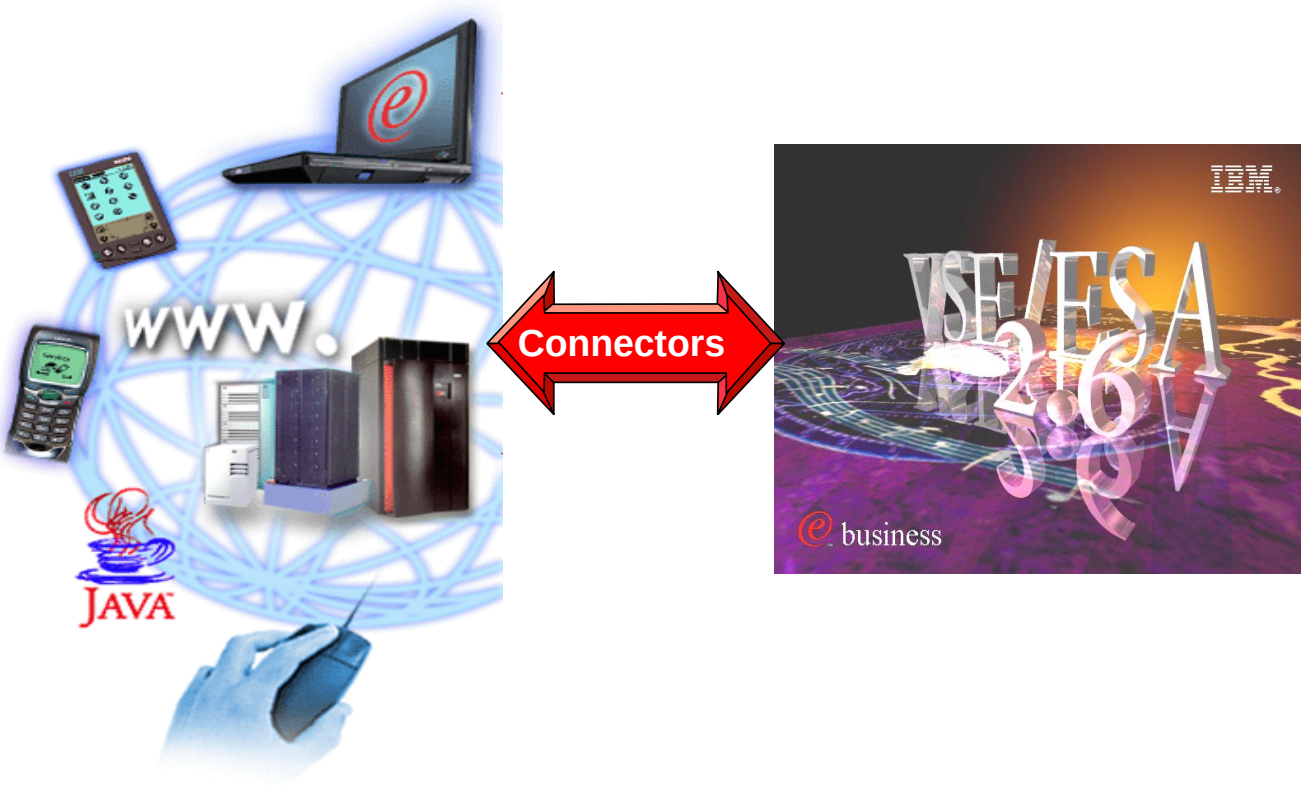
VSE/ESA
e-business Connectors
Lab

z/VM, VSE, and Linux on zSeries Tech Conference
Miami Beach - Oct 7 - 10th



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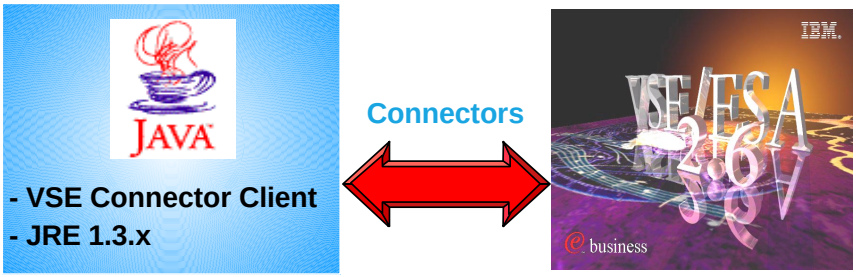
VSE/ESA 2.6
e-business Connectors

Real time access to various VSE resources is implemented using Connector technologies to embed the VSE/ESA services. These implementations are needed by today's heterogeneous IT environments. The Connector technology implements a software component on the remote system and an access component on the VSE/ESA host.



The VSE e-business Connectors included in VSE/ESA 2.6 are platform independent because the remote software component is written in Java. These e-business Connectors are fully compatible with WebSphere technologies, and provide real time access to:

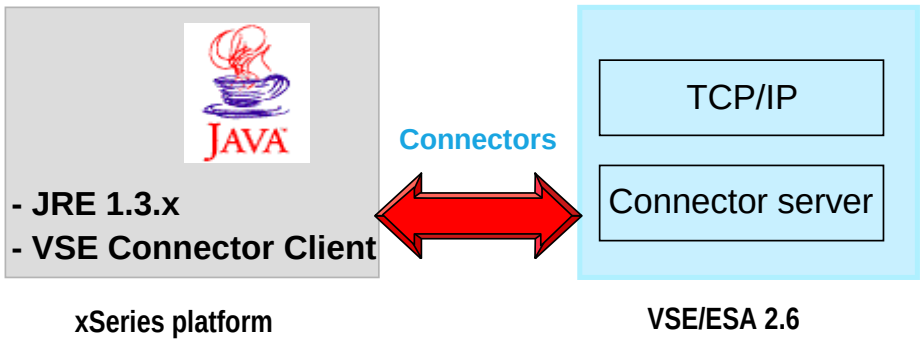
- VSAM
- Power queues
- Librarian
- Console
- ICCF

In Addition to the functions of these Connectors, the VSE/ESA applications can:

- Transparently access remote data
- Synchronize different data stores
- Use the Virtual Tape support delivered with VSE/ESA 2.6

By using Java technologies these Connectors enable the integration of VSE data into distributed processes and Web transactions in a heterogeneous environment and exploit the advanced functions of the IBM WebSphere Application Server.

Setup Connector Server on VSE



Setup correct TCP/IP system ID for VSE Connector server on VSE/ESA

✓ TCP/IP for VSE/ESA has been started with a **system ID** (default is **00**), specification in TCP/IP startup Job:

// EXEC IPNET,SIZE=IPNET,**PARM='ID=00'**,INIT=.....

✓ To use the TCP/IP services from another partition (i.e. Connector Server) this partition has to 'know' the system ID. This is specified as follows:

// OPTION SYSPARM='**nn**' - where **nn** is the system ID.

★ **Recommendation**: use a copy of the skeleton SKVCSSTJ in ICCF lib 59 which is the startup job of VSE Connector server, to adjust this statement.

Start connector server

r rdr,STARTVCS

Steps for installation on a workstation

STEP1:

Insert your Lab CD-ROM in the CD Drive.
If the Autostart function is enabled in your PC a Browser will be opened with a copy of the **VSE/ESA Home Page**, section:

Service and support

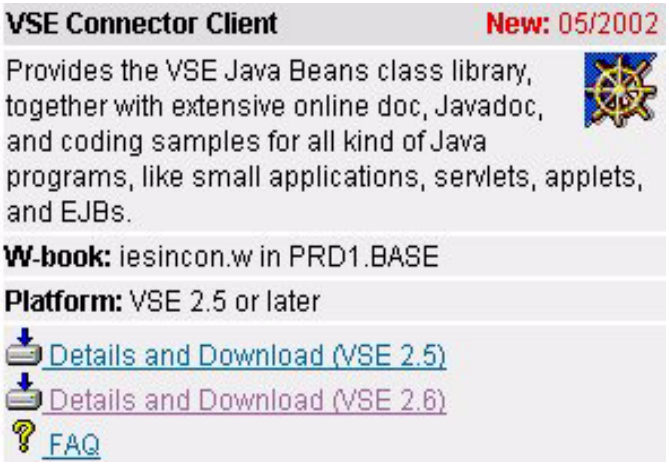
(In the main directory on the CD you can open it with a double click on *IBM VSE/ESA Support.htm*)

Click on the link:

VSE e-business Connectors

The page you see contains the VSE Connector Client and the tools that can be downloaded for free.

In the upper left corner you see the **VSE Connector Client** which represents the remote component of the e-business Connectors.



Click on:

Details and Download (VSE2.6)

The page explains the most important functions of the VSE Connector Client, which is the Java part of the VSE e-business Connectors.

Steps for installation on a workstation (2)

STEP2:

To install the Connectors, a Java Virtual Machine must be installed on your PC.

- To just run Java programs, the JRE 1.3.x is needed (Java Runtime Environment),
- to develop/compile Java programs, JDK 1.3.x is needed (Java Developer Kit, which includes the JRE).

To verify if a Java Virtual Machine is installed, open a command prompt (DOS Window) and hit command:

Java -version

You should see something like:

Java version "1.3.1"
Java(TM) 2 Runtime Environment, Standard Edition

If the messages above are shown go to *STEP4*.

STEP3

If following message is shown:
'Java' is not recognized as an internal or external command, operable program or batch file.

- > your system has no Java virtual machine (Runtime Environment) installed

To install a Java Virtual machine on the PC do:
On the same HTML page (*Service and Support -> VSE e-business Connectors*):
VSE Connector Client -> Details and Download (VSE2.6)
in section: **Installation**
is a link were you can download the Java Developer Kit from IBM.
http://www.ibm.com/java/jdk/download/index.html
or you can download it via the Homepage www.sun.com
Install the downloaded JDK 1.3.x. and reboot the workstation.

Steps for installation on a workstation (3)

STEP4:

With Java installed, navigate on **VSE Connector Client -> Details and Download (VSE2.6)** to:

Download latest Code

and click on: **vsecon261.zip**

The download process will be started. You will be prompted to specify where to save the code. *Save it in a place you remember later on*.

After the code is *downloaded it must be unzipped* and will have the name:

install.class

Note: The VSE Connector client is also shipped and installed with the VSE base product in Library PRD1.BASE as member *iesincon.w*
You can download it from there in binary format and rename it to *install.class* But the newest level will always be on the Internet.

STEP5:

To install the VSE Connector Client, open a *Command promt* (DOS window) and change current directory to the one where *install.class* resides.

Hit command:

Java install

This will guide you trough the installation process of the VSE Connector client. The VSE connector client consists of:

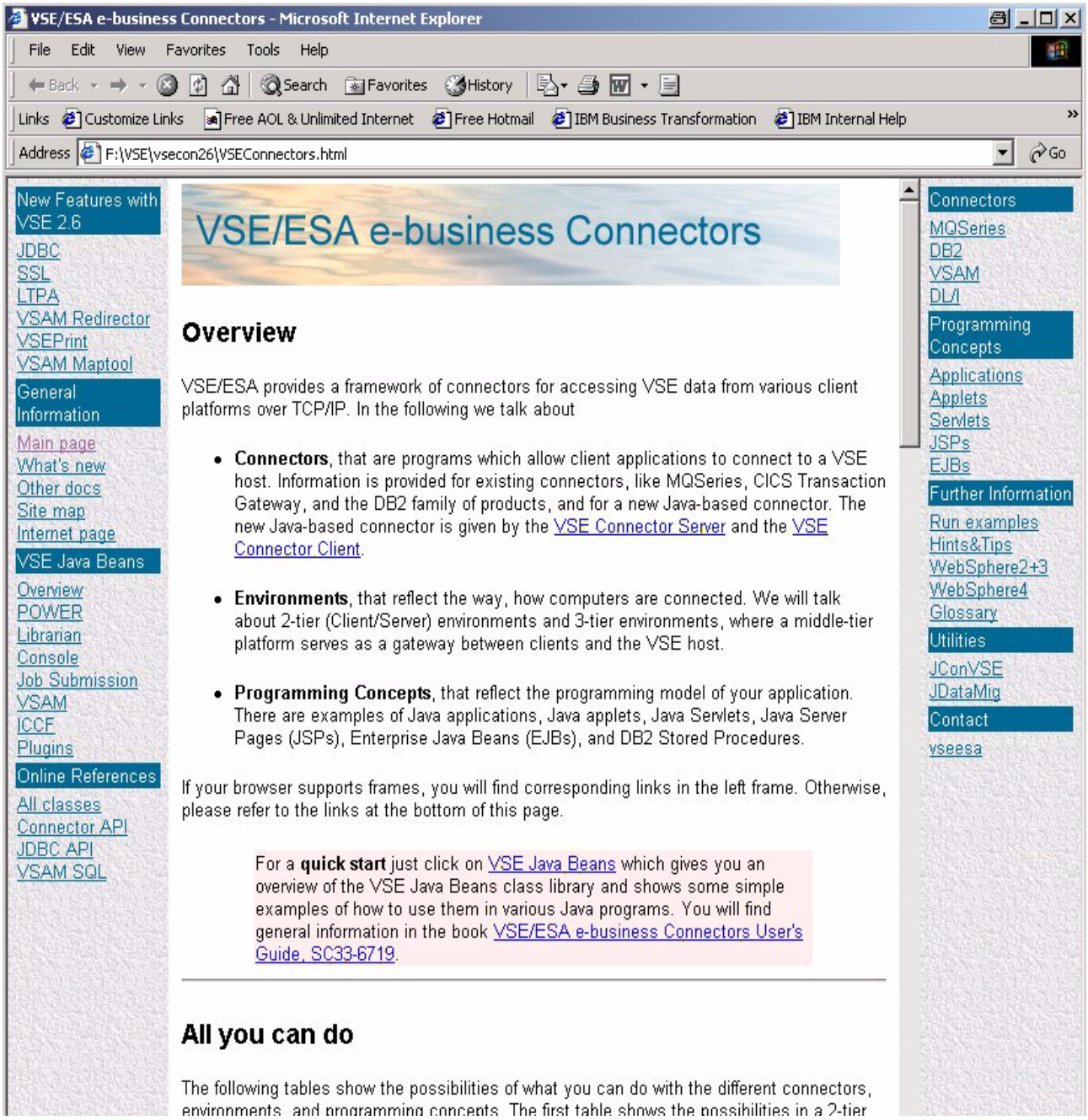
- a Java class library (Java Beans) - Connector functions
- a detailed HTML documentation about the functions and possibilities
- concepts for development, deployment and implementation
- a lot of commented samples
- a lot of ready to run samples

Verify installation of Connector Client

STEP6:

To verify that the VSE Connector Client is installed properly, open the VSE Connector Client HTML Documentation.
(For Windows:
START -> Programs -> VSE Connector -> VSE Connectors.html)

The Main HTML page will be opened.



Run Samples

STEP7: Verify that VSE Connector Client is installed

To verify that the VSE e-business Connectors are properly installed we will run a sample.
Make sure you know the IP address of the VSE system, the userid and password to use. Make sure the VSE Connector server is started on VSE. To see how to start VSE Connector server see *Setup Connector Server on VSE at the beginning of this presentation.*
From the main HTML page VSE Connectors, (see STEP6)
Click:
Run Examples in the right frame under **Further Information**.

Navigate to **Librarian Example** and click:

Run Librarian API example

for the platform your workstation is running on:

For Windows user a Command promt window (DOS Window) will be opened and you will be prompted for the needed information like VSE IP address, user and password, and the sample will return a list of libraries in the system.

Similar, the other samples in this section can be run natively.

To see how the just executed program looks, on the main Connector Client HTML page click on
Applications in section **Programming Concepts** in right frame.
Click on **Examples -> How to work with Power queues**

The commented source code explains the functionality of this program.
The link **PowerApiExample.java** shows the entire source code of the executed program.

In next steps we will then try to modify a sample.

Run Samples (2)

STEP8: execute Java program VsamDisplayExample

All samples are stored on your PC in the folder: <*vsecon*>*samples*
The Java source code is in: <*vsecon*>*samples**com**ibm**vse**samples*

We will work with VsamDisplayExample.java

Make sure you know the IP address of the VSE system
userid and password.
The program uses a VSAM file and via a MAP you will see the VSAM Data.
The Map FLIGHTS_MAP contains the fields:

Offset	Length	Type	Key	Field Name	Description
0	4	UNSIGNED	yes	FLIGHT_NUMBER	Flight Number
4	20	STRING	no	START	Start
24	20	STRING	no	DESTINATION	Destination
44	5	STRING	no	DEPARTURE	Departure (hh:mm)
49	5	STRING	no	ARRIVAL	Arrival (hh:mm)
54	4	UNSIGNED	no	SEATS	Seats
58	4	UNSIGNED	no	RESERVED	Seats reserved
62	4	PACKED	no	PRICE	Price
66	20	STRING	no	AIRLINE	Airline

First, run the program.

execute: <vsecon>\samples\VsamDisplayExample.bat

Did you get errors ?

Next Step will help you to correct them.

Run Samples of Java-Based Connector (3)

STEP9: Modify Java program VsamDisplayExample

Exercise: The name of the VSAM file must be modified.

The source program is in <vsecon>\samples\com\ibm\vse\samples

- Edit Java program VsamDisplayExample.java (with Notepad) and change the cluster name:

  FLIGHT.ORDERING.FLIGHTS

  to **FLIGHT.ORDERING.FLIGHTS.TEAMxx**

where xx is your group number.

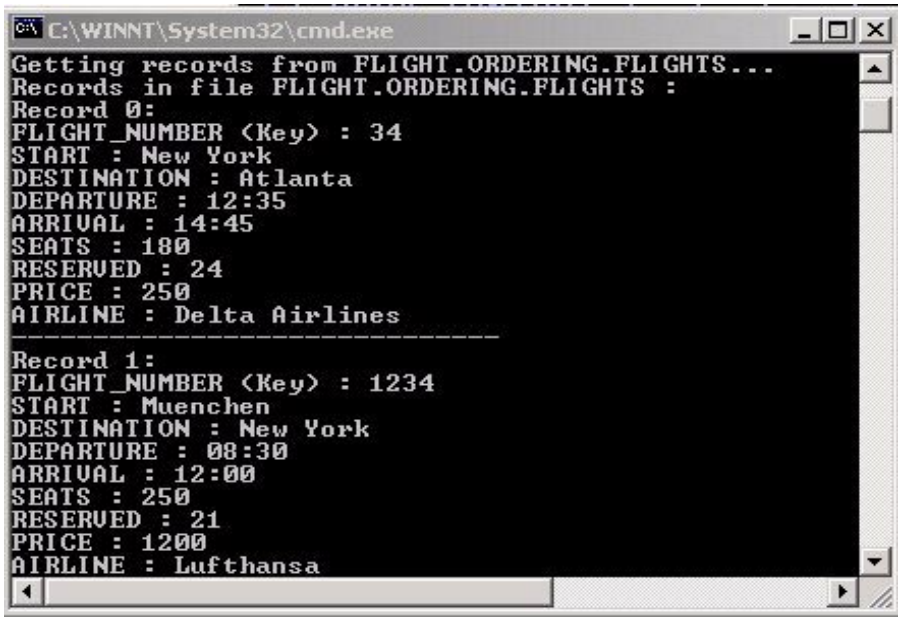
- Save the modified source.
- Compile the changed program

To compile the source open a command prompt (DOS window) and change directory to **<vsecon>\samples**

Hit: **javac com\ibm\vse\samples\VsamDisplayExample.java**

Note: the compile must be done from the <vsecon>\samples directory because all samples belong to the Java package com.ibm.vse.samples

If the compile returns no errors, execute again (in Windows) <vsecon>\samples\VsamDisplayExample.bat



Try to modify the program to retrieve a specific record only.

Graphical interface to VSE/ESA, VSE Navigator

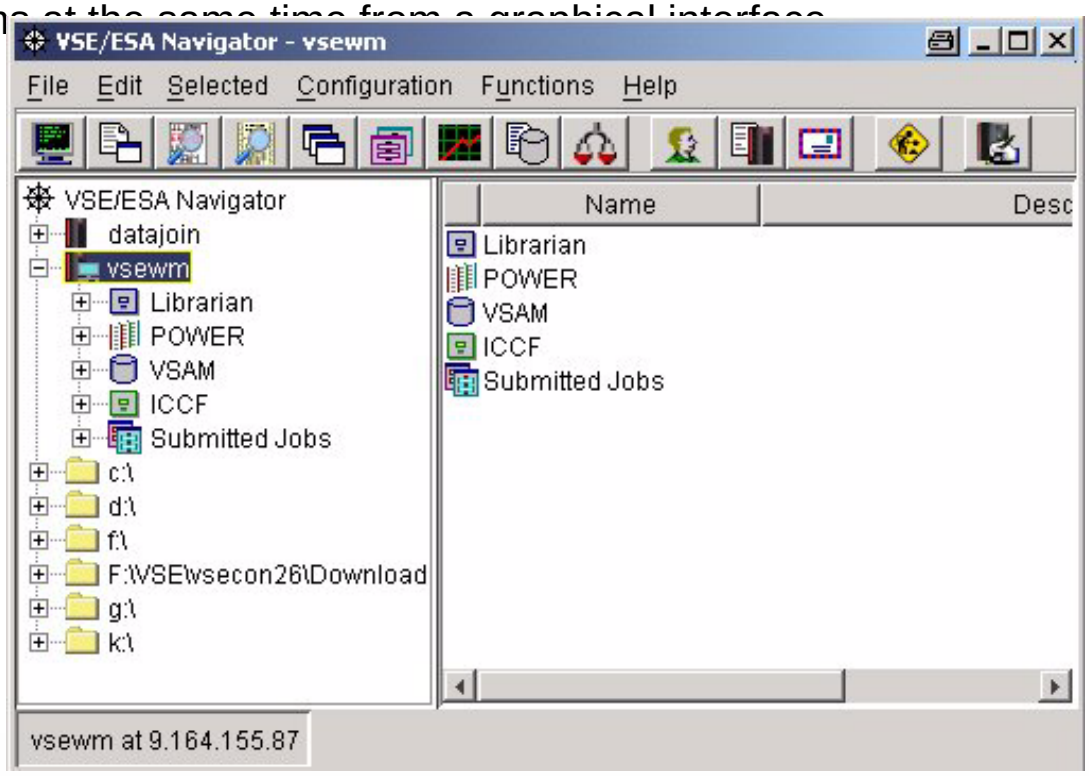
A wide range of functions of the VSE e-business Connectors, are incorporated in the VSE Navigator.
Via this graphical interface, VSE resources can be accessed and manipulated.

There are also other tools free downloadable from the VSE Home page.
(**Service and Support -> VSE Connectors**)
You can download the VSE Navigator in similar way from your Lab-CD.

Save the downloaded file and unzip it. You'll have an **install.class**
To run the Navigator, the Connector client must be installed on your workstation.
Install Navigator in the same directory <vsecon> with VSE Connector client.
Open a Command promt (DOS window) and change directory
to the **install.class** file.

Hit: **Java install**
The installation process will guide you.

After installation you can use the Navigator to work with multiple VSE systems at the same time from a graphical interface.



Graphical interface to VSE/ESA, VSE Navigator

- ✓ Start Navigator (run.bat or run.sh)
  In Windows (**START-Programs- VSE Navigator**)
  First start will guide you trough the settings:
  - ✓ Look and feel
  - ✓ Local directories
  - ✓ Local applications (i.e. Browser, file compare tool)

- ✓ setup a host system
  Configuration -> Hosts
  enter Name you'd like to give this VSE in **Description**
  enter the IP address,
  and userid
  and click **SAVE** and then **CLOSE**
  Right click on the Host Icon and then **Connect**
  Enter the *password* and then **OK**.

To look at the same VSAM file you worked with the Java Program, after connecting to the VSE system:

- expand VSAM Folder
- expand **VSESP.USER.CATALOG** folder
- expand the cluster for your group
  (i.e. **FLIGHT.ORDERING.FLIGHTS.TEAMxx**)
- right click on the MAP **FLIGHTS_MAP**
- click: **Display VSAM data**

At this time, you used the same function as with the Java program, with the advantage of the graphical possibilities of VSE Navigator.

Summary

Major Steps to install VSE Connector Client on a workstation

- ✓ install Java Runtime Environment (JRE) or
- ✓ Java Developer Kit (JDK)
  - ✓ free download from SUN or IBM
    - ✓ version 1.3.x

    http://www.ibm.com/java/jdk/download/index.html

- ✓ download VSE Connector client

http://www-1.ibm.com/servers/eserver/zseries/os/vse/support/vseconn/vse26/vsecon.htm

- ✓ install VSE Connector client
  - ✓ at a command prompt hit: Java install

- ✓ download VSE Navigator

http://www-1.ibm.com/servers/eserver/zseries/os/vse/support/vseconn/vse26/vsenavi.htm

- ✓ install VSE Navigator
  - ✓ at a command prompt hit: Java install

Additional Information

- **VSE/ESA Home Page**
  http://www.ibm.com/servers/eserver/zseries/os/vse/

- **e-business Connectors User's Guide SC33-6719**
  http://www-1.ibm.com/servers/eserver/zseries/os/vse/pdf/ieswue10.pdf
  (can be downloaded via the Lab-CD via the VSE e-business Connectors link)

- **e-business connectors tools**
  http://www.ibm.com/servers/eserver/zseries/os/vse/ebus/home.html

Redbooks
International Technical Support Organization

- **e-business Connectivity for VSE/ESA SG24-5950**

- **e-business Solutions for VSE/ESA SG24-5662**

- **Servlet and JSP Programming SG24-5755**

- **Linux Web Hosting with WebSphere, DB2, and Domino SG24-6007**

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Are you ready for e-business?

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