IBM System z – WAVV 2009

z/VSE Tools Overview

Ingo Franzki, IBM

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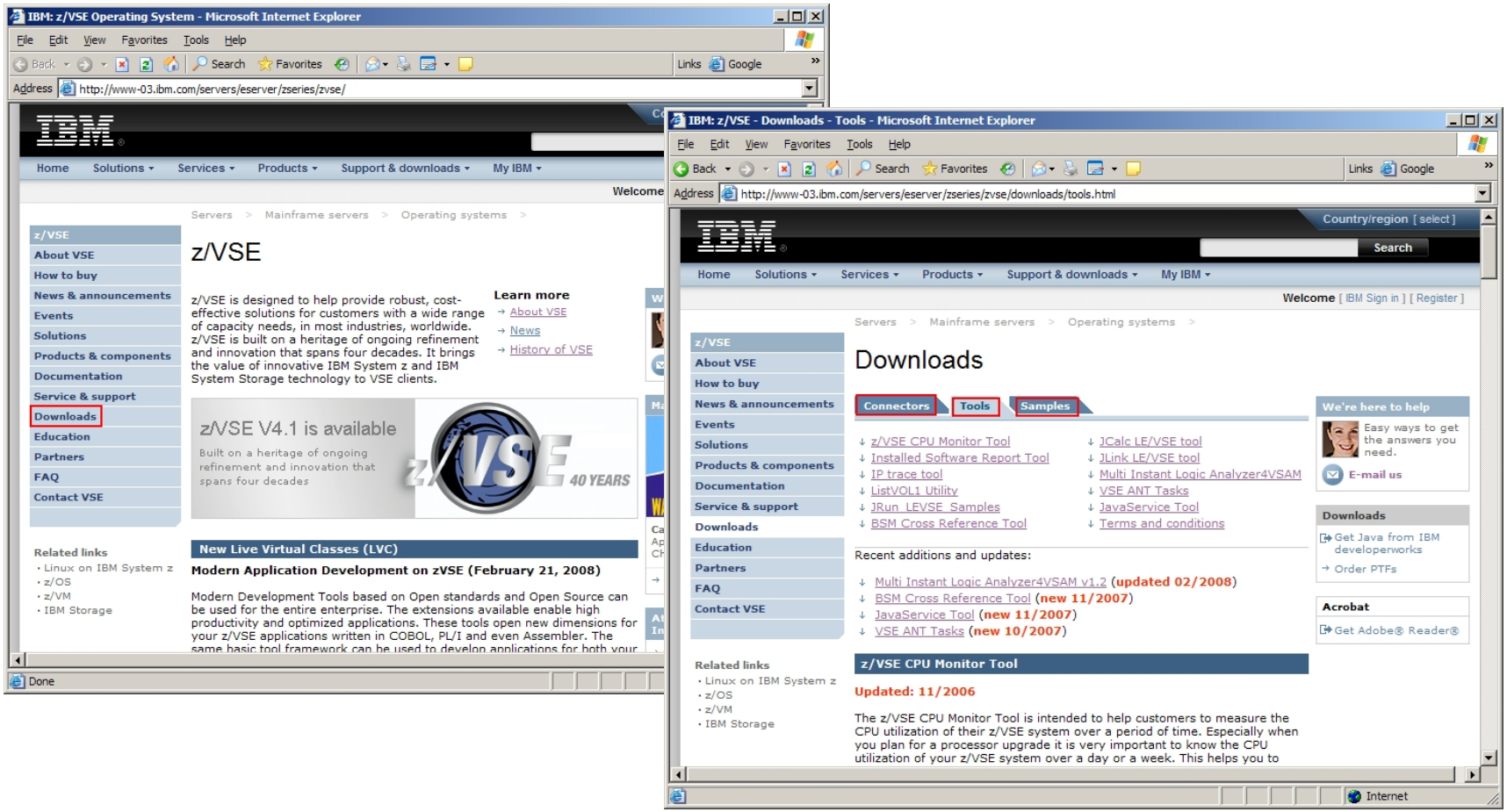
Agenda

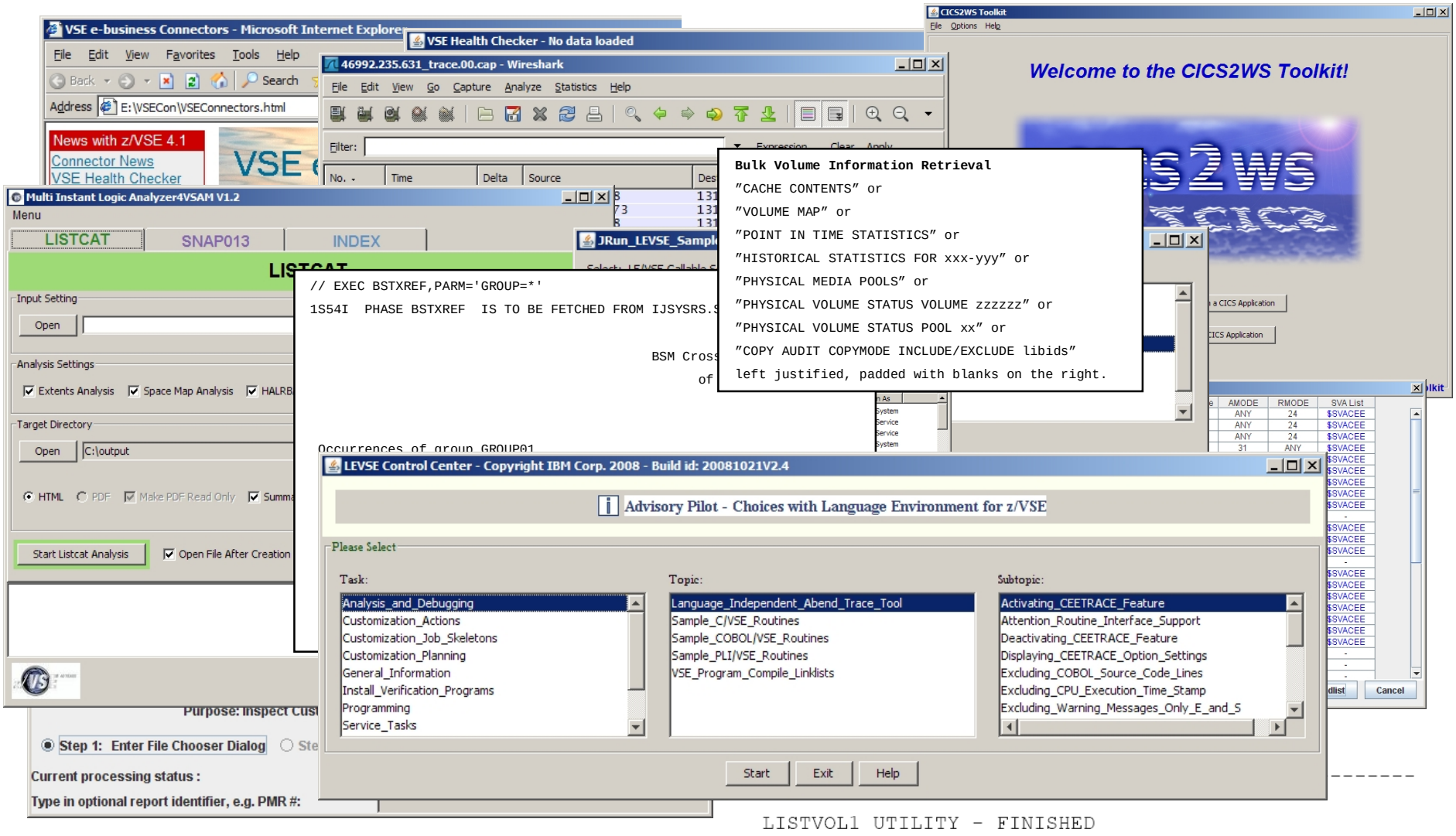
- **The z/VSE web site offers more than 20 tools ('as is', at no additional charge) for download.**
  - The tools are designed make certain z/VSE tasks easier and more interesting.
  - Because of the sheer number of tools, you may have lost track about what tools are provided and what they are for.
  - There may be a tool available that you are not aware of, for a task you need to perform.
- **This session will provide an overview of each the tools that are currently available on the VSE homepage.**
  - For every tool, a short description and usage scenarios will be discussed.

Overview – z/VSE Homepage

http://ibm.com/vse



Overview - All Tools



Overview – Components

- **Connector components (Part of z/VSE)**
  - VSE Connector Client **à** updated with z/VSE V4.2
  - VSAM Redirector Server **à** updated with z/VSE V4.2
  - VSE Script Server **à** updated with z/VSE V4.2
  - VSE Virtual Tape Server **à** updated with z/VSE V4.2

- **Connector Tools**
  - VSE Navigator
  - VSAM Maptool
  - Keyman/VSE
  - VSE Health Checker
  - CICS2WS Toolkit
  - VSE ANT Tasks
  - VSEPrint Utility

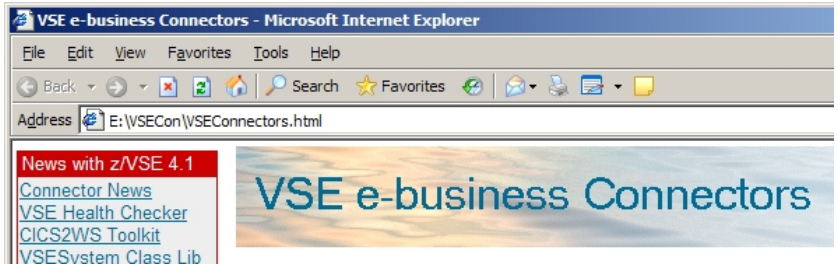
Overview – Components

- **Tools**
  - z/VSE CPU Monitor Tool
  - z/VSE Installed Software Report Tool
  - IP Trace Tool
  - ListVOL1 Utility
  - TS7700 Bulk Volume Information Retrieval Tool
  - Multi Instant Logic Analyzer4VSAM
  - JavaService - Run a Java program as a Windows Service
  - BSM Cross Reference Tool
  - RACROUTE Encapsulation Services **à** New !
  - LE/VSE CEETRACE Tool **à** New !
  - LE/VSE Control Center **à** New !
  - JCalc LE/VSE Tool
  - JLink LE/VSE Tool
  - JRun_LEVSE_Samples

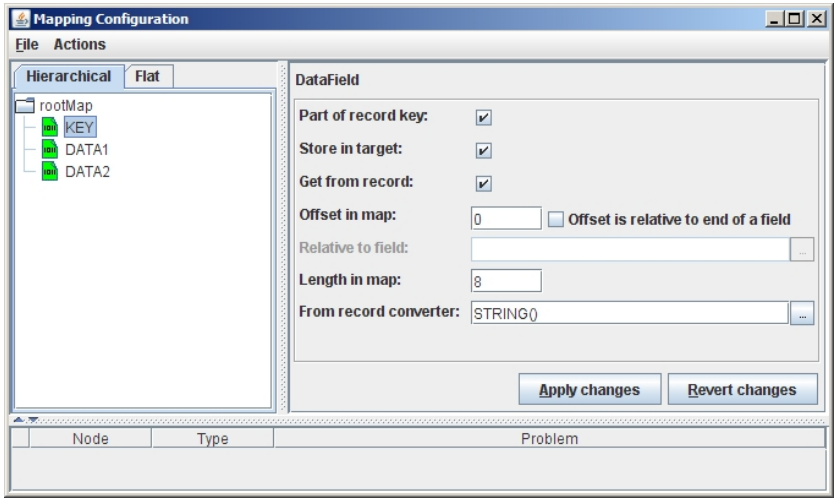
Connector components

- **Part of z/VSE (5686-CF8-35)**
- **Officially supported**

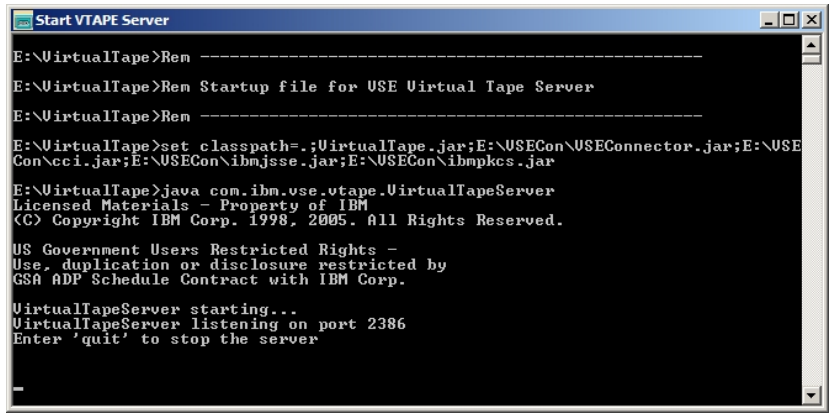
VSE Connector Client



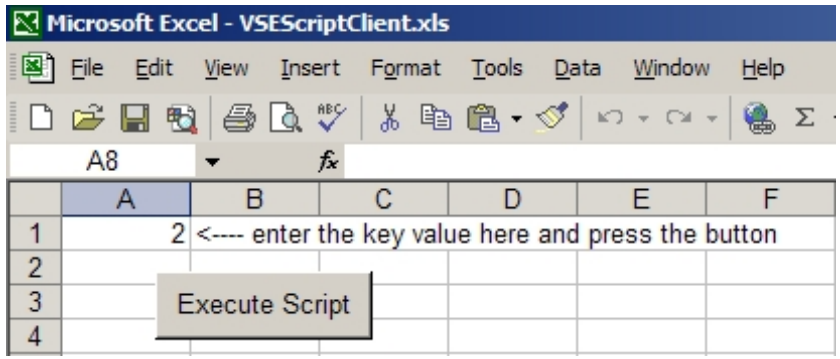
VSAM Redirector Server



VSE Virtual Tape Server

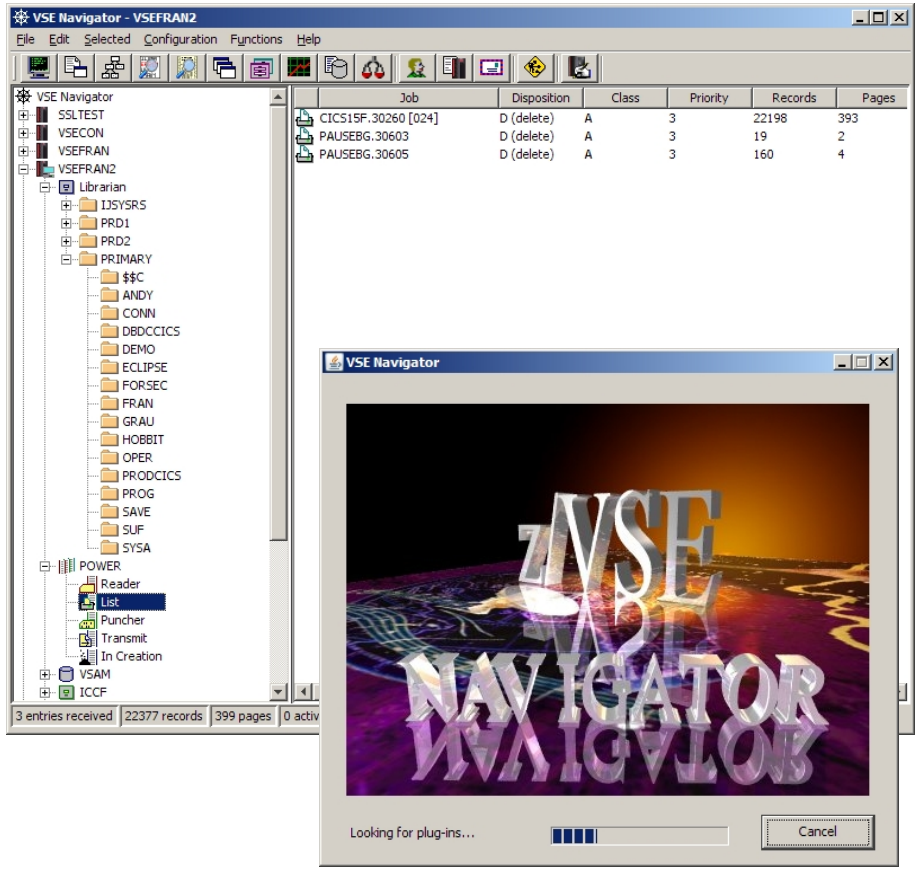


VSAM Script Server



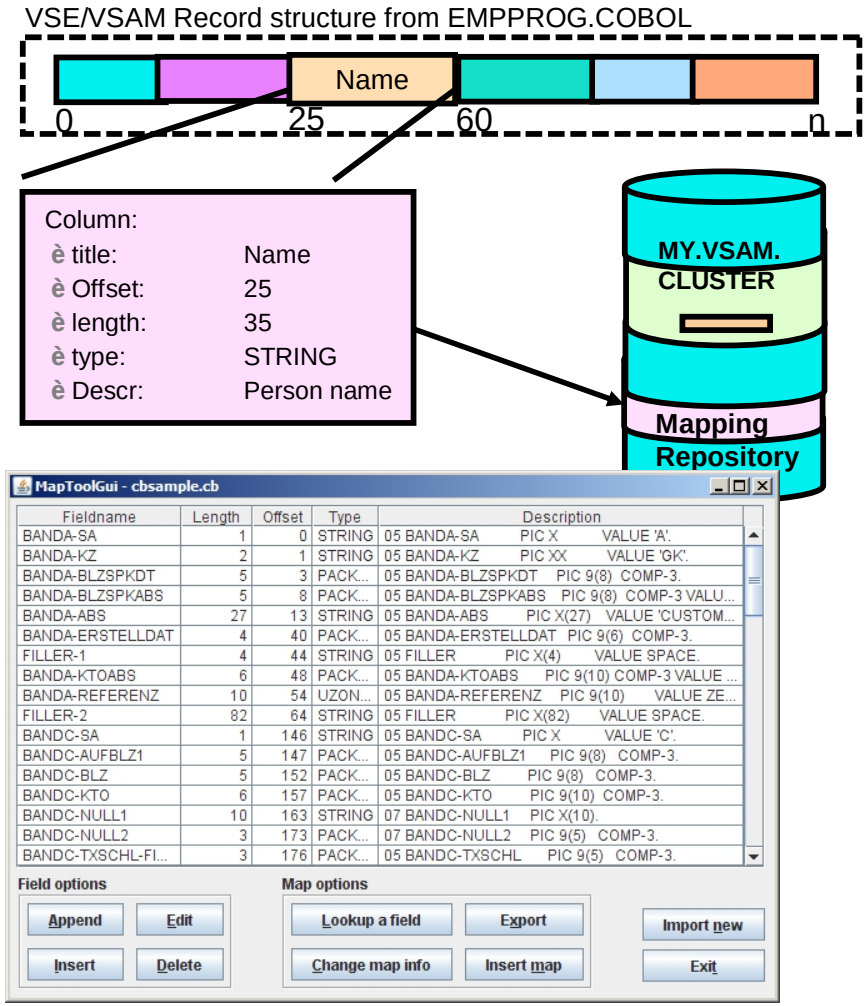
VSE Navigator

- **Graphical user interface for z/VSE**
  - Look and feel similar to Windows Explorer
- **Based on functions provided by VSE Connector Client**
- **Browse VSE libraries, POWER queues, ICCF libraries, VSAM catalogs**
- **Copy members via Drag & Drop**
- **Display and edit members with your favourite editor**
- **Display and change VSAM data**
- **Provides graphical system management functions**
  - System activity,
  - Retrace MSHP history file
  - ... and many more



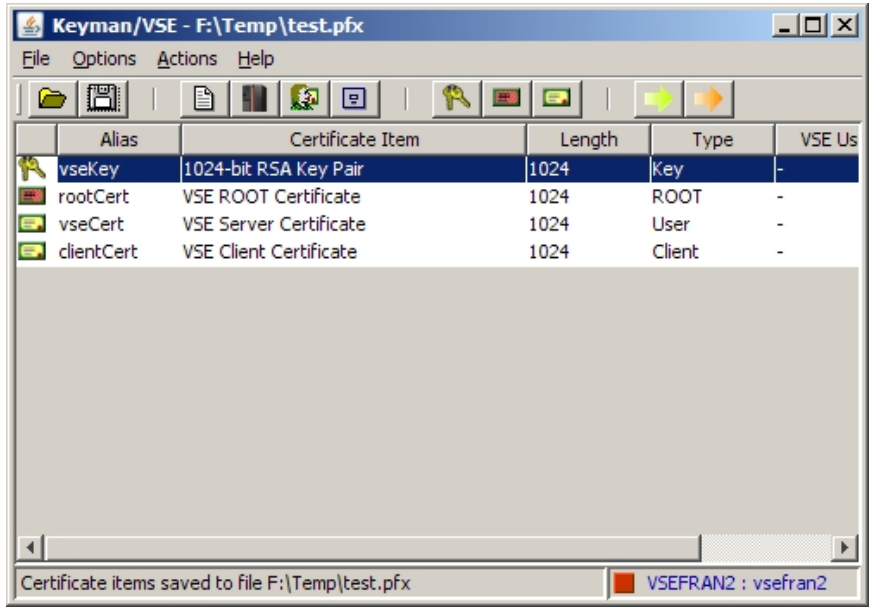
VSAM Maptool

- **Assists you in creating a mapping of your VSAM files**
  - Mapping is used by VSE Connector Client and VSAM Redirector
  - Mapping can also be created using the IDCAMS RECMAP command.
- **Import Cobol ot PLI copybook to create the mapping from it**
- **Import (receive) a given map from a given z/VSE system**
- **Export a map to a VSE system (send it to z/VSE)**
- **Import a map from a XML file**
- **Export a map to a XML file**
- **Create a Java source file from a given map. The Java program can get all records from the related VSAM file via the given map.**



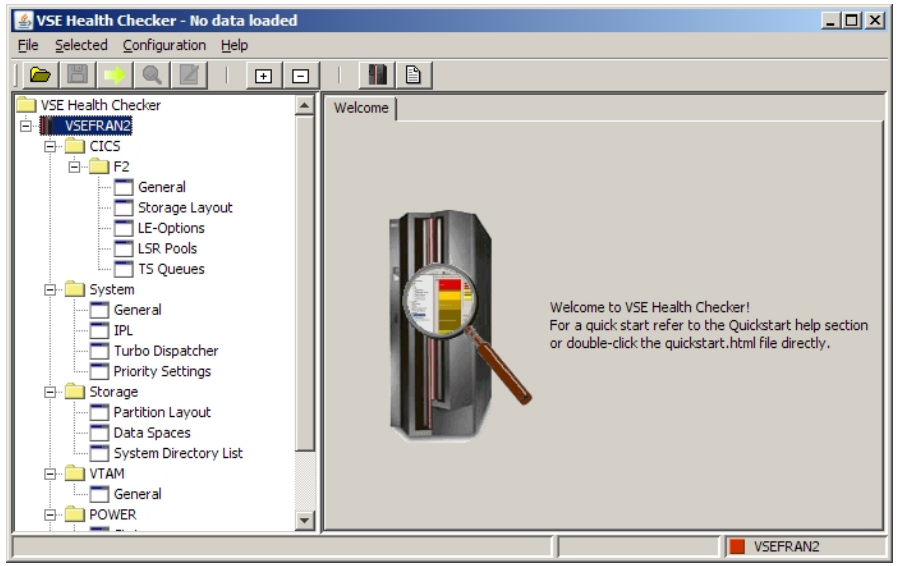
Keyman/VSE

- **Keyman/VSE is a tool to manage the z/VSE specific public key infrastructure.**
- **Create RSA key pairs**
- **Create self-signed certificates for testing and learning purposes**
- **Create PKCS#10 certificate requests**
- **Sign certificate requests**
- **Import and export certificates**
- **Read and write PKCS#12 keyring files**
- **Catalog keys and certificates on VSE**
- **Maintain the mappings of VSE client certificates to VSE user IDs**
- **In addition to these basic functions, Keyman/VSE provides two "Wizard dialogs" for**
  - Creating a complete self-signed VSE keyring including the server side z/VSE library members and a client side keyring file, and
  - Creating a complete z/VSE keyring with certificates issued by an external Certificate Authority, like Thawte.



VSE Health Checker

- **The VSE Health Checker is a Java-based system diagnosis utility**
  - Retrieves, displays, and analyzes performance relevant configuration settings and status information from a z/VSE system.
  - Gathered data can be exported and imported in XML format.
- **A health check is performed by applying a set of rules against a snapshot of retrieved z/VSE data.**
  - A printable report can be generated
- **VSE data is retrieved by sending console commands, submitting VSE/POWER jobs, downloading VSE Librarian members, and invoking CICS transactions.**



CICS2WS Toolkit

- **The CICS2WS Toolkit helps you to use Web Services with z/VSE**
  - Creates proxy code that you use as a layer between your existing programs and the VSE SOAP engine.
  - The proxy code is generated as Assembler program, therefor you do not need a Cobol or PL/I compiler.
- **Web Service enable an existing CICS program:**
  - The tool reads COBOL and PL1 copybooks and creates the proxy code and WSDL file.
- **Call an external Web Service from a CICS program**
  - Reads an WSDL file and creates the proxy code and a copybook for the COMMAREA mapping.

WSDL = Web Service Description Language
Contains all information required to call a particular Web Service.

VSE ANT Tasks

- **Apache ANT is an Java-based Open-Source Build-Tool, similar to Make.**
  - Originally intended for automated build (compile) of Java code
  - ANT provides Java-Classes (Tasks) for automating different things
  - Build-Scripts are formulated in XML
  - Web Page: http://ant.apache.org/
- **z/VSE provides a set of ANT-Tasks to automate VSE specific operations**
  - Submit VSE Jobs
  - Upload & Download members and files
  - Issue console commands and retrieve messages
  - Access VSAM data
- **Allows to automate VSE processes from a central place**

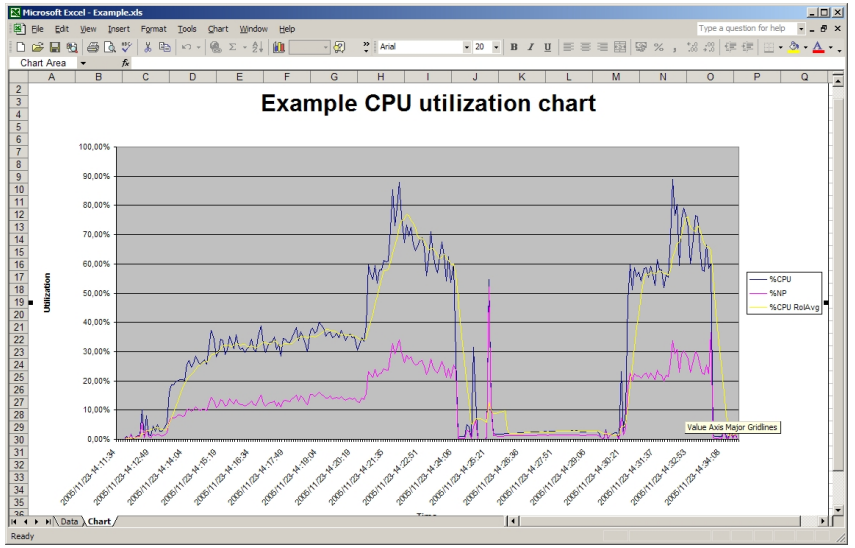

```
<submit jobfile="c:\vsejobs\define_vtape.job"
            waitforoutput="true"
            outfile="c:\vsejobs\output\definetape.txt"
            propertyprefix="definetape.job"
            vsesystem="TESTVSE1"/>

<condition property="definetape.failed">
   <not>
     <equals arg1="${definetape.job.maxrc}"
              arg2="0000"/>
   </not>
 </condition>

 <fail if="definetape.failed"
       message="Define VTAPE failed with
                MAXRC=${definetape.job.maxrc}."/>
```

VSEPrint

- The VSEPrint utility allows you to print VSE/POWER list queue entries on any locally or LAN-attached printer.
- The queue entry can be formatted for proper output by specifying a meta-file which contains instructions for formatting the file.
- The print-file can be previewed on the platform where the LAN-printer is attached.
- On VSE, the TCP/IP command DEFINE EVENT is used to setup a listener for list queue entries which have a given class.
- These queue entries are then sent via AUTOFTP to a platform, where the VSEPrint utility runs.
- The VSEPrint utility then performs all print setup, formatting and optional previewing.

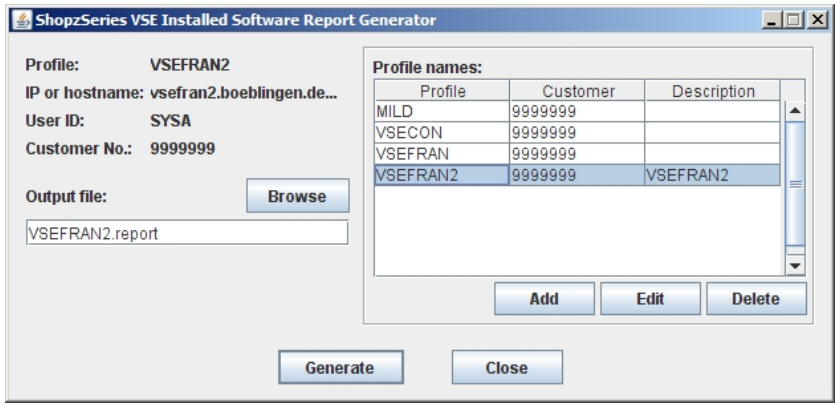
VSE CPU Monitor Tool (CPUMON)

- **Intended to help customers to measure the CPU utilization of their VSE system over a period of time.**
- **When you plan for a processor upgrade it is very important to know the CPU utilization of your VSE system over a day or a week.**
  - Helps you to estimate the size of the new processor.
- **The VSE CPU Monitor Tool is not intended to replace any existing monitoring product provided by partners.**
- **It provides only very basic monitoring capabilities on an overall VSE system level.**
- **No details about CPU usage of certain applications are provided**



z/VSE Installed Software Report Tool

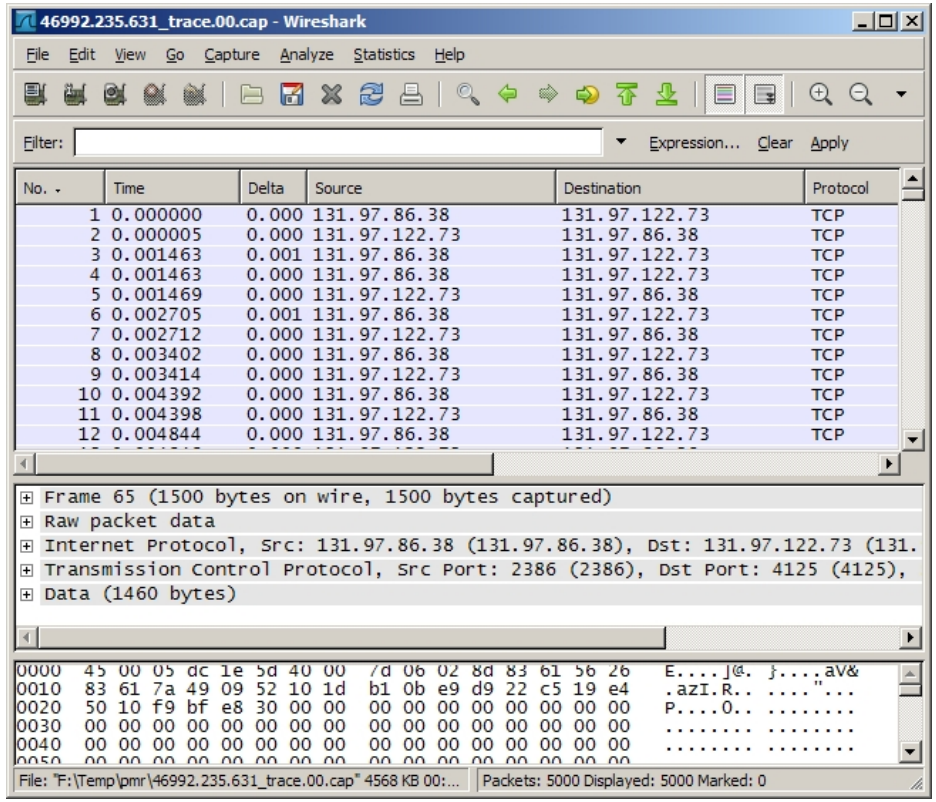
- **This tool is able to generate a z/VSE Installed Software Report as used by IBM ShopzSeries.**
  - http://www.ibm.com/software/shopzseries
- **It connects to z/VSE via FTP and submitts 2 MSHP Jobs**
- **The output is retrived and a servcie bitmap is created**
- **The servcie bitmap (= Installed Software Report) can then be uploaded to ShopzSeries when ordering service for z/VSE.**



- **Note: This tool is officially supported by IBM.**

IP Trace Tool

- **This tool is able to read IP packet traces captured with TCP/IP for VSE and convert it into the CAP trace format**
- **Trace can then be viewed and analyzed with Wireshark (formerly Ethereal) or Packetyzer.**
  - http://www.wireshark.org/
  - http://sourceforge.net/projects/packetyzer/
- **Wireshark provides very powerfull network and protocol analysis functions like**
  - Follow TCP stream
  - Packet flow graph
  - TCP round trip time graph
  - Statistic and performance analysis
  - ... And many more.
- **Supports TCP/IP for VSE 1.5D, 1.5E and 1.5F**



ListVOL1 Utility

- **This tool helps to manage VSE VTAPE images stored in VSAM files**
- **It can display the VOLSER and File-ID of the files stored on the virtual tape without mounting it as VTAPE.**
- **The ListVOL1 utility reads the first 2 tape records of tape image**
  - You can specify multiple VTAPE files
- **It prints the VOLSER and FILE-ID from the VOL1 and HDR1 labels on the tape:**

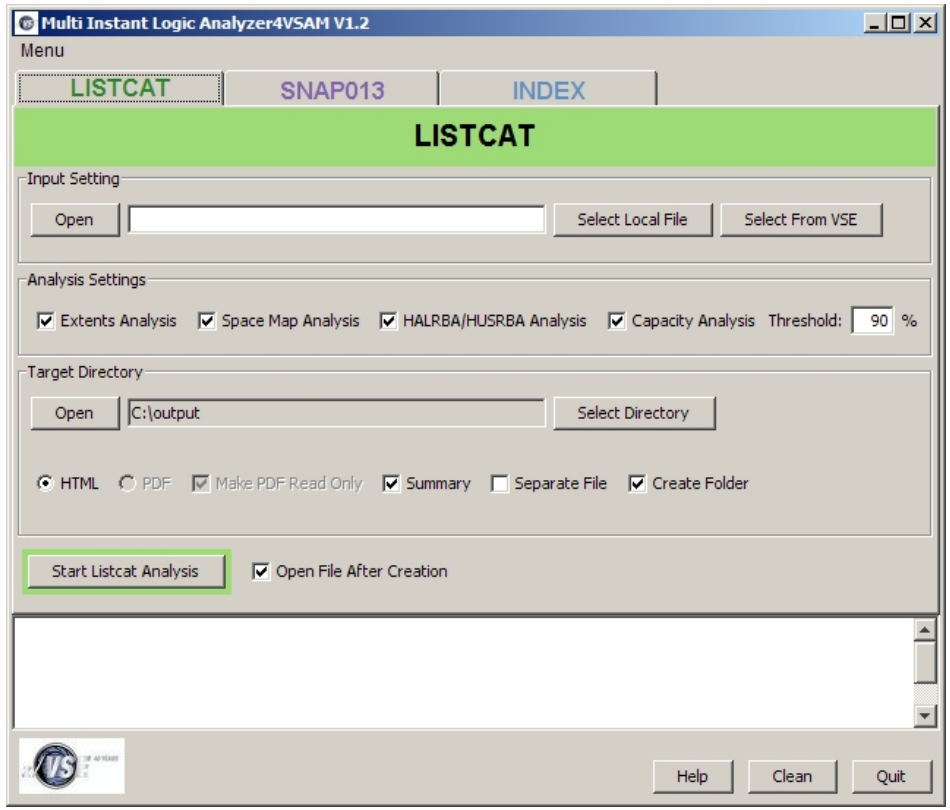
```
LISTVOL1 UTILITY - LIST VOL1/HDR1 LABELS OF VTAPES

FILENAME: VOLSER  FILE-ID
-------------------------------------------------
VTAPE1   : TAPE00  TAPE.DATASET.00
VTAPE2   : PRDDAT  PRODUCTON.DATA
VTAPE3   : BACKUP  MY.BACKUP.FILE
-------------------------------------------------

LISTVOL1 UTILITY - FINISHED
```

TS7700 Bulk Volume Information Retrieval Tool

- **The Bulk Volume Information Retrieval (BVIR) tool is intended to enable customers to obtain information about all of the logical volumes a TS7700 manages**
- **Requests:**
  - `VOLUME STATUS zzzzzz`
  - `CACHE CONTENTS`
  - `VOLUME MAP`
  - `POINT IN TIME STATISTICS`
  - `HISTORICAL STATISTICS FOR xxx-yyy`
  - `PHYSICAL MEDIA POOLS`
  - `PHYSICAL VOLUME STATUS VOLUME zzzzzz`
  - `PHYSICAL VOLUME STATUS POOL xx`
  - `COPY AUDIT COPYMODE INCLUDE/EXCLUDE libids`
- **More information about the different request types and how to read their results, please have a look at the IBM System Storage Virtualization Engine TS7700 Redbook**
  - http://www.redbooks.ibm.com/abstracts/sg247312.html

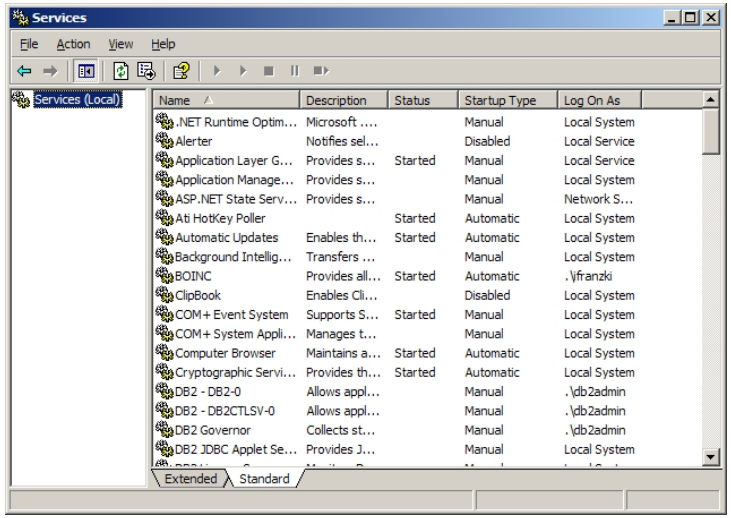
Multi Instant Logic Analyzer4VSAM

- **The Multi Instant Logic Analyzer4VSAM combines several VSAM analysis tools:**
  - Extent analysis
  - Space map analysis
  - HALRBA/HUSRBA analysis
  - Capacity analysis
  - The SNAP013 analysis:
    - Extracts Snap013 trace tables from a given hex dump.
  - INDEX analysis tool:
    - Error analysis
    - Index component capacity analysis providing reorganization indicator



JavaService - Run a Java program as a Windows Service

- **IBM provides several server applications for use with z/VSE that are implemented in Java:**
  - VSAM Redirector Server
  - VSE VTAPE Server
  - VSE Script Server
- **You may wish to run such a server on an unattended Windows system.**
  - Even if no user is signed-on



- **The JavaService tool allows running a Java application as a Windows service in the background.**
- **It acts as a wrapper in-between the Windows Service Control Manager and the Java Program.**

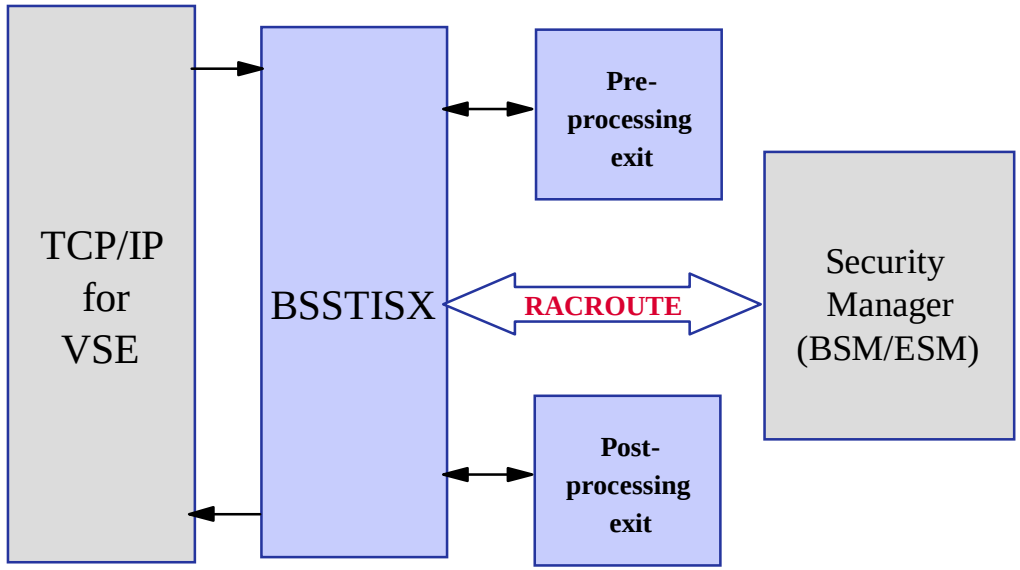
BSM Cross Reference Tool

- **The z/VSE BSM Cross Reference Tool is intended to help administrators control the profile definitions in the BSM control file.**
- **Example:**
  - When you delete a user ID, you can use it to ensure that you have removed the user ID from all access lists and groups.
- **The following functions are provided:**
  - List all groups and resource profiles which contain a specified user ID.
  - List all resource profiles where a specified group is on the access list.
  - List all user IDs found in the BSM control file but is not defined in the VSE control file.
  - List all resource profiles that allow any user to access a resource (UACC not NONE).

```
// EXEC BSTXREF,PARM='GROUP=*'
1S54I  PHASE BSTXREF  IS TO BE FETCHED FROM IJSYSRS.SYSLIB

                                          BSM Cross Reference Report
                                                of All Groups


 Occurrences of group GROUP01

 Group description TRANSEC CLASS MIGRAT
 Connect group for user $SRV
 Connect group for user CICSUSER
 Connect group for user OPER
 Connect group for user PROG
 Update authority in access list of profile FACILITY DFHRCF.BRSLPU
 Update authority in access list of profile FACILITY DFHRCF.BRSL01
```

RACROUTE encapsulation services for TCP/IP

- **The IBM-provided TCP/IP security exit BSSTISX supports a pre- and post-processing interface**
  - These interfaces are solely intended to be used by customers to add self-written security checks
- **In particular when it is used to exploit the security definitions of the security manager, e.g. special profiles of the resource class FACILITY, normally one has to use the RACROUTE macro interface**
  - However, coding of RACROUTE requests can be very complex
- **Therefore these services were provided with BSSTXRRS to encapsulate the three basic RACROUTE requests:**
  - sign on
  - sign off
  - authorization checking for resource access.

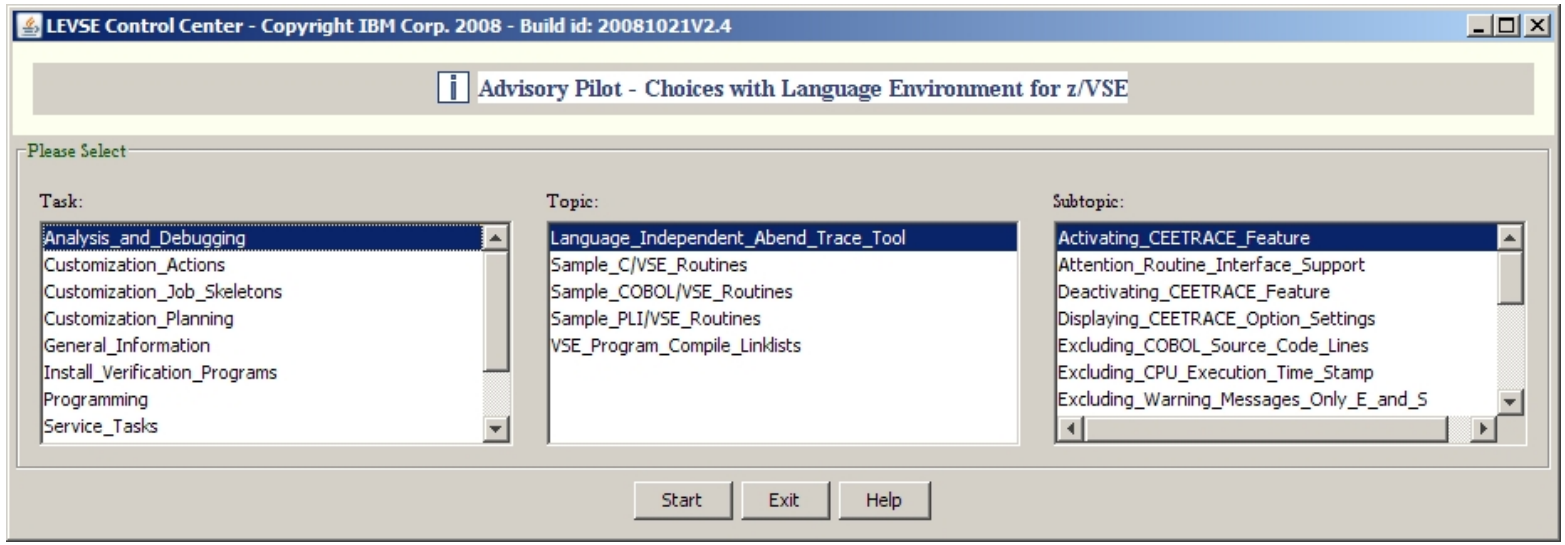


LE/VSE CEETRACE Feature

- **CEETRACE is designed to complement the already available LE z/VSE dump information to aid in application problem analysis**
  - by providing an execution statement history prior to any subsequent application failure
  - similar to the previously available READY TRACE facility of DOS/VS COBOL
- **Applications that do not abend will not automatically produce an execution statement report.**
- **CEETRACE is not intended to replace the LE z/VSE dump information or the Debug Tool for VSE/ESA**

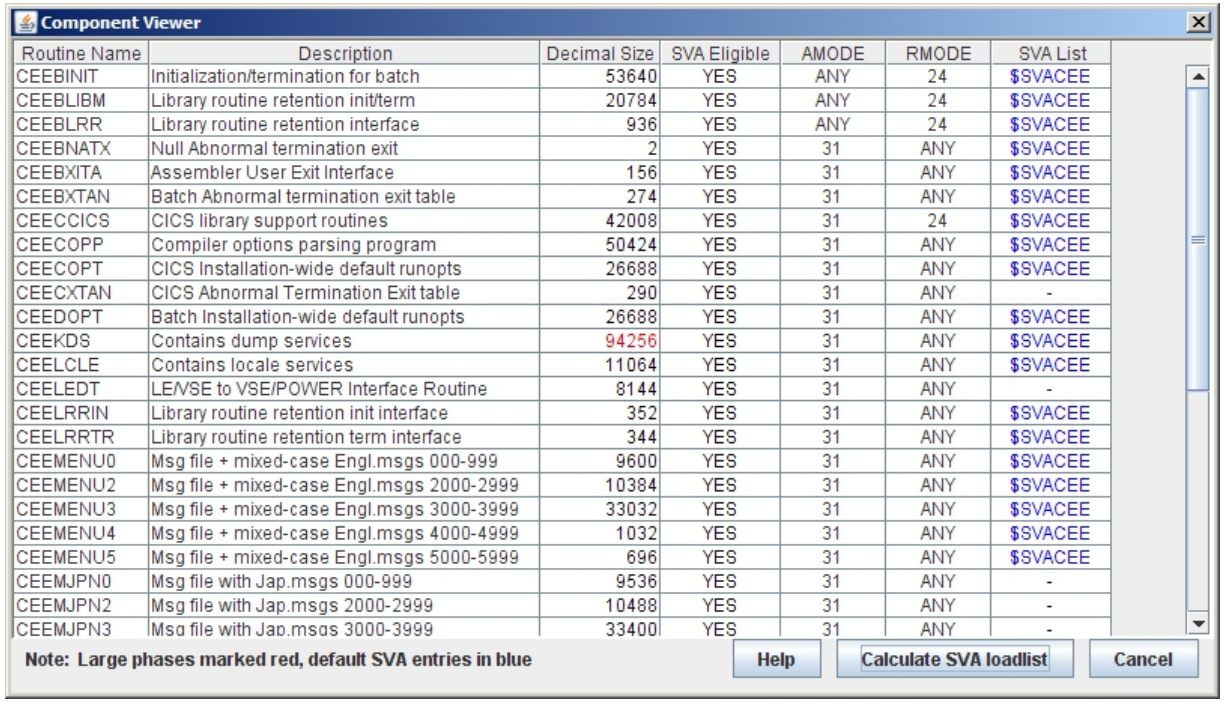
LE/VSE Control Center

- **The LE/VSE Control Center is a Java based tool for easy access to z/VSE language resources.**
  - It follows an integrated approach to understand, plan and perform common language tasks and is comparably intended for new or experienced VSE users.
  - It offers various tools and usage options for language planning-, customization-, diagnostics-, environmental verification- and programming purposes including status and service reports.



JCalc LE/VSE Tool

- **This tool is able to calculate and provide an online view of SVA-eligible Language Environment for VSE**
- **It also takes into consideration whether default-, recommended- and/or optional LE/VSE supplied SVA-loadlists are intended to be used.**

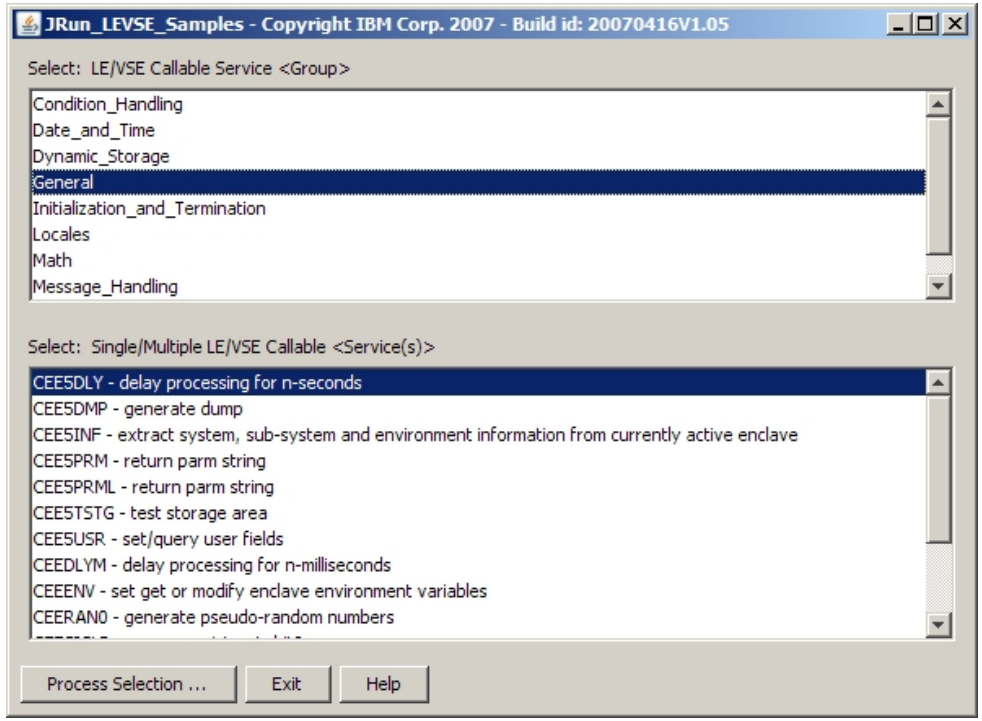


JLink LE/VSE Tool

- **Coping with Language Environment for VSE run-time problems often is a complex task**
  - It requires analysis of the failing application and environment.
- **A useful approach is to cross-check program compile/link lists (e.g in regard to languages, interfaces, products, options, stubs involved).**
- **This tool validates VSE compile/link list(s) to judge whether or not a run-time problem might be related to the way the application is built.**
  - The tool has initially been developed to help IBM support people to analyze LE related problems.
  - It is now also available to customers.

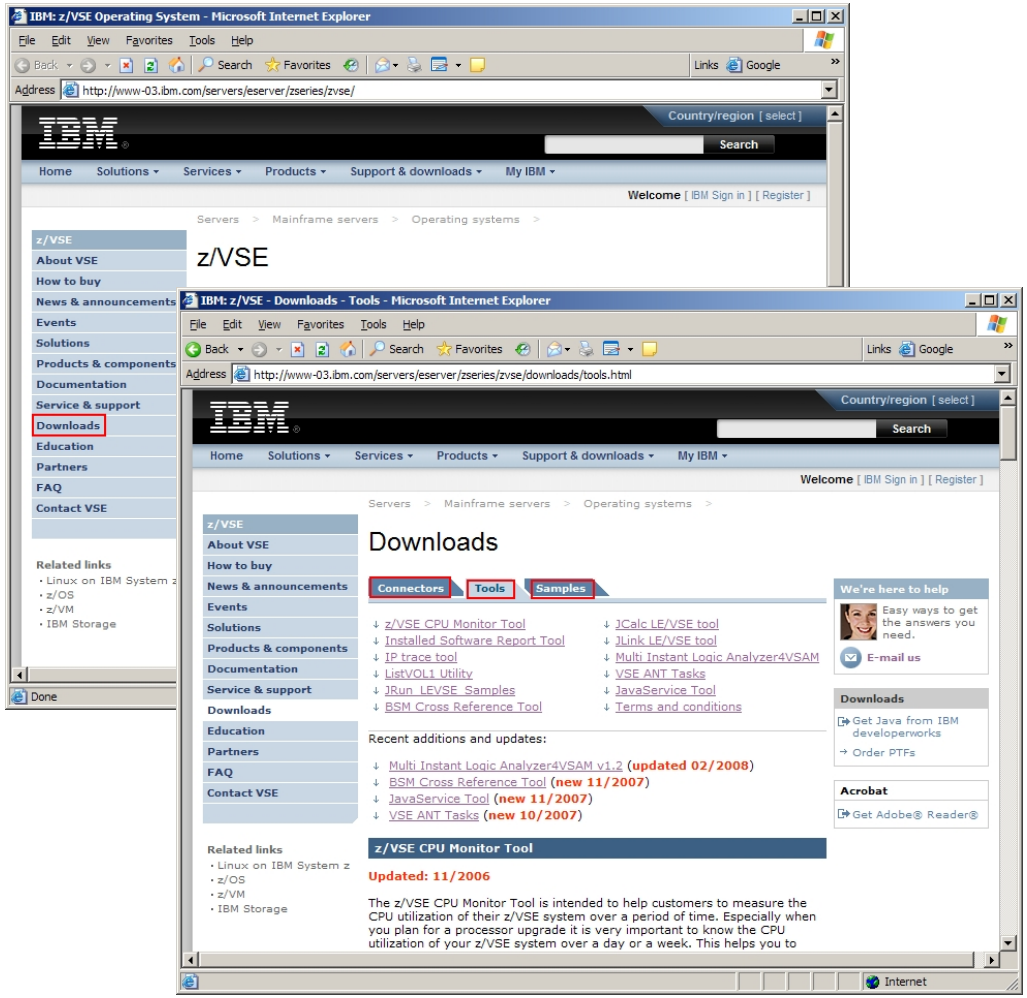
JRun_LEVSE_Samples

- **This tool provides an integrated front-end to download and try out IBM provided LE/VSE sample source programs**
  - Supports samples written in the COBOL, PL/I and C programming language.
  - LE/VSE callable services which can be coded cross programming language.
- **The following samples are covered:**
  - Condition Handling
  - Date and Time
  - Dynamic Storage
  - General, Initialization and Termination
  - Locales
  - Math
  - Message Handling
  - National Language Support
- **Note:**
  A corresponding LE/VSE conforming compiler (COBOL/VSE, PLI/VSE and/or C/VSE) must be installed on z/VSE



Summary

- **IBM offers are a huge set of tools available on the VSE Homepage**
  - http://ibm.com/vse
    Click on Download on the left
- **Most tools are 'as is', at no additional charge.**
- **Connector components (part of z/VSE and officially supported) are also available here**
- **Check it out now !**



Questions ?