change the output items, you must first create a table to suit the processed output items, define the column names in the [Data Structure] tab for the Output Datastore to reflect these changes, and then deploy them.

- Execute the Data Processing Flow
Refer to "5. Execute the Data Processing Flow" under "Procedure" in Section 3.3.1, "Creating Columnar Tables" for the procedure.

3.3.11 Filtering Rows in Columnar Tables

This section explains how to extract data from a columnar table in which data is already stored, filter the rows, and store the result in a different columnar table with the same items.

Template configuration

The following table explains the nodes that make up the template.

Node name	Role of the node	User operation
start_flow	Starts processing.	None.
clear_stored_data	Deletes information from a columnar table in the storage destination database.	Enter the required parameters.
extract_columnar_table	Extracts data from a columnar table.	Enter the required parameters.
store_columnar_table	Stores data in a columnar table.	Enter the required parameters.
store_result_built-in	Terminates processing.	None.

Information

If you do not want to delete data from a columnar table before storing data in the table, perform the following procedure to delete the [clear_stored_data] node:

- Select the [clear_stored_data] node, right-click, and click [Delete] to delete the node.
- Connect the output connector of the [start_flow] node and the input connector of the [extract_columnar_table] node.

Procedure

Perform the following procedure to filter rows in columnar tables:

1. Create a copy of the template

Perform the following procedure to copy the template:

1. In [Analytics Flow List Panel], click [template] >> [02_data_operation] >> [03_columnartable_row_refinement].
2. Right-click, and click [Open].
3. In the Menu Bar, click [Project] >> [Save As].
4. Specify "Analytics Flow Name" and "Location", and then click [OK] to create a copy.

2. Define an Output Datastore

Define an Output Datastore for the [store_result_built-in] node. Refer to "2. Define an Output Datastore" under "Procedure" in Section 3.3.1, "Creating Columnar Tables" for the procedure.


3. Set the parameters for the nodes

Double-click the nodes below to open the properties for each node. In the [Parameter] tab, set the required parameter values and click [OK].

[clear_stored_data] node


Variable name	Parameter name	Mandatory/Optional	Value
DB	Database_Name	Mandatory	Specify the name of the database containing the columnar table that is to store the rows.
SCM	Schema_Name	Mandatory	Specify the schema name of the storage destination columnar table.
TBL	Table_Name	Mandatory	Specify the name of the columnar table at the storage destination.
InstallPath	SymfowareAnalytics Server_Install_Path	Mandatory	Specify the absolute path of the installation directory for the DWH Server.

[extract_columnar_table] node

Variable name	Parameter name	Mandatory/Optional	Value
DB	Database_Name	Mandatory	Specify the name of the extraction source database.
SCM	Schema_Name	Mandatory	Specify the name of the extraction source schema.
TBL	Table_Name	Mandatory	Specify the name of the extraction source columnar table.
Condition	Search_Condition	Mandatory	<p>Specify the conditional expression for refining rows.</p> <p>Of the specifiable value expressions described in Section 7.2.2, "The WHERE Clause" in the Symfoware Server PostgreSQL 9.2.4 Documentation, the following can be specified for the conditional expression:</p> <ul style="list-style-type: none"> - Constant or literal values - Column references <p> Note</p> <p>.....</p> <p>If specifying column references, do not enclose the column names with double quotation marks.</p> <p>.....</p> <ul style="list-style-type: none"> - Operators <p>The following are available if using operators:</p>

Variable name	Parameter name	Mandatory/ Optional	Value
			<ul style="list-style-type: none"> - Comparison operators =, !=, <>, >, <, >=, <= - Logical operators AND, OR, NOT - Pattern condition operators LIKE <p>The following symbols can be used to represent patterns:</p> <p>Underscore (_) Any single character.</p> <p>% Any string of 0 or more characters except null.</p> <p>Parentheses can be used for complex condition expressions.</p>
InstallPath	SymfowareAnalytics Server_Install_Path	Mandatory	Specify the absolute path of the installation directory for the DWH Server.

[store_columnar_table] node

Variable name	Parameter name	Mandatory/ Optional	Value
DB	Database_Name	Mandatory	Specify the database name specified in the [clear_stored_data] node.
SCM	Schema_Name	Mandatory	Specify the schema name specified in the [clear_stored_data] node.
TBL	Table_Name	Mandatory	Specify the columnar table name specified in the [clear_stored_data] node.
Cols1	Column_Name	Mandatory	Specify the column names of the columnar table to be stored, separated by a comma.
Cols2	Column_Name	Optional	Example: To specify the column names "col1", "col2", and "col3":
Cols3			col1, col2, col3
Cols4			
Cols5			Refer to "A.1 Server Features of Symfoware Server" in Appendix A, "Quantitative Limits" for information on the characters that can be used in column names and the upper limit on the number of items.
Cols6			
Cols7			
Cols8			 Note
Cols9		
Cols10			Do not delete the variable if there is no value to be specified.
InstallPath			SymfowareAnalytics Server_Install_Path

 **Note**

- Enter up to 256 characters for each value.

- You can enter multiple items for the values of Cols1 to Cols10. To enter more than 256 characters for a value, end the first item with a comma as shown below and then enter subsequent items in the succeeding Cols values.

```
Cols1=col1,col2,col3,...,coln,
Cols2=coln1,coln2
```

The values for Cols2 to Cols10 can be left blank.

4. Connect to the template

Refer to "4. Connect to the template" under "Procedure" in Section 3.3.1, "Creating Columnar Tables" for the procedure, and connect the Input Datastore, and Output Datastore created above, to the template node.

5. Execute the Data Processing Flow

Refer to "5. Execute the Data Processing Flow" under "Procedure" in Section 3.3.1, "Creating Columnar Tables" for the procedure.

3.3.12 Notes on Using Templates

Specifying parameter values

- To specify case-sensitive identifiers (database names, schema names, table names, and column names) for the parameter values of a node in a template, enclose the identifiers in double quotation marks ("). In addition, when enclosing schema names, table names, and column names with double quotation marks, prepend each double quotation mark with the escape character (\).

Example 1: To specify "SymfoASDB" in a database name:

```
"SymfoASDB"
```

Example 2: To specify "SymfoASSCM" in a schema name:

```
\ "SymfoASSCM\ "
```

- However, you cannot use double quotation marks for the parameter values listed in the following table:

Template name	Node name	Parameter name
columnartable_creation	create_columnar_table	Database_Name
		Schema_Name
		Table_Name
		Column_Name Data_Type NOTNULL
	create_storage_structure	Database_Name
		Schema_Name
		Table_Name
		Column_Name Data_Type NOTNULL
columnartable_deletion	delete_columnar_table	Database_Name
		Schema_Name
		Table_Name
	delete_storage_structure	Database_Name
		Schema_Name
		Table_Name
columnartable_storage	clear_stored_data	Database_Name
		Schema_Name
		Table_Name

Template name	Node name	Parameter name
	store_columnar_table	Database_Name
		Schema_Name
		Table_Name
		Column_Name
columnartable_row_refinement	clear_stored_data	Database_Name
		Schema_Name
		Table_Name
	extract_columnar_table	Database_Name
		Schema_Name
		Table_Name
		Search_Condition
	store_columnar_table	Database_Name
		Schema_Name
		Table_Name
		Column_Name

Information

Refer to "[Appendix A Quantitative Limits](#)" for information on the types of characters that can be used as identifiers.

Using Symfoware Analytics Server tables as an Input Datastore

The following explains how to define the Data Processing Flow to use the data of Symfoware Analytics Server columnar tables or tables, instead of data written in a CSV file, as an Input Datastore.

First, perform the following procedure to define the process for extracting data from the Symfoware Analytics Server tables:

1. Define an Input Datastore

Perform the following procedure to define the Input Datastore:

1. In the [input_datastore] folder of [Datastore List Panel], select the folder where you want to create the Input Datastore definition.
If the folder does not exist, create it. To do this, select the parent folder, right-click, and click [New Folder].
2. Right-click, and click [Define Input Datastore]. Alternatively, click [Define] >> [Define Input Datastore] from the Menu Bar.

The [Select the Type of Input Datastore] window will be displayed. Select [Database].

The [Define Input Datastore(DB)] window will be displayed. Enter the required information. Set the following information as described:

- Select "Symfoware Server (Open Interface)" for [Database Type] in the [DB connection] tab
- Set "localhost" as the host name of [Connection] in the [DB connection] tab
- Set the port number to be used for communicating with the connected DWH Server for [Port Number] in the [DB connection] tab (the default value is 26500)
- Set the column names to be entered in the [Data Structure] tab. All information must be the same as the column names in the target table.

3. Click [Save As].

4. Select the Input Datastore created above from [Datastore List Panel], right-click, and click [Deploy] to deploy the Input Datastore.
2. Define database extract components
Perform the following procedure to define database extract components:
 1. Drag and drop [extract_database] components from the [extract] folder in [Components List Panel] to [Analytics Flow Panel].
 2. Double-click the [extract_database] node in [Analytics Flow Panel]. Alternatively, right-click the [extract_database] node and click [Properties].
 3. The [Properties] dialog box will be displayed. Set the following for the value of the parameter name [JDBC_Path] under [Parameter] in the [Node] tab.

```
/opt/symfoclient64/jdbc/lib/postgresql-jdbc4.jar
```

If required, change the node name and click [OK] to close the dialog box.

3. Connect the node
Perform the following procedure to connect the Input Datastore and the [extract_database] node.
 1. Drag and drop the Input Datastore created above from [Datastore List Panel] to the Analytics Flow Panel.
 2. Drag and drop from the output connector of the Input Datastore to the input connector of the [extract_database] node to connect them with an edge.

Then, by connecting processing such as Data Processing to the output connector of the [extract_database] node you created in the above procedure, you can define a Data Processing Flow that uses data from the tables of Symfoware Analytics Server.

Corrective action if execution of the Data Processing Flow fails

If execution of the Data Processing Flow fails, the status in the status bar changes to "Terminated Abnormally" and the [Error] dialog box will be displayed. Investigate the cause of the error according to the following procedure and correct the Data Processing Flow.

1. In the Menu Bar, click [Run] >> [Download Logs].
2. The [Save As] dialog box will be displayed. Select the directory destination and click [OK].
The file will be stored in the specified file storage destination.
3. Extract the stored zip file. Zip file contains the following files:
 - Analytics Flow Instance Log (instance.log:one file)
 - Component Run-time Error Log ([Analytics Flow Instance ID]_[Analytics Component Instance ID].stderr:more than one file)
 - Analytics Flow Return Code Log ([Analytics Flow Instance ID].rcode:one file)
4. Open the Analytics Flow Return Code Log with a text editor. Confirm the value is other than 0. (This value means that the Analytics Flow instance terminated abnormally)
5. Open the Analytics Flow Instance Log, and check the following line:
 - Error_Type : ERROR
 - Process Type : end_parts



See

The message will be shown in the Analytics Flow Instance Log as below:

```
[mm/dd/yyyy_hh:mm:ss] FSP_IBAMS_Component_Name: Error_Type: Message_ID: Main_Message
```

Main_Message has the following data delimited by comma:

Data	Attribute	Contents
Process Type	Characters	Process Type of executed an Analytics Flow: - start_flow : The Analytics Flow is started. - end_flow : The Analytics Flow is completed. - stop_flow : The Analytics Flow is stopped. - start_parts : The Analytics Component is started. - end_parts : The Analytics Component is completed.
Analytics Flow Folder Path	Characters	The folder path for storing the executed Analytics Flow
Analytics Flow Name	Characters	The name of the executed Analytics Flow.
Analytics Component Node Name	Characters	The name of the executed Analytics Component.
Analytics Component Number	Value	The number for the Analytics Component which is deployed in the Analytics Flow.
Analytics Component Identifier	Characters	The identifier for Analytics Component.
Analytics Flow Instance ID	Value	The instance ID for executing Analytics Flow.
Analytics Component Instance ID	Value	The ID to discriminate the instance which is created while executing Analytics Component.
Return Cord	Value	Return code of Analytics Flow / Analytics Component(0:Ended normaly, other than 0:Ended abnormally)

-
6. Note down the following information from the line which was selected at step 5.
 - [Analytics Component Node Name]
 - [Analytics Component Number]
 - [Analytics Component Instance ID]
 7. Find the below file name of Component Run-time Error Log from the extracted zip file in step 3.
 - [Analytics Flow Instance ID]_[Analytics Component Instance ID which was noted in step 6].stderr
 8. Check the component name corresponding to "Analytics Component Node Name" and "Analytics Component Number" which were noted in step 6 in the Analytics Flow Editor.
 - a. Check the node in the Analytics Flow Editor corresponding to "Analytics Component Node Name" which was noted in step 6.
 - b. If the node is only one, check the component name which is displayed in [Component] tab of the node properties.
 - c. If there are more than one node, find the node which has the node number corresponding to "Analytics Component Number" noted in step 6. The node number is displayed on the upper right in the node properties. Then, check the component name is displayed in [Component] tab in the node properties.
 9. Open the Component Run-time Error Log with a text editor, check the message.

Refer to the error message in Symfoware Server V12.0.0 Messages or check the contents provided in the error message, and correct the parameters for the node. Also correct the Data Processing Flow as required.

If the problem cannot be identified from the error message, check the following and take the action indicated:

- If an invalid value is specified for "SymfowareAnalyticsServer_Install_Path" in a node where an error has occurred, specify a valid value.

- If the disk space required specified in the Data Management directory of the Data Processing Server is insufficient, take the following actions:

1. Prepare a disk with available disk space.
2. Change the setting for the Data Management directory of the Data Processing Server by referring the following procedure:
 1. Stop the Data Processing Server.

```
/opt/FJSVbamsr/bin/ibamsoperationmgr stop
```

2. Edit the environment setting file.
It is stored the following location.

```
/opt/FJSVbamsr/etc/ibams.properties
```

Open this file with a text editor, and then modify the path of the following key as below:

```
com.fujitsu.interstage.bams.env.work.path=[newDataManagementDirectoryPath]/tmp
com.fujitsu.interstage.bams.datamanager.work.path=[newDataManagementDirectoryPath]/
datamng/stk
com.fujitsu.interstage.bams.datamanager.builtin.mng.path=[newDataManagementDirectoryPath]
/datamng/work
com.fujitsu.interstage.bams.datamanager.builtin.mng.path=[newDataManagementDirectoryPath]
/builtin
```


3. Start the Data Processing Server.

```
/opt/FJSVbamsr/bin/ibamsoperationmgr start
```

If the problem still cannot be resolved, contact Fujitsu technical support.

Action after changing the port number for connecting a Symfoware Server client

If you have changed the port number for connecting a Symfoware Server client, you must change the definition of the node in the Data Processing Flow. The following table explains the section to be changed and how to change it.

Section to be changed	Method
[Command] in the [Command] tab for the node where psql commands will be used.	Before: psql After: psql -p <i>portNumber</i>  Example Specifying the port number "26501" psql -p 26501

Appendix A Quantitative Limits

This appendix lists the quantitative limits of Symfoware Analytics Server.

A.1 Server Features of Symfoware Server

Item	Details
Character types that can be used in the database name	Alphanumeric characters (A-Z, a-z, 0-9) (*1) and underscores (_)
Character types that can be used in the schema name	Alphanumeric characters (A-Z, a-z, 0-9) (*1) and underscores (_)
Character types that can be used in the table name	Alphanumeric characters (A-Z, a-z, 0-9) (*1) and underscores (_)
Character types that can be used in the column name	Alphanumeric characters (A-Z, a-z, 0-9) (*1) and underscores (_)
Number of columnar tables that can be defined	4,293,918,719
Maximum number of characters in table names in columnar tables	128 - NumOfCharsInDbName - NumOfCharsInSchemaName - 2

*1: Uppercase alphabetic characters (A-Z) cannot be specified in columnar tables.

For other quantitative limits, refer to the manual below.

Manual name	Chapter
Symfoware Server V12.0.0 Installation and Setup Guide for Server	Appendix I, "Quantitative Limits"

A.2 Data Processing Features

This section describe the quantitative limits of the Data Processing features.



Point

- Unless it is specified, you cannot set the control code.
- A newline character (CR+LF) is counted as 2 characters.
- When the specified characters are supported it is mentioned in the round brackets "()" separated by comma ",". When the support is allowed for range of characters, it is mentioned the "-".

Example) '_' and '-' are supported:

```
Symbols ('_', '-')
```

- When the character is not supported, then it is mentioned as "except xxx" in the round brackets.

Example) Symbols supported except whitespace:

```
Symbols (except whitespace)
```

A.2.1 Operation Management Command

Item	Number of characters and range	Supported Characters
User ID	1 - 255 characters	- Alphanumeric characters - Symbols ('_',';',':')
Password	0 - 128 characters	- Alphanumeric characters

Item	Number of characters and range	Supported Characters
		- Symbols (except '<','>','&','"',' ',whitespace)
Port number	1 - 65535	- Halfwidth digits
Analytics Flow instance ID	0 - 9223372036854775807	- Halfwidth digits
Date and time	1970/01/01 00:00 - 9999/12/31 23:59	- Alphanumeric characters - Symbols ('/',':',whitespace)
Revision of Analytics Results	1 - 2147483647(recursive)	- Halfwidth digits
Analytics Flow, Input/Output Datastore folder path	1 - 325 characters	- Alphanumeric characters - Symbols ('_',' ','/') - Fullwidth characters (except '~','-',' ','@','£','-','\',' ',';','-','¯')
Analytics Flow name	1 - 64 characters	- Alphanumeric characters
Input Datastore name		- Halfwidth katakana
Output Datastore name		- Symbols('_', '-') - Fullwidth characters (except '~','-',' ','@','£','-','\',' ',';','-','¯')

Note

The name of Analytics Flow, Input Datastore and Output Datastore is not case sensitive. Also, halfwidth/fullwidth character is supported. The name will be displayed in lowercase.

Item	Number of characters and range	Supported Characters
Directory	1 - 828 byte	- Alphanumeric characters
File	1 - 1023 byte	- Symbols (except '\',':','*','?','"','<','>',' ',' ',whitespace)

A.2.2 Analytics Flow Editor

Name Managed by Data Processing Server

Item	Number of characters and range	Supported Characters
Folder name	1 - 64 characters	- Alphanumeric characters
Analytics Flow name		- Halfwidth katakana
Node name		- Symbols('_', '-')
Datastore name		- Fullwidth characters (except '~','-',' ','@','£','-','\',' ',';','-','¯')
Block name		

Note

The name of Analytics Flow, Input Datastore and Output Datastore is not case sensitive. Also, halfwidth/fullwidth character is supported. The name will be displayed in lowercase.

Node and Block

Item	Number of characters and range	Supported Characters
Node name	1 - 64 characters	<ul style="list-style-type: none"> - Alphanumeric characters - Halfwidth katakana - Symbols ('_', '-') Fullwidth characters (except '~', '-', ' ', '!', '¢', '£', '¥', '¦', '§', '¨', '©', 'ª', '«', '¬', '®', '¯')
Block name		
Parameter	0 - 1023 characters	- No limit
Description	0 - 1000 characters	- No limit (newline character is supported from control code)

Datastore Properties

General

Item	Number of characters and range	Supported Characters
Description	0 - 1000 characters	- No limit (newline character is supported from control code)

Data Storage (Input Datastore)

Item	Number of characters and range	Supported Characters
Data Storage Location	1 - 1023 byte	- No limit

Data Storage (Output Datastore)

Item	Number of characters and range	Supported Characters
Directory / Folder Path	*1	<ul style="list-style-type: none"> - Alphanumeric characters - Symbols (except '\', ':', '*', '?', '!', '"', '<', '>', ' ') - Fullwidth characters (except '~', '-', ' ', '!', '¢', '£', '¥', '¦', '§', '¨', '©', 'ª', '«', '¬', '®', '¯')
Prefix of file	0 - 32 byte	<ul style="list-style-type: none"> - Alphanumeric characters - Symbols ('_', '-')
Extension	0 - 8 byte	- Alphanumeric characters

*1: 1 byte and above. But it should be equal or less than the calculated value using the following formula:

<Extension is more than 1 byte> : 1004 - (Size of prefix of the file + Size of extension)

<Extension is 0 byte> : 1005 - (Size of prefix of the file)

DB Connection

Item	Number of characters and range	Supported Characters
Host Name	1 - 255 characters	- No limit
Port Number	1 - 65535	- Halfwidth digits
Database Name	1 - 255 characters	- No limit
User ID	1 - 255 characters	- Alphanumeric characters - Symbols ('_', '-', '!')
Password	0 - 128 characters	- Alphanumeric characters - Symbols (except '<', '>', '&', '"', "'", ' ', whitespace)

Data Structure (File / Built-in Datastore)

Item	Number of characters and range	Supported Characters
Header Line	1 - 128	- Halfwidth digits
Data Start Line	2 - 129	
Number of Column	1 - 1024	—
Column Name	1 - 100 characters	- Within the following range of Unicode character: U+0021~U+007E,U+0085,U+00A0~U+D7FF,U+E000~U+FDCE,U+FDFF~U+FFFD

Data Structure (Database)

Item	Number of characters and range	Supported Characters
Schema Name	0 - 255 characters	- No limit
Table Name	1 - 255 characters	- No limit
Number of column	1 - 1024	—
Column Name	1 - 100 characters	- Within the following range of Unicode character: U+0021~U+007E,U+0085,U+00A0~U+D7FF,U+E000~U+FDCE,U+FDFF~U+FFFD

General Parts Properties

Input Connector / Output Connector

Item	Number of characters and range	Supported Characters
Variable Name	1 - 32 characters	- Alphanumeric characters - Symbols ('_')
Connector Name	1 - 64 characters	- Alphanumeric characters - Halfwidth katakana

Item	Number of characters and range	Supported Characters
		<ul style="list-style-type: none"> - Symbols ('_','-') - Fullwidth characters (except '~','-',' ',';','@','£','¥','\',' ',';','-','_')

Parameter

Item	Number of characters and range	Supported Characters
Variable Name	1 - 32 characters	<ul style="list-style-type: none"> - Alphanumeric characters - Symbols ('_')
Parameter Name	1 - 64 characters	<ul style="list-style-type: none"> - Alphanumeric characters - Halfwidth katakana - Symbols ('_','-') - Fullwidth characters (except '~','-',' ',';','@','£','¥','\',' ',';','-','_')
Value	0 - 1023 characters	- No limit

Command

Item	Number of characters and range	Supported Characters
Command	1 - 4000 characters	<ul style="list-style-type: none"> - Alphanumeric characters - Symbols

Script

Item	Number of characters and range	Supported Characters
Input Script	1 - 250 characters	- No limit
Script	1 - 100000 characters	- No limit (newline character is supported from control code)
Output Script	1 - 250 characters	- No limit

SQL

Item	Number of characters and range	Supported Characters
SQL	1 - 10000 characters	- No limit (newline character is supported from control code)

Appendix B Application Development

Take note of the following important points when developing applications that access Symfoware Analytics Server:

- Only the SELECT statement can be executed for columnar tables.
- Refer to "[E.1 Data Types](#)" for information on the types and range of data that can be handled by Symfoware Analytics Server.

Refer to the following manual for information on how to develop applications that access Symfoware Analytics Server:

Manual name
Symfoware Server V12.0.0 Application Development Guide

Appendix C Data Coordination

The Data Coordination feature of Symfoware Analytics Server can be used to import data and files into the data warehouse (DWH) server from databases of mission-critical systems.

To use the Data Coordination feature, insert the DVD below and install the Data Coordination client.

- Symfoware Analytics Server Standard Edition Media Pack (64-bit) V12.0.0 Client Program 3

Point

Install only the client, because the server for the Data Coordination feature will be installed by the installation command of the DWH Server.

Refer to the manuals below for information on the Data Coordination feature.

Topic	Manual name
Designing the operating environment	Interstage Information Integrator V11.0.0 System Design Guide
Installing the client	Interstage Information Integrator V11.0.0 Software Release Guide
Setting up the server	Interstage Information Integrator V11.0.0 Setup Guide
Operation and maintenance	Interstage Information Integrator V11.0.0 Operation Guide

Note

To use the transfer accelerator of Interstage Information Integrator, configure the following settings as superuser:

1. Port number

Ensure that the port number set for the application TCP port number is not one of the port numbers listed in "[Appendix H Default System Values](#)". Refer to the Interstage Information Integrator V11.0.0 Transfer Accelerator Setup Guide for information on how to configure port numbers.

2. Automatic start configuration

Use the following command to configure automatic start.

```
# chkconfig --level 35 f3jnifiacobserverLx on
```

Appendix D Estimating Resource Requirements

D.1 Estimating Memory Requirements

This appendix explains how to estimate the memory and disk space requirements for each feature.

D.1.1 Server Features of Symfoware Server

Refer to Appendix H, "Estimating Memory Requirements" in Symfoware Server V12.0.0 Installation and Setup Guide for Server for information on estimating memory for server features in Symfoware Server.

D.1.2 Data Processing Server Feature

6 GB or more

D.2 Estimating Disk Space Requirements

This section explains how to estimate the disk space requirements for each feature.

D.2.1 Server Features of Symfoware Server

This section explains the disk space requirements for server features of Symfoware Server.

Estimating the size of tables other than columnar tables

Refer to Section G.1, "Estimating Table Size Requirements" in the Symfoware Server V12.0.0 Installation and Setup Guide for Server for information on estimating the size of tables other than columnar tables.

Estimating the size of indexes

Refer to Section G.2, "Estimating Index Size Requirements" in the Symfoware Server V12.0.0 Installation and Setup Guide for Server for information on estimating the size of indexes.

Estimating transaction log space requirements

Refer to Section G.4, "Estimating Transaction Log Space Requirements" in the Symfoware Server V12.0.0 Installation and Setup Guide for Server for information on estimating the transaction log space.

Estimating archive log space requirements

Refer to Section G.5, "Estimating Archive Log Space Requirements" in the Symfoware Server V12.0.0 Installation and Setup Guide for Server for information on estimating the archive log space.

Estimating backup disk space requirements

Refer to Section G.6, "Estimating Backup Disk Space Requirements" in the Symfoware Server V12.0.0 Installation and Setup Guide for Server for information on estimating the backup disk space.

Data directory for storing catalog data of the columnar table

The default size of catalog data of the columnar table is 3.7 MB. It is not possible to accurately estimate the size of this file, although the file size does increase according to the number of columns and tables in the columnar table. Refer to the example below and ensure that there is sufficient free space.

```
defaultSizeOfCatalogDataOfTheColumnarTable = 3.7 MB
```

Example: If 100 columnar tables are created with 18 columns each, 4.4 MB of catalog data will be created

Estimating the size of the raw device for storing database space of the columnar table

Use the following formula to estimate the size of the raw device for storing database space of the columnar table.

$$\text{sizeOfRawDeviceForStoringDbSpaceOfTheColumnarTable} = \text{totSizeOfCsvFilesStoredInColumnarTable} \times 0.7$$

Example: If the size of three CSV files is 500 GB, 300 GB, and 200 GB, respectively:

$$(500 \text{ GB} + 300 \text{ GB} + 200 \text{ GB}) \times 0.7 = 700 \text{ GB}$$



Information

Data in the columnar table will be compressed and stored. Therefore, the size of the data to be stored will be smaller than the size of the data in the source csv file.

Estimating the size of the raw device for storing main data of the columnar table

Use the following formula to estimate the size of the raw device for storing main data of the columnar table.

$$\text{sizeOfRawDeviceForStoringMainDataOfTheColumnarTable} = \text{sizeOfRawDeviceForStoringDbSpaceOfTheColumnarTable} \times 0.02$$

Example: If the size of the raw device for storing database space of the columnar table is 700 GB:

$$700 \text{ GB} \times 0.02 = 14 \text{ GB}$$



Note

Use a minimum of 8 GB as the estimated value. If the size is too small, it may not be possible to access the columnar table normally.

Estimating the size of the raw device for storing temporary data of the columnar table

Use the following formula to estimate the size of the raw device for storing temporary data of the columnar table.

$$\text{sizeOfRawDeviceForStoringTempDataOfTheColumnarTable} = \text{maxFileSizeOfCsvFilesStoredInColumnarTable} \times 0.5$$

Example: If the size of three CSV files is 500 GB, 300 GB, and 200 GB, respectively:

The maximum file size is 500 GB, so the calculation would be $500 \text{ GB} \times 0.5 = 250 \text{ GB}$.



Note

If the size of the raw device for storing temporary data of the columnar table is too small, there will be insufficient temporary space when join or sort is performed and it may not be possible to access the columnar table normally. Check the size using the estimation formula below, and reconfigure the value if it is too small.

$$\text{sizeOfRawDeviceForStoringTempDataOfTheColumnarTable} > \text{numOfSimultaneousConnectionsAssumedForOps} \times 2 \text{ GB}$$

Example: If 100 simultaneous connections are assumed for operations:

$$100 \times 2 \text{ GB} = 200 \text{ GB}$$

If the size of three CSV files is 500 GB, 300 GB, and 200 GB, respectively:

The maximum file size is 500 GB, so the calculation would be $500 \text{ GB} \times 0.5 = 250 \text{ GB}$.

This value is acceptable because it exceeds 200 GB.



- In some cases, performance may be enhanced by configuring a larger value for the size of the raw device for storing temporary data of the columnar table. Specifically, configure a larger value for the size of the relevant raw device when performing the following:
 - Loading large volumes of data at one time

D.2.2 Data Processing Server Feature

Use the following formula to estimate the disk size for the Data Processing Server feature:

$$diskSize = staticDiskSize + dynamicDiskSize$$

Refer the following information on estimating static disk size and dynamic disk size, respectively.

Static Disk Size

Directory	Size
/opt	4.0GB
/etc/opt	250MB
/var/opt	8.1GB

Dynamic Disk Size

Directory	Size
/etc	2MB
/var/opt	3GB
Data Management directory	Refer to " Estimating the size of the Data Management Directory "
Work directory	Refer to " Estimating the size of the Work Directory "
STK Data Management directory	Refer to " Estimating the size of the STK Data Management Directory "
Temporary Data directory	Refer to " Estimating the size of the Temporary Data Directory "
Built-in Data Management directory	Refer to " Estimating the size of the Built-in Data Management Directory "

Basic Estimation Formula

Use following basic estimation formula to estimate the directory size:

- Disk Space for Analytics Flow Execution
You can calculate the disk size for executing one Analytics Flow using following formula:

$$diskSpaceForFlowExecution = inputDataOfAnalyticsFlow (*1) \times numberOfAnalyticsComponentInTheAnalyticsFlow$$

*1: Data size which were extracted for Analysis

- Disk Space for Storing Analytics Result
Disk Space for Storing Analytics Result of one Analytics Flow is the disk size which is required to use Built-in datastore as Output Datastore. You can calculate by the following formula:

$$diskSpaceForStoringAnalyticsResult = analyticsResultDataSize \times 100$$

- Disk Space for Storing Log

You can calculate the disk size for storing logs by the following formula:

$$\text{diskSpaceForStoringLog} = \text{maximumSizeOfLog} \times (\text{numberOfBackup} + 1) \times 2 + 420\text{MB}$$



Information

- The maximum size of log can be set from 1MB to 1000MB. The default size is 10MB.
- The maximum number of backup can be set from 1 to 1000. The default number is 3.

Refer the following description to change the maximum size of log and maximum number of backup:

1. Stop the Data Processing Server.

```
/opt/FJSVbamsr/bin/ibamsoperationmgr stop
```

2. Edit the environment setting file.
It is stored the following location.

```
/opt/FJSVbamsr/etc/ibams.properties
```

Open this file in the text editor, and then edit the following keys.

- Maximum size of log

```
com.fujitsu.interstage.bams.publicationlog.output.size
```

- Maximum number of backup

```
com.fujitsu.interstage.bams.publicationlog.output.backup
```

3. Start the Data Processing Server.

```
/opt/FJSVbamsr/bin/ibamsoperationmgr start
```

Estimating the size of the Data Management Directory

You can calculate the disk size which is required for Data Management directory using the following formula:

$$\begin{aligned} \text{requiredDiskSize} = & \text{Sum of the "diskSpaceForFlowExecution" for the Analytics Flows executed in} \\ & \text{parallel} \times 3 \\ & + \text{Number of the Analytics Flows executed in parallel} \times 1\text{MB} \\ & + \text{Sun of "diskSpaceForStoringAnalyticsResult" of Output Datastore} \\ & + \text{"diskSpaceForStoringLog"} \end{aligned}$$

Estimating the size of the Work Directory

You can calculate the disk size which is required for the Work directory using the following formula:

$$\text{requiredDiskSize} = \text{Sum of the "diskSpaceForFlowExecution" for the Analytics Flows executed in parallel} \times 2$$

Estimating the size of the STK Data Management Directory

You can calculate the disk size required for the STK Data Management directory using the following formula:

$$\text{requiredDiskSize} = \text{Sum of the "diskSpaceForFlowExecution" for the Analytics Flows executed in parallel}$$

Estimating the size of the Temporary Data Directory

You can calculate the disk size which is required for the Temporary Data directory using the following formula:

$$\text{requiredDiskSize} = \text{Number of the Analytics Flows executed in parallel} \times 1\text{MB}$$

Estimating the size of the Built-in Data Management Directory

You can calculate the disk size which is required for the Built-in Data Management directory using the following formula:

$requiredDiskSize = \text{Sum of } "diskSpaceForStoringAnalyticsResult" \text{ of Output Datastore}$
--

Appendix E Data Format

E.1 Data Types

Data types supported by Symfoware Analytics Server are shown below.

Category	Data type	Storage size	Precision and range
Numeric type	smallint	2 bytes	-32768 to 32767
	integer	4 bytes	-2147483648 to 2147483647
	bigint	8 bytes	-9223372036854775808 to 9223372036854775807
	decimal	Variable length	Precision and scale are both 126 digits
	numeric	Variable length	Precision and scale are both 126 digits
	float	4 bytes or 8 bytes	15-digit precision
	real	4 bytes	6-digit precision
	double precision	8 bytes	15-digit precision
Character type	character varying(n)	32 KB - 1	
	varchar(n)		
	character(n)	32 KB - 1	
	char(n)		
Date/time type	date	4 bytes	Date
	time	8 bytes	Time Precision is to the second
	timestamp	8 bytes	Date and time (without time zone) Precision is six decimal places

Note that the data types listed in the PostgreSQL 9.2.4 Documentation may contain some data types that are not supported by Symfoware Analytics Server, or data types with differing precision and range.

E.2 CSV File Data Formats

CSV file formats supported by Symfoware Analytics Server are shown below.

Item	Format
Record delimiter	Place each record on a separate row that has been delimited using a newline character (CRLF or LF). Example: aaa,bbb,ccc CRLF zzz,yyy,xxx CRLF
File end	A newline character is required at the end of the last record in the file. Example: aaa,bbb,ccc CRLF zzz,yyy,xxx CRLF
Header row	An optional header row with the same format as a regular row can be placed at the beginning of the file. This header retains the name of each field within the file, and must have the same number of fields as contained in each of the records in the remaining portion of the file. Format:

Item	Format
	<p><i>fieldName1,fieldName2,fieldName3</i> CRLF</p> <p>Example:</p> <p>aaa,bbb,ccc CRLF</p> <p>zzz,yyy,xxx CRLF</p> <p>Use only the following in header row field names: alphanumeric characters (A-Z, a-z, 0-9), and underscores (_).</p> <p>If a CSV file with a header row is input, the item names specified when defining the input data store using the data conversion feature must be the same as the field names specified in the header row.</p>
Field delimiter	<p>The header and each record must contain two or more fields, with all fields delimited using a comma, space, or tab. Ensure that the same number of fields per row is retained throughout the file. Spaces are treated as part of the field. The last field must not end in a comma, space, or tab.</p> <p>Example:</p> <p>aaa,bbb,ccc</p>
Enclosing characters for fields	<p>Each field within a record can be optionally enclosed in double quotation marks. If a field is not enclosed in double quotation marks, the value in the field cannot contain double quotation marks.</p> <p>Example:</p> <p>"aaa","bbb","ccc" CRLF</p> <p>zzz,yyy,xxx</p>
Newline characters and double quotation marks within fields	<p>Fields containing newline characters (CRLF or LF), double quotation marks, or commas must be enclosed in double quotation marks.</p> <p>Example:</p> <p>"aaa","bbbCRLFbbb","ccc" CRLF</p> <p>zzz,yyy,xxx</p>
Double quotation marks within fields that are enclosed in double quotation marks	<p>If a field is enclosed in double quotation marks, the double quotation mark contained within the value of the field must be escaped by prepending it with another double quotation mark.</p> <p>Example:</p> <p>"aaa","b""bb","ccc"</p>
Character set	<p>System functions: UTF-8 (without BOM)</p> <p>Data Processing feature: Shift_JIS, UTF-8 (with BOM), UTF-8 (without BOM)</p>
Record length	Maximum 32 MB
Number of fields per record	Maximum 1,024

Appendix F Reference

Symfoware Analytics Server provides several system commands and system catalogs in addition to the commands and system views provided by Symfoware Server.

This appendix explains the commands, system views, and system functions for operating the data on the DWH Server, that are provided by Symfoware Analytics Server.

F.1 System Commands

F.1.1 symassvinstall

Overview

Installs the DWH Server.

Command storage destination

Store in any directory.

Call format

```
symassvinstall.sh [DEVICE] [DISK_MOUNT_POINT] [IBAMS_DATA_MNG_DIR]
```

Execution user

Superuser

Parameter description

Parameter	Description	Default behavior	Supplementary details
[DEVICE]	Specifies the DVD device name for the installation disk.	Mandatory	If the DVD device name is "sr0", specify as follows: /dev/sr0
[DISK_MOUNT_POINT]	Specifies where to mount the installation disk.	Mandatory	If the installation disk is mounted at /mnt/dvdrom, specify as follows: /mnt/dvdrom
[IBAMS_DATA_MNG_DIR]	Specifies the Data Management directory.	Mandatory	<ul style="list-style-type: none">- Specify either a directory that does not exist, or an empty directory.- Specify using the absolute path.- The maximum path length is 40 bytes.- Do not specify a directory on the network.- Specify only alphanumeric characters (A-Z, a-z, 0-9) in the directory name.- The Data Management directory stores the definition information required to operate the Data Processing Server, as well as the processing results of the Data Processing Flow. Place the Data Management directory on its own disk to prevent any deterioration in performance that might be caused by disk I/O conflicting with other applications.

Return value

Return value	Description
0	Completed successfully.
1	Failed to run the installation. Check the output message for details.
2	Failed to create the installation directory for the DWH Server. Specify the correct directory and reexecute.
3	Failed to create the Data Management directory for the Data Processing Server. Specify the correct directory and reexecute.

Output messages

Messages are output to the installation log file below. Refer to "[Appendix G Messages](#)" for information on messages.

```
/var/opt/FJSVsymas/log/symassvinstall.log
```

Information to collect before contacting Fujitsu technical support

- Command line
- Message content
- Installation log file



Note

- The installation will fail if software that conflicts with Symfoware Analytics Server is installed. Refer to "[2.1.3 Conflicting Software](#)" for information on software that conflicts with Symfoware Analytics Server.
- The installation will fail if there is insufficient space in the installation directory.

F.1.2 symassvuninstall

Overview

Uninstalls the DWH Server.

Command storage destination

If installation is successful

```
/opt/FJSVsymas/bin
```

If installation fails

Store in any directory.

Call format

If installation is successful

```
symassvuninstall.sh
```

If installation fails

```
symassvuninstall.sh
```

Execution user

Superuser

Return values

Return value	Description
0	Ended normally
Other than 0	Ended abnormally

Output messages

Messages are output to the uninstallation log file below. Refer to "[Appendix G Messages](#)" for information on messages.

```
/var/opt/FJSVsyumas/log/symassvuninstall.log
```

Information to collect before contacting Fujitsu technical support

- Command line
- Message content
- Uninstallation log file



- Do not execute the uninstallation command for the DWH Server if installation has not been carried out.
- Do not execute the uninstallation command for the DWH Server during execution of any system command, including this command.
- If the value of the PATH environment variable in the Data Coordination feature contains a fullwidth character, an error may occur during uninstallation. Ensure that fullwidth characters are not configured in the value of the PATH environment variable.

F.1.3 symassetup

Overview

Performs the setup for the DWH Server.

Command storage destination

```
/opt/FJSVsyumas/bin
```

Call format

```
symassetup.sh \  
[ROWBASEDB_DATADIR] \  
[ROWBASEDB_BKUPDIR] \  
[COLUMNARDB_CTLGDATA_DIR] \  
[COLUMNARDB_MAINDATA_RAWDEVICE] \  
[COLUMNARDB_TEMPDATA_RAWDEVICE] \  
[COLUMNARDB_DBSPACE_RAWDEVICE] \  
[DWHSERVER_MANAGE_USERNAME] \  
[COLUMNARDB_AVAILABLE_MEM]
```

Execution user

Superuser

Parameter description

Parameter	Description	Default behavior	Supplementary details
[ROWBASEDB_DATADIR]	Specifies the database data storage destination directory.	Mandatory	<ul style="list-style-type: none"> - Specify either a directory that does not exist, or an empty directory. - Specify using the absolute path. - If specifying an empty directory, the DWH Server administrator must have sufficient permissions to create the directory. - Specify only alphanumeric characters (A-Z, a-z, 0-9), hyphens (-) or underscores (_) in the directory name. - Do not specify a directory on the network.
[ROWBASEDB_BKUPDIR]	Specifies the database backup data storage destination directory.	Mandatory	<ul style="list-style-type: none"> - To avoid issues caused by disk failure, ensure that the directory is placed on a disk that is separate from the following storage destinations: <ul style="list-style-type: none"> - Database data storage destination directory - Data directory for storing catalog data of the columnar tables - Raw device for storing main data of the columnar table - Raw device for storing temporary data of the columnar table - Raw device for storing database space of the columnar table - Data Management directory of the Data Processing Server - Specify either a directory that does not exist, or an empty directory. - Specify using the absolute path. - Specify only alphanumeric characters (A-Z, a-z, 0-9), hyphens (-) or underscores (_) in the directory name. - Do not specify a directory on the network.
[COLUMNARDB_CTLGDATA_DIR]	Specifies the data directory for storing catalog data of the columnar table.	Mandatory	<ul style="list-style-type: none"> - Specify either a directory that does not exist, or an empty directory. - Specify using the absolute path.

Parameter	Description	Default behavior	Supplementary details
			<ul style="list-style-type: none"> - The maximum path length is 128 bytes. - Specify only alphanumeric characters (A-Z, a-z, 0-9), hyphens (-) or underscores (_) in the directory name. - Do not specify a directory on the network.
[COLUMNARDB_MAINDATA_RAWDEVICE]	Specifies the name of the raw device for storing main data of the columnar table.	Mandatory	If the raw device was created as /dev/raw/raw1, specify as follows: /dev/raw/raw1
[COLUMNARDB_TEMPDATA_RAWDEVICE]	Specifies the name of the raw device for storing temporary data of the columnar table.	Mandatory	If the raw device was created as /dev/raw/raw2, specify as follows: /dev/raw/raw2
[COLUMNARDB_DBSPACE_RAWDEVICE]	Specifies the name of the raw device for storing database space of the columnar table.	Mandatory	If the raw device was created as /dev/raw/raw3, specify as follows: /dev/raw/raw3
[DWHSERVER_MANAGE_USERNAME]	Specifies the user name of the DWH Server administrator.	Mandatory	Specify the account of the OS user who will become the DWH Server administrator. The OS superuser (root) cannot be specified.
[COLUMNARDB_AVAILABLE_MEM]	Specifies the size (in megabytes) of memory allocated to the columnar table.	A value equivalent to 50% of the installed physical memory is used.	<ul style="list-style-type: none"> - Specify an integer in the range 100 to 2,147,483,647. - Specify a value smaller than the size of the installed physical memory.

Return values

Return value	Description
0	Ended normally
Other than 0	Ended abnormally

Output messages

Messages are output to the setup log file below. Refer to "[Appendix G Messages](#)" for information on messages.

```
/var/opt/FJSVsymas/log/symassetup.log
```

Information to collect before contacting Fujitsu technical support

- Command line
- Message content
- Setup log file



Note

- While this command is running, you will be prompted to enter an Administrator DN password, which is required to build a repository for the Data Processing Server feature. Enter the password "manager" and then retype it.
- Do not execute the setup command for the DWH Server during execution of any system command, including this command.
- Do not execute the setup command for the DWH Server if setup has already been completed.

F.1.4 symasunsetup

Overview

Removes the setup for the DWH Server.

Command storage destination

/opt/FJSVsymas/bin

Call format

```
symasunsetup.sh
```

Execution user

Superuser

Return values

Return value	Description
0	Ended normally
Other than 0	Ended abnormally

Output messages

Messages are output to the setup removal log file below. Refer to "[Appendix G Messages](#)" for information on messages.

```
/var/opt/FJSVsymas/log/symasunsetup.log
```

Information to collect before contacting Fujitsu technical support

- Command line
- Message content
- Setup removal log file



Note

- Do not execute the setup removal command for the DWH Server during execution of any system command, including this command.
- Do not execute the setup removal command for the DWH Server if setup has already been removed, or if setup has not been performed.

F.1.5 symasstart

Overview

Starts the DWH Server.

Command storage destination

/opt/FJSVsymas/bin

Call format

```
symasstart.sh
```

Execution user

Superuser

Return values

Return value	Description
0	Ended normally
Other than 0	Ended abnormally

Output messages

Messages are output to standard output. Refer to "[Appendix G Messages](#)" for information on messages.

Information to collect before contacting Fujitsu technical support

- Command line
- Message content



- This command does not start the Data Coordination feature. Refer to Section 2.14, "ifistr (Information Integrator Start Command)" in the Interstage Information Integrator V11.0.0 Command Reference for information on how to start the Data Coordination feature.
- The DWH Server will fail to start if there are insufficient resources for startup.
- Do not execute the start command for the DWH Server during execution of any system command, including this command.
- Do not execute the start command for the DWH Server if setup has already been removed, or if setup has not been performed.

F.1.6 symasstop

Overview

Stops the DWH Server.

Command storage destination

/opt/FJSVsymas/bin

Call format

```
symasstop.sh
```

Execution user

Superuser

Return values

Return value	Description
0	Ended normally
Other than 0	Ended abnormally

Output messages

Messages are output to standard output in the format shown below. Refer to "[Appendix G Messages](#)" for information on messages.

Information to collect before contacting Fujitsu technical support

- Command line
- Message content



Note

- This command does not stop the Data Coordination feature. Refer to Section 2.13, "ifistp (Information Integrator Stop Command)" in the Interstage Information Integrator V11.0.0 Command Reference for information on how to stop the Data Coordination feature.
- If there are any remaining connections from the client to the DWH Server, these connections will be discarded and the DWH Server will stop.
- Do not execute the stop command for the DWH Server during execution of any system command, including this command.
- Do not execute the stop command for the DWH Server if setup has already been removed, or if setup has not been performed.

F.1.7 symasbackup

Overview

Backs up the server resources of the DWH Server.

Command storage destination

/opt/FJVSsymas/bin

Call format

```
symasbackup.sh [BKUPDIR]
```

Execution user

Superuser

Parameter description

Parameter	Description	Default behavior	Supplementary details
[BKUPDIR]	Specifies the backup data storage directory for the	Mandatory	- To avoid issues caused by disk failure, ensure that the directory is placed on a disk that is separate from the

Parameter	Description	Default behavior	Supplementary details
	Data Processing Server		<p>following storage destinations:</p> <ul style="list-style-type: none"> - Database data storage destination directory - Data directory for storing catalog data of the columnar table - Raw device for storing main data of the columnar table - Raw device for storing temporary data of the columnar table - Raw device for storing catalog data of the columnar table - Data Management directory of the Data Processing Server <ul style="list-style-type: none"> - Specify using the absolute path. - The maximum path length is 64 bytes. - Specify only alphanumeric characters (A-Z, a-z, 0-9), hyphens (-) or underscores (_) in the directory name. - Do not specify a directory on the network.

Return values

Return value	Description
0	Ended normally
Other than 0	Ended abnormally

Output messages

Messages are output to the backup log file below. Refer to "[Appendix G Messages](#)" for information on messages.

```
/var/opt/FJVSsymas/log/symasbackup.log
```

Information to collect before contacting Fujitsu technical support

- Command line
- Message content
- Backup log file

Note

- The symasbackup command does not back up data stored in columnar tables. To back up data stored in columnar tables, you must export it. Refer to "2.2.10 Exporting Data" for information on exporting data.
- Backup will fail if the backup data storage directory of the Data Processing Server is smaller than the size of the data to be backed up.
- Ensure that backup is performed while the DWH Server is running. Backup will fail if performed while this server is stopped.
- If the backup data storage directory for the Data Processing Server already exists, the user will be prompted to enter "Y" or "N". If the user specifies "Y", objects in the directory will be deleted and backup will be performed. If the user specifies "N", the backup command will be canceled.
- Do not execute the backup command for the DWH Server during execution of any system command, including this command.
- Do not execute the backup command for the DWH Server if setup has already been removed, or if setup has not been performed.
- If backup is executed, the Data Processing Server feature will stop.

F.1.8 symasrestore

Overview

Restores the server resources of the DWH Server.

Command storage destination

/opt/FJVSsymas/bin

Call format

```
symasrestore.sh [RESDIR] [ROWBASEDB_DATADIR]
```

Execution user

Superuser

Parameter description

Parameter	Description	Default behavior	Supplementary details
[RESDIR]	Specifies the backup data storage directory for the Data Processing Server	Mandatory	Specify the Data Processing Server backup data storage directory that was specified when the symasbackup command was executed.
[ROWBASEDB_DATADIR]	Specifies the database data storage destination directory.	Mandatory	Specify the database data storage destination directory that was specified when the symassetup command was executed.

Return values

Return value	Description
0	Ended normally

Return value	Description
Other than 0	Ended abnormally

Output messages

Messages are output to the restore log file below. Refer to "[Appendix G Messages](#)" for information on messages.

```
/var/opt/FJSVsyms/log/symasrestore.log
```

Information to collect before contacting Fujitsu technical support

- Command line
- Message content
- Restore log file

Note

- The symasrestore command does not restore data in columnar tables. To restore data in columnar tables, import the data that was exported when backing up the data in the columnar tables. Refer to "[2.2.11 Importing Data](#)" for information on importing data.
- Ensure that restore is performed while the DWH Server is stopped. Restore will fail if performed while this server is running.
- Do not execute the restore command for the DWH Server during execution of any system command, including this command.
- Do not execute the restore command for the DWH Server if setup has already been removed, or if setup has not been performed.

F.2 System Views

F.2.1 pgxa_dbpace_usage

This section provides information relating to the size of the database space used by columnar tables.

Name	Type	Description
dbspacename	text	"SYMFOAS_DBS"
usage	int	Usage rate Unit: percent
totalsize	text	Size of the database space Units are as follows: <ul style="list-style-type: none"> - B (bytes) - K (kilobytes) - M (megabytes) - G (gigabytes) - T (terabytes) - P (petabytes)

Example

```
> psql postgres
psql (9.2.4)
Type "help" for help.

postgres=# SELECT * FROM pgxa_dbSPACE_usage;
 dbspacename | usage | totalsize
-----+-----+-----
 SYMFOAS_DBS |    35 | 29.3G
(1 row)
```

Information

.....
Data stored in columnar tables is compressed. Therefore, the size of the database space may be smaller than the size of the data prior to being stored.
.....

F.3 System Functions

F.3.1 `pgxa_create_table`

Feature

Creates the storage structure of a columnar table.

Format

`pgxa_create_table(tableName)`

Arguments

Argument	Data type	Description
<i>tableName</i>	text	Table name (external table name)

Return value

Return value	Description
TRUE	Ended normally
FALSE	Ended abnormally

Example

```
> psql postgres
psql (9.2.4)
Type "help" for help.

postgres=# SELECT pgxa_create_table('scm.tbl1');
 pgxa_create_table
-----
 t
(1 row)
```

Description

- You cannot update data stored in a columnar table. Therefore, ensure that the data to be stored in a columnar table will not be updated.

- Specify the predefined external table name as the table name. The procedure for defining the external table is shown below.

Syntax

```
CREATE FOREIGN TABLE [schemaName.(*1)][tableName] ([itemInfo1],[itemInfo2],...,[itemInfoN])
SERVER dwh_server OPTIONS (database 'symfoas', schema 'symfoasuser', table
'dbName_schemaName(*2)_tableName')
```

*1: Can be omitted if the schema is public.

*2: Must be specified even when the schema is public.

Example

```
CREATE FOREIGN TABLE scm.tbl1 (col1 int NOT NULL,col2 char(1),col3 char(1) NOT NULL) SERVER
dwh_server OPTIONS (database 'symfoas', schema 'symfoasuser', table 'db01_scm_tbl1')
```

- Refer to "E.1 Data Types" for examples of data types that can be specified when external tables are predefined.
- An error will occur if an undefined external table name is specified.
- An error will occur if the columnar table has already been specified.
- If you cannot reference a created columnar table from BI tools, define a view table for the columnar table and reference the defined view table from the BI tools.
Refer to Section VI, "Reference" in the PostgreSQL 9.2.4 Documentation for details on how to define a view table.

F.3.2 `pgxa_drop_table`

Feature

Deletes the storage structure of a columnar table.

Format

`pgxa_drop_table(tableName)`

Argument

Argument	Data type	Description
<i>tableName</i>	text	Table name (external table name)

Return value

Return value	Description
TRUE	Ended normally
FALSE	Ended abnormally

Example

```
> psql postgres
psql (9.2.4)
Type "help" for help.

postgres=# SELECT pgxa_drop_table('scm.tbl1');
 pgxa_drop_table
-----
 t
(1 row)
```

Description

- If you have defined a view table for a columnar table, delete the view table before deleting the columnar table. Refer to Section VI, "Reference" in the PostgreSQL 9.2.4 Documentation for details on how to delete a view table.
- Specify the predefined external table name as the table name.
- An error will occur if an undefined external table name is specified.
- An error will occur if the columnar table has not been defined.

F.3.3 `pgxa_import_to_table`

Feature

Stores CSV format data in columnar tables.

Format

`pgxa_import_to_table(tableName, inputFile, label, delimiter, lfCode)`

Argument

Argument	Data type	Description
<i>tableName</i>	text	Table name (external table name)
<i>inputFile</i>	text	Input file name (up to 259 bytes)
<i>label</i>	boolean	Whether a header row exists (TRUE: yes; FALSE: no)
<i>delimiter</i>	text	Delimiter characters (such as commas and spaces)
<i>lfCode</i>	text	Newline code ("LF" or "CRLF")

Return value

Return value	Description
TRUE	Ended normally
FALSE	Ended abnormally

Example

```
> psql postgres
psql (9.2.4)
Type "help" for help.

postgres=# SELECT pgxa_import_to_table('scm.tbl1', '/data/input.csv', true, ',', 'LF' );
 pgxa_import_to_table
-----
 t
(1 row)
```

Description

- You cannot update data stored in a columnar table. Therefore, ensure that the data to be stored in a columnar table will not be updated.
- Specify the predefined external table name as the table name.
- An error will occur if an undefined external table name is specified.
- An error will occur if the columnar table has not been defined.

- Specify the absolute path of the file on the DWH Server as the input file name.
- If the file specified in the input file name does not exist, or if read permission for the file has not been granted, an error will occur.
- Column data should be entered in the input file in the order in which the columns were defined.
- Refer to "[E.2 CSV File Data Formats](#)" for information on input file formats.
- Create the input file data using the character set UTF-8 (without BOM).

F.3.4 pgxa_export_from_table

Feature

Writes data from the columnar tables in CSV format.

Format

`pgxa_export_from_table(tableName,outputFile,condition)`

Argument

Argument	Data type	Description
<i>tableName</i>	text	Name of the table to be output (external table name)
<i>outputFile</i>	text	Output file name (up to 259 bytes)
<i>condition</i>	text	Output condition (up to 512 bytes)

Return value

Return value	Description
TRUE	Ended normally
FALSE	Ended abnormally

Example

```
> psql postgres
psql (9.2.4)
Type "help" for help.

postgres=# SELECT pgxa_export_from_table('scm.tbl1', '/data/output.csv', 'where col1>0 and
col2='abc' ');
 pgxa_export_from_table
-----
 t
(1 row)
```

Description

- Specify the predefined external table name as the table name.
- Specify the absolute path of the file on the DWH Server as the output file name.
- Output file formats are shown in the table below.

Item	Format
Header row	None
Delimiter	Comma

Item	Format
Newline code	LF

- If the file specified in the output file name already exists, or if create permission for the file has not been granted, an error will occur.
- Of the specifiable value expressions described in Section 7.2.2, "The WHERE Clause" in the PostgreSQL 9.2.4 Documentation, the following can be used for the output condition:
 - Constant or literal values
 - Column references
 - Operators
The following are available if using operators:
 - Comparison operators
=, !=, <>, >, <, >=, <=
 - Logical operators
AND, OR, NOT
 - Pattern condition operators
LIKE
The following symbols can be used to represent patterns:
Underscore (_): Any single character
%: Any string of 0 or more characters except null
- Parentheses can be used for complex condition expressions.
- If a string that contains a semicolon (;) is specified in an output condition, subsequent strings will be ignored. However, this does not apply if contained in a literal value.
- An error will occur if an undefined external table name is specified.
- An error will occur if the columnar table has not been defined.

F.3.5 `pgxa_truncate_table`

Feature

Deletes data in a columnar table.

Format

`pgxa_truncate_table(tableName)`

Argument

Argument	Data type	Description
<i>tableName</i>	text	Name of the table to be deleted (external table name)

Return value

Return value	Description
TRUE	Ended normally
FALSE	Ended abnormally

Example

```
> psql postgres
psql (9.2.4)
Type "help" for help.

postgres=# SELECT pgxa_truncate_table('scm.tbl1');
 pgxa_truncate_table
-----
 t
(1 row)
```

Description

- Specify the predefined external table name as the table name.
- An error will occur if an undefined external table name is specified.
- An error will occur if the columnar table has not been created.

F.3.6 pgxa_add_dbSPACE

Feature

Expands the database space used by a columnar table.

Format

`pgxa_add_dbSPACE(dbSpaceName, path)`

Argument

Argument	Data type	Description
<i>dbSpaceName</i>	text	Specify 'SYMFOAS_DBS'
<i>path</i>	text	Path of the database space (raw device) to be added

Return value

Return value	Description
TRUE	Ended normally
FALSE	Ended abnormally

Example

```
> psql postgres
psql (9.2.4)
Type "help" for help.

postgres=# SELECT pgxa_add_dbSPACE('SYMFOAS_DBS', '/dev/raw/raw4');
 pgxa_truncate_table
-----
 t
(1 row)
```

Description

- An error will occur if a value other than 'SYMFOAS_DBS' is specified in the argument *dbSpaceName*.

- An error will occur if an invalid path is specified in the database space to be added.

Appendix G Messages

This appendix explains the messages output by Symfoware Analytics Server.

In addition to the messages mentioned in Symfoware Server V12.0.0 Messages, the messages below are output by Symfoware Analytics Server.

G.1 Message Format

This section explains the formats in which messages are output.

G.1.1 Output Formats

The message output formats are shown below.

Format of messages output by system commands in standard output

```
commandName: errorType: messageId: messageBody
```

Format of messages output by system commands to the log

```
[yyyy/mm/dd_hh:mm:ss] commandName: errorType: messageId: messageBody
```

Format of messages returned to the application when columnar tables are accessed

```
errorType: messageText (messageNumber)
```

Format of messages output to a server message log when columnar tables are accessed

```
SQLSTATE: date [processId]: [internalCode-1] user = userName,db = dbName,remote = clientIpAddress  
(portNumber) app = appName errorType:
```



See

Refer to "PostgreSQL Error Codes" in "Appendix" in the PostgreSQL 9.2.4 Documentation for information on SQLSTATE.



Note

- In messages output by the system command in standard output, "*commandName*:" may not be displayed.
- Notes on monitoring the messages output to the server message log
To monitor the server messages, use SQLSTATE. The settings required to monitor the messages using SQLSTATE are shown below.
 - Settings
Refer to "Error log settings" in "2.2.13 Changing Parameters" for details.
 - Note
 - The user name, client IP address (port number), and application name may sometimes be blank.
 - Multiple message numbers may be output.
- Notes on monitoring the messages returned to the application
SQLSTATE can output the messages returned to the application. The settings required to output the messages are shown below.
 - Settings
 - In the SET statement, set the log_error_verbosity parameter value for VERBOSE.
 - In the application that uses the C library, use the PQsetErrorVerbosity function to set the message verbosity for PQERRORS_VERBOSE.

- Note
 - SQLSTATE is output only when a message is returned to an application that uses the C library.
 - The user name, client IP address (port number), and application name may sometimes be blank.
 - Multiple message numbers may be output.
- If the email address ("pgsql-bugs@postgresql.org") is output to the message and the cause of the error is not identified, contact Fujitsu technical support.

.....

Example: Message output to the server message log

```
38000: 2014-01-20 16:49:28 JST [16808]: [1-1] user = Administrator,db = testdb,remote = ::1(65424)
app = psqlERROR: The specified foreign table is not defined
```

G.1.2 Components

This section explains the various components of the messages.

Error type

Error type displays the error status of the message.

The following error types may be displayed:

- Information (INFO, NOTICE, LOG, DEBUG)
This is not an error and indicates a notification message from the system. No action is required.
- Warning (WARNING)
No error has occurred, but the user is requested to check and take action as described in the "Action" section of the message.
- Error (ERROR, FATAL, PANIC)
An error has occurred. Take action as described in the "Action" section of the message.
- Supplementary (DETAIL, HINT, QUERY, CONTEXT, LOCATION, STATEMENT)
Supplementary information for a message.

Message text

Message text indicates the system status or notifies that a system error has occurred.

"%number" that appears in the messages in this appendix indicates an embedded string. In the message that is actually output, a string will be output.

Message number

Message number is prepended to each message. It is output as five digits. Based on the message number that is output, search for the corresponding message explanation in this manual. Message numbers may change, so do not use them as keywords for monitoring.

Note that a message number is not appended to the messages that are output by the PL/pgSQL RAISE statement.

A message number is appended only when the locale is "ja" or "en". For other locales, a message number is not appended.

G.2 10000 to 10999

G.2.1 10000

[Symfoware Analytics Server installation has started.](#)

[Explanation]

Installation has started.

[System action]

Starts the installation.

[User action]

None.

G.2.2 10001

Symfoware Analytics Server installation has finished.

[Explanation]

Installation has finished.

[System action]

Finishes the installation.

[User action]

None.

G.2.3 10002

Symfoware Analytics Server failed to install.

[Explanation]

Failed to install.

[System action]

Aborts the installation.

[User action]

Refer to the other error messages.

G.2.4 10003

SERVER PROGRAM %1 installer has started.

[Explanation]

Installation of server program %1 has started.

[Variable information]

%1: Server program number

[System action]

Starts the installation of server program %1.

[User action]

None.

G.2.5 10004

SERVER PROGRAM %1 installer has finished. (%2)

[Explanation]

Installation of server program %1 has finished.

[Variable information]

%1: Server program number

%2: Detailed information

[System action]

Finishes the installation of server program %1.

[User action]

None.

G.2.6 10005

Failed to install SERVER PROGRAM %1.

[Explanation]

Failed to install server program %1.

[Variable information]

%1: Server program number

[System action]

Aborts the installation.

[User action]

Investigate and remove the cause of the error.

The cause of the error is output to the following installation log file:

```
/var/opt/FJSVsyas/log/symassvinstall.log
```

G.2.7 10006

Internal Error occurred. (%1)

[Explanation]

An internal error occurred.

[Variable information]

%1: Detailed information

[System action]

Aborts the installation.

[User action]

Investigate and remove the cause of the error.

The cause of the error is output to the following installation log file:

```
/var/opt/FJSVsyas/log/symassvinstall.log
```

G.2.8 10007

%1 "%2" is wrong. (%3)

[Explanation]

The value specified in %2 of argument %1 is invalid.

[Variable information]

%1: Argument name

%2: Value specified in the argument

%3: Detailed information

[System action]

Cancels the installation.

[User action]

Specify the local absolute path for the argument that specifies the directory path.

Execute the symassvinstall command as the DWH Server administrator.

G.2.9 10008

SERVER PROGRAM %1 installer not found. Please insert the correct media.

[Explanation]

Server program %1 installer not found.

[Variable information]

%1: Server program number

[System action]

Wait for the key input, and then reexecute the installer.

[User action]

Insert the correct installation disk, and then press [Enter].

The disk mount destination that was specified may be incorrect. Stop the execution of the command, specify the correct disk mount destination, and then execute the symassvinstall command.

Execute the symassvinstall command as the DWH Server administrator.

G.2.10 10009

.NET Data Provider Registration failed. Registry later if necessary.

[Explanation]

Failed to register .NET Data Provider. Register it later, if necessary.

[System action]

Continues the installation.

[User action]

To use .NET Data Provider, .NET Framework 3.5 SP1 or later, or .NET Framework 4.0 or later, must be installed.

If you intend to subsequently install .NET Framework 3.5 or .NET Framework 4.0 or later, install .NET Framework and then run the pgx_NpgsqlRegister.exe command to set up Fujitsu Npgsql .NET Data Provider.

The pgx_NpgsqlRegister.exe command is stored in the following location:

```
[INSTALL_DIR]\symfoclient64\DOTNET\Bin\pgx_NpgsqlRegister.exe
```

An example is shown below.

```
C:\SymfoAS\symfoclient64\DOTNET\Bin\pgx_NpgsqlRegister.exe /x64
```

No action is required when .NET Data Provider is not used.

Refer to ".NET Data Provider" in the Symfoware Server V12.0.0 Application Development Guide for information on .NET Data Provider.

G.3 11000 to 11999

G.3.1 11000

Symfoware Analytics Server uninstallation has started.

[Explanation]

Uninstallation has started.

[System action]

Starts the uninstallation.

[User action]

None.

G.3.2 11001

Symfoware Analytics Server uninstallation has finished.

[Explanation]

Uninstallation has finished.

[System action]

Finishes the uninstallation.

[User action]

None.

G.3.3 11002

Symfoware Analytics Server failed to uninstall.

[Explanation]

Failed to uninstall.

[Variable information]

%1: Detailed information

[System action]

Aborts the uninstallation.

[User action]

Refer to the other error messages.

G.3.4 11003

%1 has started.**[Explanation]**

Uninstallation of item %1 has started.

[Variable information]

%1: Item to be uninstalled

[System action]

Starts the uninstallation of item %1.

[User action]

None.

G.3.5 11004**%1 has finished. (%2)****[Explanation]**

Uninstallation of item %1 has finished.

[Variable information]

%1: Item that has been uninstalled

%2: Detailed information

[System action]

Finishes the uninstallation of item %1.

[User action]

None.

G.3.6 11005**Failed to %1.****[Explanation]**

Failed to uninstall item %1.

[Variable information]

%1: Item to be uninstalled

[System action]

Aborts the uninstallation.

[User action]

Investigate and remove the cause of the error.

The cause of the error is output to the following uninstallation log file:

<code>/var/opt/FJSVsymas/log/symassvuninstall.log</code>
--

G.3.7 11006**Internal Error occurred. (%1)**

[Explanation]

An internal error occurred.

[Variable information]

%1: Detailed information

[System action]

Aborts the uninstallation.

[User action]

Investigate and remove the cause of the error.

The cause of the error is output to the following uninstallation log file:

```
/var/opt/FJSSVsymas/log/symassvuninstall.log
```

G.3.8 11007

%1 "%2" is wrong. (%3)

[Explanation]

The value specified in %2 of argument %1 is invalid.

[Variable information]

%1: Argument name

%2: Value specified in the argument

%3: Detailed information

[System action]

Cancels the uninstallation.

[User action]

Specify the local absolute path for the argument that specifies the directory path.

Execute the symassvuninstall command as the DWH Server administrator.

G.3.9 11008

Failed to %1, but uninstallation is continued.

[Explanation]

Failed to uninstall item %1, but uninstallation is continued.

[Variable information]

%1: Item to be uninstalled

[System action]

Continues the uninstallation.

This message is output by the uninstall command when the installation fails.

Uninstall errors of software for which the installation failed are ignored.

[User action]

None.

G.4 12000 to 12999

G.4.1 12000

Symfoware Analytics Server setup has started.

[Explanation]

Setup has started.

[System action]

Starts the setup.

[User action]

None.

G.4.2 12001

Symfoware Analytics Server setup has finished.

[Explanation]

Setup has finished.

[System action]

Finishes the setup.

[User action]

None.

G.4.3 12002

Symfoware Analytics Server failed to setup.

[Explanation]

Setup has failed.

[System action]

Aborts the setup.

[User action]

Refer to the other error messages.

G.4.4 12003

%1 has started.

[Explanation]

Setup of item %1 has started.

[Variable information]

%1: Item to be set up

[System action]

Starts the setup of item %1.

[User action]

None.

G.4.5 12004

%1 has finished. (%2)

[Explanation]

Setup of item %1 has finished.

[Variable information]

%1: Item that has been set up

%2: Detailed information

[System action]

Finishes the setup of item %1.

[User action]

None.

G.4.6 12005

%1 failed.

[Explanation]

Setup of item %1 has failed.

[Variable information]

%1: Item to be set up

[System action]

Aborts the setup of item %1.

[User action]

Review the specified argument, for example, to investigate and remove the cause of the error.

The cause of the error is output to the following setup log file:

```
/var/opt/FJSSVsymas/log/symassetup.log
```

If the error occurs even after the command is reexecuted, restart the machine after executing the setup removal command and then execute the setup command.

G.4.7 12006

Internal Error occurred. (%1)

[Explanation]

An internal error occurred.

[Variable information]

%1: Detailed information

[System action]

Aborts the setup.

[User action]

Investigate and remove the cause of the error.

The cause of the error is output to the following setup log file:

```
/var/opt/FJSSVsymas/log/symassetup.log
```

G.4.8 12007

%1 "%2" is wrong. (%3)

[Explanation]

The value specified in %2 of argument %1 is invalid.

[Variable information]

%1: Argument name

%2: Value specified in the argument

%3: Detailed information

[System action]

Cancels the setup.

[User action]

Specify the local absolute path for the argument that specifies the directory path.

Specify an integer value as the argument that specifies the memory size to be allocated to the columnar table.

Execute the symassetup command as the DWH Server administrator.

G.5 13000 to 13999

G.5.1 13000

Symfoware Analytics Server unsetup has started.

[Explanation]

Setup removal has started.

[System action]

Starts the setup removal.

[User action]

None.

G.5.2 13001

Symfoware Analytics Server unsetup has finished.

[Explanation]

Setup removal has finished.

[System action]

Finishes the setup removal.

[User action]

None.

G.5.3 13002

Symfoware Analytics Server failed to unsetup.

[Explanation]

Failed to remove setup.

[System action]

Aborts the setup removal.

[User action]

Refer to the other error messages.

G.5.4 13003

%1 has started.

[Explanation]

Removal of item %1 setup has started.

[Variable information]

%1: Item for which the setup is to be removed

[System action]

Starts the removal of item %1 setup.

[User action]

None.

G.5.5 13004

%1 has finished. (%2)

[Explanation]

Removal of item %1 setup has finished.

[Variable information]

%1: Item for which the setup has been removed

%2: Detailed information

[System action]

Finishes the removal of item %1 setup.

[User action]

None.

G.5.6 13005

%1 failed.

[Explanation]

Failed to remove item %1 setup

[Variable information]

%1: Item for which the setup was to be removed

[System action]

Aborts the removal of item %1 setup.

[User action]

Investigate and remove the cause of the error.

The cause of the error is output to the following unsetup log file:

```
/var/opt/FJSSVsymas/log/symasunsetup.log
```

G.5.7 13006

Internal Error occurred. (%1)

[Explanation]

An internal error occurred.

[Variable information]

%1: Detailed information

[System action]

Aborts the setup removal.

[User action]

Investigate and remove the cause of the error.

The cause of the error is output to the following setup removal log file:

```
/var/opt/FJSSVsymas/log/symasunsetup.log
```

G.6 14000 to 14999

G.6.1 14000

Symfoware Analytics Server is starting.

[Explanation]

The DWH Server is starting.

[System action]

Starts the DWH Server.

[User action]

None.

G.6.2 14001

Symfoware Analytics Server has started successfully.

[Explanation]

The DWH Server has started successfully.

[System action]

Finishes the DWH Server startup.

[User action]

None.

G.6.3 14002

Symfoware Analytics Server failed to start.

[Explanation]

Failed to start the DWH Server.

[System action]

Aborts the DWH Server startup.

[User action]

Refer to the other error messages.

G.6.4 14003

%1 has started.

[Explanation]

Feature %1 has started.

[Variable information]

%1: Feature name

[System action]

Starts feature %1.

[User action]

None.

G.6.5 14004

%1 is already started.

[Explanation]

Feature %1 was already started.

[Variable information]

%1: Feature name

[System action]

Aborts the feature %1 startup.

[User action]

None.

G.6.6 14005

Failed to start %1. (%2)

[Explanation]

Failed to start feature %1.

[Variable information]

%1: Feature name

%2: Detailed information

[System action]

Aborts the feature %1 startup.

[User action]

Investigate and remove the cause of the error.

G.7 15000 to 15999

G.7.1 15000

Symfoware Analytics Server is stopping.

[Explanation]

The DWH Server is stopping.

[System action]

Stops the DWH Server.

[User action]

None.

G.7.2 15001

Symfoware Analytics Server has stopped successfully.

[Explanation]

The DWH Server has stopped successfully.

[System action]

Stops the DWH Server.

[User action]

None.

G.7.3 15002

Symfoware Analytics Server failed to stop.

[Explanation]

Failed to stop the DWH Server.

[System action]

Aborts stoppage of the DWH Server.

[User action]

Refer to the other error messages.

G.7.4 15003

%1 has stopped.

[Explanation]

Feature %1 has stopped.

[Variable information]

%1: Feature name

[System action]

Stops feature %1.

[User action]

None.

G.7.5 15004

%1 is already stopped.

[Explanation]

Feature %1 was already stopped.

[Variable information]

%1: Feature name

[System action]

Aborts the stoppage of feature %1.

[User action]

None.

G.7.6 15005

Failed to stop %1. (%2)

[Explanation]

Failed to stop feature %1.

[Variable information]

%1: Feature name

%2: Detailed information

[System action]

Stops feature %1.

[User action]

Investigate and remove the cause of the error.

G.8 16000 to 16999

G.8.1 16000

Symfoware Analytics Server has started to backup.

[Explanation]

The backup has started.

[System action]

Starts the backup.

[User action]

None.

G.8.2 16001

Symfoware Analytics Server has finished to backup.

[Explanation]

The backup has finished successfully.

[System action]

Finishes the backup.

[User action]

None.

G.8.3 16002

Symfoware Analytics Server failed to backup.

[Explanation]

Failed to back up.

[System action]

Aborts the backup.

[User action]

Refer to the other error messages.

G.8.4 16003

%1 backup has started.

[Explanation]

%1 backup has started.

[Variable information]

%1: Product, component, resource name

[System action]

Starts the %1 backup.

[User action]

None.

G.8.5 16004

%1 backup succeeded.

[Explanation]

%1 backup has finished successfully.

[Variable information]

%1: Product, component, resource name

[System action]

Finishes the %1 backup.

[User action]

None.

G.8.6 16005

Failed to backup %1. (%2)

[Explanation]

Failed to back up %1.

[Variable information]

%1: Product, component, resource name

%2: Detailed information

[System action]

Aborts the %1 backup.

[User action]

Investigate and remove the cause of the error.

The cause of the error is output to the following backup log file:

```
/var/opt/FJSVsymas/log/symasbackup.log
```

G.8.7 16006

Internal Error occurred. (%1)

[Explanation]

An internal error occurred.

[Variable information]

%1: Detailed information

[System action]

Aborts the backup.

[User action]

Investigate and remove the cause of the error.

The cause of the error is output to the following backup log file:

```
/var/opt/FJSSVsymas/log/symasbackup.log
```

G.8.8 16007

%1 "%2" is wrong. (%3)

[Explanation]

The value specified in %2 of argument %1 is invalid.

[Variable information]

%1: Argument name

%2: Value specified in the argument

%3: Detailed information

[System action]

Cancels the backup.

[User action]

Specify the absolute path for the argument.

Execute the symasbackup command as the DWH Server administrator.

G.8.9 16008

Symfoware Analytics Server aborted the backup.

[Explanation]

The backup was canceled.

[System action]

Aborts the backup.

[User action]

None.

G.8.10 16133



Point

Message 16133 is output when the columnar table is accessed.

The specified foreign table is not defined

[Explanation]

The foreign table is not defined.

[System action]

Cancels processing.

[User action]

Create the foreign table, and then execute the command. Alternatively, check if the correct foreign table was specified.

Not supported data type is detected (%1)

[Explanation]

A data type that cannot be defined in the columnar table was included.

[Variable information]

%1: Column name and data type

[System action]

Cancels processing.

[User action]

Use a data type that can be defined in the columnar table to create the foreign table.

The specified file name is invalid

[Explanation]

The specified file name is invalid.

[System action]

Cancels processing.

[User action]

Specify a valid file name.

The specified file name is not full path name

[Explanation]

The file name was not specified using the absolute path.

[System action]

Cancels processing.

[User action]

Specify the file name using the absolute path.

The specified file does not exist

[Explanation]

The specified file does not exist.

[System action]

Cancels processing.

[User action]

Check the file name.

The specified file name already exists

[Explanation]

The specified file already exists.

[System action]

Cancels processing.

[User action]

Check the file name.

The specified file does not access

[Explanation]

You have not been granted permission to read the file.

[System action]

Cancels processing.

[User action]

Review the file permissions.

The specified delimiter is invalid

[Explanation]

The specified delimiter is invalid.

[System action]

Cancels processing.

[User action]

Specify a valid delimiter.

The specified line feed code is invalid

[Explanation]

The specified line feed code is invalid.

[System action]

Cancels processing.

[User action]

Specify a valid line feed code.

The specified condition is too long

[Explanation]

The specified output condition is too long.

[System action]

Cancels processing.

[User action]

Specify a maximum of 512 bytes for the output condition.

An error occurred while processing columnar table (%1)

[Explanation]

An error occurred while the columnar table was being processed.

[Variable information]

%1: Detailed information

[System action]

Aborts processing.

[User action]

Take action according to "Detailed information". If the problem cannot be resolved, contact Fujitsu technical support.

No parameter was specified

[Explanation]

A required parameter has not been specified.

[System action]

Cancels processing.

[User action]

Review the specified parameters.

failed to get data source name

[Explanation]

An internal inconsistency occurred.

[System action]

Cancels processing.

[User action]

Contact Fujitsu technical support.

failed to get columnar table name

[Explanation]

An internal inconsistency occurred.

[System action]

Cancels processing.

[User action]

Contact Fujitsu technical support.

The specified table name is not defined in the columnar table

[Explanation]

An internal inconsistency occurred.

[System action]

Cancels processing.

[User action]

Contact Fujitsu technical support.

An internal error occurred while processing (%1)

[Explanation]

An internal inconsistency occurred.

[Variable information]

%1: Detailed information

[System action]

Aborts processing.

[User action]

Contact Fujitsu technical support.

The error occurred while executing SQL command (%1) [%2]

[Explanation]

An error occurred while executing SQL.

[Variable information]

%1: Detailed information

%2: Internal code

[System action]

Aborts processing.

[User action]

Take action according to "Detailed information". If the problem cannot be resolved, contact Fujitsu technical support.

G.9 17000 to 17999

G.9.1 17000

Symfoware Analytics Server has started to restore.

[Explanation]

The restore has started.

[System action]

Starts the restore.

[User action]

None.

G.9.2 17001

Symfoware Analytics Server has finished to restore.

[Explanation]

The restore has finished successfully.

[System action]

Finishes the restore.

[User action]

None.

G.9.3 17002

Symfoware Analytics Server failed to restore.

[Explanation]

Failed to restore.

[System action]

Aborts the restore.

[User action]

Refer to the other error messages.

G.9.4 17003

%1 restore has started.

[Explanation]

%1 restore has started.

[Variable information]

%1: Product, component, resource name

[System action]

Starts the %1 restore.

[User action]

None.

G.9.5 17004

%1 restore succeeded.

[Explanation]

%1 restore has finished successfully.

[Variable information]

%1: Product, component, resource name

[System action]

Finishes the %1 restore.

[User action]

None.

G.9.6 17005

Failed to restore %1. (%2)

[Explanation]

Failed to restore %1.

[Variable information]

%1: Product, component, resource name

%2: Detailed information

[System action]

Aborts the %1 restore.

[User action]

Investigate and remove the cause of the error.

The cause of the error is output to the following restore log file:

```
/var/opt/FJSSVsymas/log/symasrestore.log
```

G.9.7 17006

Internal Error occurred. (%1)

[Explanation]

An internal error occurred.

[Variable information]

%1: Detailed information

[System action]

Aborts the restore.

[User action]

Investigate and remove the cause of the error.

The cause of the error is output to the following restore log file:

```
/var/opt/FJSSVsymas/log/symasrestore.log
```

G.9.8 17007

%1 "%2" is wrong. (%3)

[Explanation]

The value specified in %2 of argument %1 is invalid.

[Variable information]

%1: Argument name

%2: Value specified in the argument

%3: Detailed information

[System action]

Cancels the restore.

[User action]

Specify the absolute path for the argument.

Execute the symasrestore command as the DWH Server administrator.

Appendix H Default System Values

This appendix explains information that is configured automatically by executing the installation and setup commands of Symfoware Analytics Server.

Port numbers

Mandatory port numbers that accept external access

Feature	Port number	Modifiable	Remarks
Symfoware Server Client connection	26500	Y	Refer to Section 18.1, "Setting Parameters" in the PostgreSQL 9.2.4 Documentation for information on modifying this setting.
Data Processing Client connection	25000	N	
Standard FTP port number	21	N	Only when using the Data Coordination feature
Connection with SQL Azure	1433	N	Only when using the Data Coordination feature

Port numbers used internally 1

Feature	Port number	Modifiable	Remarks
Internal control	80	N	
	389	N	
	7676	N	
	8002	N	
	8686	N	
	9657	N	
	9664	Y	*1
	9690	N	
	9691	N	
	9700	Y	*2
	12000	N	
	12001	N	
	12200	Y	*3
	12210	N	
	13300	N	
	13301	N	
	13321	N	
	13322	N	
	13323	N	
	13324	N	
13325	N		
13326	N		
13327	N		

Feature	Port number	Modifiable	Remarks
	13328	N	
	13331	N	
	13332	N	
	13333	N	
	18443	N	
	18444	N	
	23600	N	
	23601	N	
	23602	N	
	23700	N	
	25010	N	
	25011	N	
	25012	N	
	25013	N	
	25014	N	
	25015	N	
	25016	N	
	25020	N	
	25021	N	
	25120	N	
	25121	N	
	25122	N	
	25123	N	
	25124	N	
	25125	N	
	25126	N	
	25030	N	
	25031	N	
	25130	N	
	25131	N	
	25132	N	
	25133	N	
	25134	N	
	25135	N	
	25136	N	
	25040	N	
	25041	N	

Feature	Port number	Modifiable	Remarks
	25140	N	
	25141	N	
	25142	N	
	25143	N	
	25144	N	
	25145	N	
	25146	N	
	25001	N	
	25100	N	
	25101	N	
	25102	N	
	25103	N	
	25104	N	
	25105	N	
	25106	N	
	25900	N	
	25901	N	
	26515	N	
	26516	N	
	27100	N	
	27101	N	
	28080	N	
	40320	N	
	40325	N	
	40330	N	

*1: Follow the below given procedure to change the port number:

1. Change the port number in the following network definition file

```
/opt/FJSVlnkbs/lnk02/GEN/network_def.txt
```

2. Execute the following command after changing the network definition file to reflect the changed information

```
/opt/FJSVlnkbs/lnk02/bin/f3jtlxgentrn -i 02 /opt/FJSVlnkbs/lnk02/GEN/network_def.txt
```

3. Restart the file transfer infrastructure

```
service FJSVlnkbs stop
service FJSVlnkbs start
```

*2: Change the port number by the omschangeport command. Refer to "Interstage Application Server Installation Guide" for information on how to change the port number.

*3: Change the port number for Interstage Management Console at Interstage Management Console. Refer to the help of Interstage Management Console for information on how to change the port number.

Port numbers used internally 2

Feature	Port number	Modifiable	Remarks
Internal control	4013	N	
	6000	N	
	9352	N	
	9367	N	
	9368	N	
	12220	N	
	12230	N	
	13300	N	
	13301	N	
	13321	N	
	13322	N	
	13323	N	
	13324	N	
	13325	N	
	13326	N	
	13327	N	
	13328	N	
	13331	N	
	13332	N	
	13333	N	
	18443	N	
	18444	N	
	23701	N	
	23702	N	
	23703	N	
	23704	N	
	23705	N	
	23706	N	
	28090	N	
	28091	N	
	28092	N	
	28093	N	
28094	N		
28095	N		
28096	N		
28686	N		

Feature	Port number	Modifiable	Remarks
	28687	N	
	28688	N	
	28689	N	
	28690	N	
	28691	N	
	28692	N	
	29696	N	

User account

Feature	Value	Modifiable	Remarks
DN password of the administrator for the repository used in the directory service	manager	N	
Default Data Processing user	ibamsadmin	N	
Password of the default Data Processing user	ibamsadmin	Y	*1
Privileged user of the Data Coordination feature	Administrator	N	Only when using the Data Coordination feature

*1: You can change the password for the default Data Processing user (default user name is "ibamsadmin") and the user who is used by Data Processing user for internal control (default user name is "ibamssch") according to the following procedure:

1. Log in to the DWH Server as a user with administrator privileges.
2. Stop the Data Processing Server.

```
/opt/FJSVbamsr/bin/ibamsoperationmgr stop
```

3. Stop the Systemwalker Runbook Automation.

Execute the following command as super user.

```
# /opt/FJSVswrbam/bin/swrba_stop
```

4. Change the information of Directory Service.

1. Create LDIF file for changing user password.
Copy the following sample file, and then edit with a text editor.

```
/opt/FJSVbamsr/etc/changeuserpassword_en.ldif
```

- Replace "USER_ID" to the user name for which you want to change the password and replace "NEW_PASSWORD" to the new password.
- Specify the password within the range as below:

Item	Number of Characters	Available Letter Type
NEW_PASSWORD	128 characters	- Alphanumeric characters - Symbols without following : '<','>','&','"','"', whitespace

2. Register the user information by using `ldapmodify` command. It must be executed as administrator.

```
/opt/FJSVirepc/bin/ldapmodify -H ldap://localhost:389 -D
cn=manager,ou=interstage,o=fujitsu,dc=com -w [DN password of the administrator] -f "Edited
LDIF file"
```

1. Execute the following command to reflect the changes in the environment of Data Processing Server.

- Execute the following command as administrator.

```
/opt/FJSVswrbam/bin/swrba_regist_password
```

This command is user interactive.

If you changed the password for Data Processing user, select "Process control user", and then register the new password by following the instructions displayed.

If you changed the password for the user used by Data Processing user for internal control, select "User for Schedule Startup", and then register the new password by following the instructions displayed.

- If you changed the password for Data Processing user, execute the following command.

```
/opt/FJSVbamsr/bin/ibamssetup setmanager -userid DataProcessingAdministratorUserID -password
NewPassword
```

If the problem still cannot be resolved, contact Fujitsu technical support.

2. Start the Systemwalker Runbook Automation.

Execute the following command as super user.

```
# /opt/FJSVswrbam/bin/swrba_start
```

3. Start the Data Processing Server.

```
/opt/FJSVbamsr/bin/ibamsoperationmgr start
```

Configuring the database

Feature	Value	Modifiable	Remarks
Database character set	UTF-8	N	
Message display locale (LC_MESSAGES)	C	N	
String sort order locale (LC_COLLATE)	C	Y	Can be specified when creating a database. Refer to Section 18.1, "Setting Parameters" in the PostgreSQL 9.2.4 Documentation for details.
Character classification (LC_CTYPE)	C	Y	Can be specified when creating a database. Refer to Section 18.1, "Setting Parameters" in the PostgreSQL 9.2.4 Documentation for details.
Connectable IP address (listen_address)	localhost	Y	Refer to "2.2.13 Changing Parameters" for information on modifying this setting.
Maximum number of connections (max_connection)	100	Y	Refer to "2.2.13 Changing Parameters" for information on modifying this setting.
Database authentication mode	trust authentication (no password required)	Y	Refer to Section 18.1, "Setting Parameters" in the PostgreSQL 9.2.4 Documentation for information on modifying this setting.

Appendix I Collecting Failure Investigation Information

If the cause of a problem that occurs while building the Symfoware Analytics Server environment or during operation is unclear, information must be collected for initial investigation.

This appendix describes how to collect information for initial investigation using the FJQSS information collection tool.

Collection method

Log in to the target server as superuser and execute the following command:

```
/opt/FJSVqst1/fjqss_collect
```

The product names will be displayed as shown below, depending on which features are installed. Collect the information for all of these products installed on the target server or machine.

Feature	Product name
Server features of Symfoware Server	Symfoware Server (Open Interface) (64-bit) V12.0.0 (when a process error occurs) Symfoware Server (Open Interface) (64-bit) V12.0.0 (when a process result error occurs) Symfoware Server (Open Interface) (64-bit) V12.0.0 (when there is no response)
Data Processing Server feature	Information collection (Interstage Business Process Manager Analytics) Information collection (Interstage Business Analytics Modeling Server Analytics Server)
Data Processing Client feature	Information collection (Interstage Business Analytics Modeling Server development environment client)
Data Coordination Server feature	Interstage Information Integrator Transfer Accelerator (information collection) Interstage Information Integrator (information collection)

See

Refer to the following manual for information on how to use FJQSS:

In the [Start] menu, select [All Programs] >> [FJQSS (Information Collection Tool)], and then click [FJQSS User's Guide].

Note

When using FJQSS to collect information for initial investigation in relation to the server features of Symfoware Server, you must set the following environment variables:

- Environment variables required for using Symfoware Server
Refer to the "Setup" chapter in the Symfoware Server V12.0.0 Installation and Setup Guide for Server for details.
- PGDATA
Set the database data storage destination directory that was specified during installation.
- PGPORT
Set the instance port number. This does not need to be set if the default port number (26500) is not changed.
- PGUSER
Set the DWH Server administrator.
Ensure that the configured DWH Server administrator has client authentication privileges.
FJQSS establishes a TCP/IP connection with the template1 database and collects information from the database.

- SYMFO_HOME

Specify the following directory:

- /opt/symfoserver64

Appendix J Installing Operation Management Product

This appendix describes the installation procedure and notes to be considered while installing the following product on the Symfoware Analytics Server:

- Systemwalker Centric Manager

J.1 Installing Systemwalker Centric Manager

This section describes the installation procedure when the Systemwalker Centric Manager is installed on the Symfoware Analytics Server.

Install the Systemwalker Centric Manager after the setup of the Symfoware Analytics Server was completed.

Refer to the Systemwalker Centric Manager manuals for details on the environment setup procedure, commands, and so on.

System Parameter

Do the tuning of system parameter when Systemwalker Centric Manager and Symfoware Analytics Server are installed in the same server. If the tuning is not done the installer will fail.

Refer to "Editing the system parameters" in "2.1.4.1 Installing the DWH Server" for the setting of system parameter of Symfoware Analytics Server. Refer to "Systemwalker Centric Manager User's Guide - Running Interstage, Symfoware and ObjectDirector" for the setting of system parameter of Systemwalker Centric Manager.

J.1.1 Installing Systemwalker Centric Manager Operation Management Server

Follow the steps below to install a Systemwalker Centric Manager Operation Management Server:

1) Stop the Data Processing Server and install Systemwalker Centric Manager

1. Stop the Data Processing Server.

If the Data Processing Server is running, stop it by the following command:

```
/opt/FJSVbamsr/bin/ibamsoperationmgr stop
```

2. Stop Interstage.

Method 1: Via the Interstage Management Console.

Method 2: Via the command line:

```
/opt/FJSVtd/bin/isstop -f
```

3. Install a Systemwalker Centric Manager Operation Management Server.

Refer to the Systemwalker Centric Manager Installation Guide for details.

4. Restart the computer.

5. Perform steps 1 and 2 again.

2) Create an environment and start Systemwalker Centric Manager

Create an environment for Systemwalker Centric Manager.

1. Set up Systemwalker Centric Manager:

```
/opt/systemwalker/bin/MpFwSetup -mix
```

- In the setup menu, enter "1" to create a Systemwalker Centric Manager environment.
- In the Connection environment check result window, enter "2" to continue processing without recreating the Systemwalker Centric Manager environment.
- In the setup menu, enter "3" to start each daemon for Systemwalker Centric Manager.

3) Start Interstage services and the Data Processing Server

1. Start Interstage:

Method 1: Via the Interstage Management Console.

Method 2: Via the command line:

```
/opt/FJSVtd/bin/isstart
```

2. Start the Data Processing Server

If you stopped the Data Processing Server in step 1, then start it by the following command:

```
/opt/FJSVbamsr/bin/ibamsoperationmgr start
```