Datasheet
Fujitsu Software BeanConnect™ V7.0

Connection of Java™ EE Application Servers with openUTM and CICS

BeanConnect™

BeanConnect™ connects applications based on Java™ EE application servers with applications of the Fujitsu TP monitor openUTM or the CICS Transaction Server from IBM in accordance with the Java EE Connector Architecture (JCA). New applications which are based on the Java EE technology can thus be integrated into an existing IT environment using Java resources.

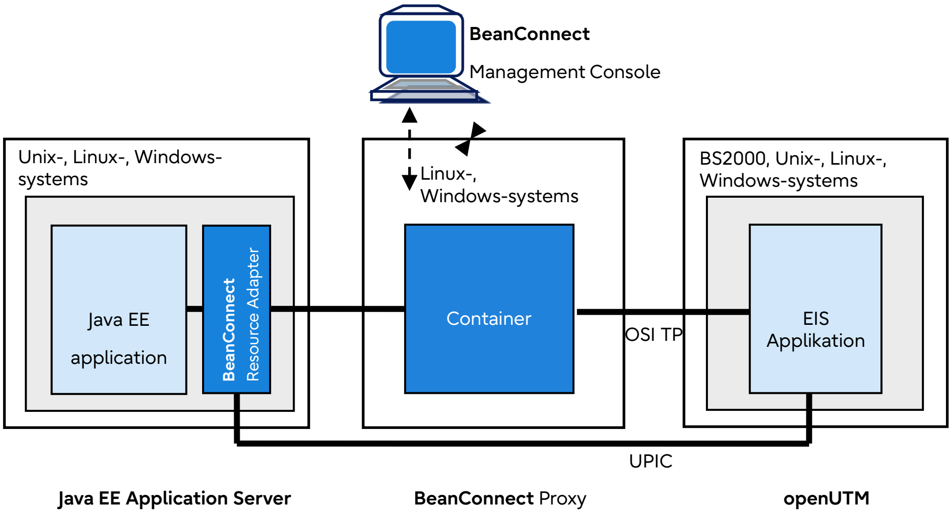
In addition the BeanConnect product component openUTM-JConnect includes Java classes for access to openUTM from any Java program.

BeanConnect is part of the comprehensive product offering of openSEAS.

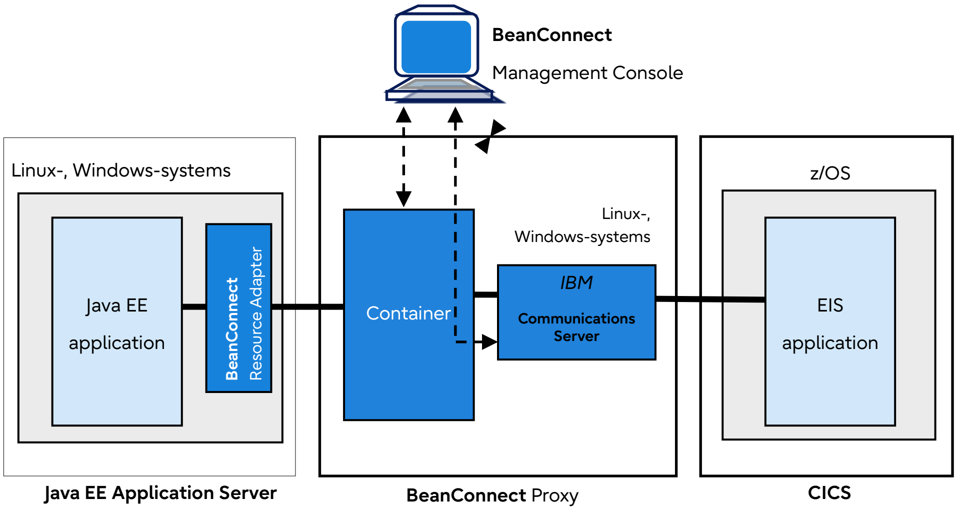
BeanConnect V7.0

Compared to the previous version V6.5, several features have been added to the current version, such as:

- **Running on Linux systems as a service**
  On Linux systems, starting a BeanConnect proxy container can be set up as a service. BeanConnect components as a service use the systemd technique.
- **Management Console**
  The length of the UTM BCAM trace can be controlled via the Management Console.
- **Security**
  In JConnect, encrypted communication with UTM applications can additionally be performed with ENCRYPTION-LEVEL=5.
- **Java Environment**
  The BeanConnect components can run in both an Oracle Java 8 and an OpenJDK 8 environment.
- **Installation improvements**
  The installations on Linux and Windows systems have been simplified in terms of handling and SW requirements.



Architecture of BeanConnect connecting an UTM application



Architecture of BeanConnect connecting a CICS application

Features and benefits

MAIN FEATURE	BENEFIT
JCA V1.6 CONFORMABLE ADAPTER	
■ Usage of Java Platform, Enterprise Edition (Java EE)	■ Integration of existing Enterprise Information Systems (EIS) Connectivity of UTM and CICS applications as EIS
■ Support of outbound and inbound communication directions	■ Use of as well outbound communication as inbound communication with or without transaction security
INTERFACES AND PROTOCOLS	
■ Providing of „contracts“ committed by Java EE between AS and EIS	■ Ensured system level mechanisms as transactions, security, connection pooling
■ Support of defined and own interfaces for EIS access	■ Significant reduction of implementation effort
■ Support of different communication protocols	■ Communication with either UTM or CICS applications
JCONNECT	
■ Providing of Java classes	■ Access to UTM server applications by any application written in Java
■ Support of UPIC protocol	■ Availability of all UPIC functions and additionally SSL security functions
Executability with different application servers	
■ Release in combination with Application Servers	■ Direct usage in released configurations
■ Interoperability Check for JCA conformable Application Servers	■ Warranty of executability in customer configurations

Topics

JCA V1.6 conformable, bidirectional adapter with transaction security

The Java EE Connector Architecture (JCA) is part of the Java platform, Enterprise Edition (Java EE). Based on this architecture user can write new applications using Java EE technology capabilities and can also encapsulate existing Enterprise Information Systems (EIS) with Enterprise JavaBeans or JavaServer Page technologies. BeanConnect implements the connection of UTM and CICS applications as EIS systems. BeanConnect supports JCA V1.6 as well which are parts of Java EE 8. BeanConnect supports a variety of communication paradigms: It enables outbound communication, i.e. communication is initiated by the application on the application server, and inbound communication, i.e. communication is initiated by the EIS application. The communication can be transactional or non-transactional and can be executed dialog based as well as asynchronously.

Components

BeanConnect consists of the following components:

- BeanConnect Resource Adapter,
- BeanConnect Proxy,
- BeanConnect Management Console.
- BeanConnect Tools
- openUTM JConnect

The **BeanConnect Resource Adapter** makes the JCA interface available to the user. It is embedded (deployed) in the Java EE application server.

The **BeanConnect Proxy** represents the transactional connection between the resource adapter within the application server on the one side and the EIS application on the other side.
BeanConnect Proxy includes a proxy container based on the transaction monitor openUTM. For the CICS connection, the software gateway openUTM-LU62 for the support of the LU6.2 protocol, and for the realization of the SNA stack IBM's Communications Server (for Linux and Windows systems) are additionally required. In contrast to openUTM-LU62, this product is not included in the scope of delivery of BeanConnect and must be obtained separately if a connection to CICS is required.

The **BeanConnect Management Console** offers a GUI and a Command Line Interface for configuring and administering of BeanConnect.

BeanConnect doesn't contain components which have to run on the EIS platform itself.

The **BeanConnect Tools** are tools which you require in many BeanConnect applications. They include Cobol2Java and the MC-CmdHandler.

BeanConnect Interfaces and protocols

BeanConnect collaborates with the Java EE application server to provide system level mechanisms, the transactions, security and connection pooling mechanisms. For this JCA defines certain system contracts between application server and EIS whereas BeanConnect embodies the EIS part.

Contracts for outbound communication:

- Connection Management
- Transaction Management
- Security Management

Contracts for inbound communication:

- Transaction Inflow
- Message Inflow
- Security Work Context

Contracts for the resource adapter lifecycle management and thread management:

- Lifecycle Management
- Work Management
- Generic Work Context

Common Client Interface

The Java EE Connector Architecture defines a Common Client Interface (CCI) for EIS access. The CCI defines a standard API for application components. BeanConnect supports the CCI and offers an additional interface which clearly decreases the programming effort.
For communication to the UTM application the following protocols are used:

Outbound communication:

- OSI TP protocol for distributed transactions
- UPIC protocol (a proprietary protocol for clients of UTM applications).

Inbound communication

- OSI TP protocol for distributed transactions
- UPIC protocol
- Transport protocols such as the UTM socket protocol and the RFC1006 protocol.

For communication to the CICS application the communication protocol LU6.2 is used.

BeanConnect supports CICS application programs which correspond to IBM's Distributed Transaction Programming (DTP) paradigm. To connect CICS application programs which use DPL (Distributed Program Link) a program example is offered. For detailed information on connecting CICS applications and programming CICS programs please view the BeanConnect handbook.

openUTM JConnect: Java classes for access to openUTM

openUTM JConnect includes Java classes for any applications written in Java for access to UTM server appli cations. openUTM JConnect is part of BeanConnect. openUTM JConnect supports all functions of the UPIC protocol and allows additionally the plug in of SSL security functions.

License structure of the product

- CPU licenses are assigned per core[1] on which the Java EE application server with the BeanConnect Resource Adapter is running. CPU licensing allows any number of users (end user, developers, testers).
- If openUTM JConnect is used, the licenses per core[1] running the Java applications are assigned.
- The cores[1] of single-core processors are counted by a factor of 1.0, the cores[1] of multi-core processors are counted by a factor of 0.5. Virtual cores[1] correspond to the number of CPUs assigned to the virtual machine.
- Licenses for developers and testers[2] are assigned per user (developer or tester) for a system without CPU licensing.
- For use of BeanConnect with communication to an UTM application and for a communication to a CICS application the BeanConnet licenses have to be ordered separately.
- The software is delivered on DVD.
- The documentation is available via Internet

Using BeanConnect with Java EE application servers

BeanConnect is released and maintained in conjunction with JCA V1.6 compliant application servers.

The interoperability with the requested Java EE application server can be assured with the following additional service packs:

- BeanConnect AS Interoperability Check
- BeanConnect AS Interoperability Service.

The service packs are described in separate datasheets. "BeanConnect AS Interoperability Check" contains an initial test to secure the interoperability between BeanConnect and the required application server and to fulfil the proprietary properties of the application server. "BeanConnect AS Interoperability Service" is a one-year-service-package to complement the standard service of BeanConnect for the use of BeanConnect with the requested Java EE application server.

[1] Different licenses for processor cores and virtualized cores.
[2] Different licenses for use in a VM.

Technical details

Technical requirements Hardware

General

The hardware which is compatible to the operating system versions listed below is supported. The BeanConnect components Resource Adapter, Proxy, Management Console and the BeanConnect Tools may run on one system or may be distributed to more systems. The functionality of BeanConnect remains unchanged when different operating systems or operating system versions are coupled.

Resources required:
CPU for BeanConnect Proxy: at least 450 MHz; recommended at least 1 GHz.
For resource requirements see release notice.

Technical requirements Software

General

The components BeanConnect Resource Adapter and BeanConnect Tools are available for the following operating systems:

-	Linux(SuSE)	64 Bit	as of SLES 11.4
-	Linux(RedHat)	64 Bit	as of RHEL 7.2
-	Windows	64 Bit	as of Windows 10
-	Windows Server	64 Bit	as of Windows Server 2016
-	other platforms on request.		

Note: For outbound communication with the UPIC protocol the BeanConnect Proxy and the BeanConnect Management Console are not needed.

The components BeanConnect Proxy and BeanConnect Management Console are available for the following operating systems:

-	Linux(SuSE)	64 Bit	as of SLES 11.4
-	Linux(RedHat)	64 Bit	as of RHEL 7.2
-	Windows	64 Bit	as of Windows 10
-	Windows Server	64 Bit	as of Windows Server 2016
	other platforms on request.		

BeanConnect V7.0 requires JDK 1.8.0.

BeanConnect V7.0 supports all application servers. The configuration must be verified by means of an interoperability check.

The BeanConnect Proxy also requires:

PCMX:
The necessary PCMX versions

- PCMX(Linux x86) 6.0B30
- PCMX(Windows) 5.0B20

are included on the DVD and must be installed.
They may only be used with the Proxy application of BeanConnect V7.0.

openUTM:
A required openUTM version for use with BeanConnect Proxy is included on the DVD and must be installed. It may only be used with the Proxy application of BeanConnect V7.0.

openUTM-LU62 Gateway:
An appropriate openUTM-LU62 version for use with BeanConnect Proxy is included on the DVD and must be installed. It may only be used with BeanConnect V7.0.

The BeanConnect Management Console also needs:
Jython:
If you want to use the command line interface of the management console, you must provide the product Jython. Link for Download: http://www.jython.org/download.

Cobol2Java additionally needs:
Cobol2XML: The software prerequisites of Cobol2000 V1.5 apply for the BS2000 tool Cobol2XML which is included in scope of delivery. For details see the Release Notice of Cobol2000 V1.5.

Enterprise Information System (EIS) openUTM:

- openUTM as of V6.5 (all platforms)
- Under BS2000 openUTM-D is also required for transactional communication.
- openUTM Client (UPIC) from V6.5, on all platforms

Enterprise Information System (EIS) CICS:

CICS on z/OS:	z/OS as of V1.9 CICS as of V3.2

Additional required software for interconnection with CICS:

- Linux:
  IBM Communications Server for Linux, as of V6.2
- Windows:
  IBM Communications Server for Windows, as of V6.4

Note: The Communications Server is not part of the BeanConnect V7.0 delivery.

The following connection options are also supported:
Enterprise Extender and Ethernet (LLC2).

openUTM JConnect V7.0:
openUTM JConnect is available for the following operating systems:

-	Linux(SuSE)	64 Bit	as of SLES 11.4
-	Linux(RedHat)	64 Bit	as of RHEL 7.2
-	Windows	64 Bit	as of Windows 10
-	Windows Server	64 Bit	as of Windows Server 2016

openUTM-JConnect requires JDK 1.8.0

User interface

Language	English, German, custom

Installation

Installation	By the users themselves using the description in the manual
Implementation language	Java and C

Documentation

Documentation	The documentation is available online at https://bs2manuals.ts.fujitsu.com/index

Demands on the user

Demands on the user	General Knowledge of Unix /Linux /Windows Operating Systems to produce application programs Knowledge of NFS in case of cluster processing Knowledge of KDCS /XATMI /CPI-C /TX interfaces Knowledge of Data Base Systems Knowledge of the programming language Java and general knowledge of Java EE application server

Training

Training	Courses on the programming language Java and on Java EE application servers are recommended. Workshops about BeanConnect are offered by Fujitsu, see https://fujitsu.docebosaas.com/customer

Ordering and delivery

Purchasing	The software product can be obtained from your local Fujitsu region.

Contact

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