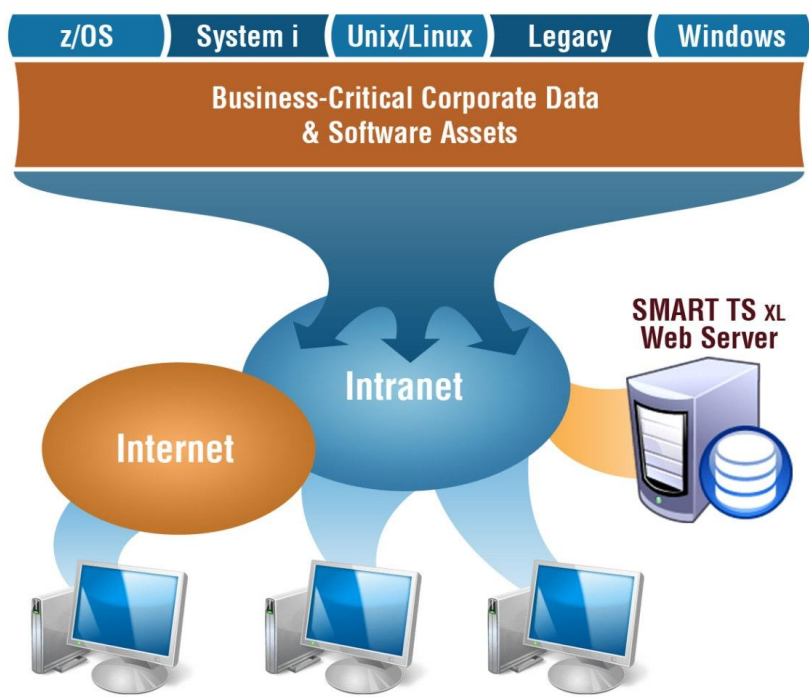


SMART TS XL DEPLOYMENT TIMELINE



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A. SMART TS XL DEPLOYMENT TIMELINE

The following is a guideline and a reference guide to the complete process of deploying SMART TS XL.

Allocate hardware according to minimum requirement specifications
Allocate SQL Server with user rights to create new Database

Install SMART TS XL Server – Installs: SMART TS XL web application, SMART TS XL Manager, Database, and Help files. (SMART TS XL Administrative Guide)

Install and activate a license key. (SMART TS XL Administrative Guide)

Create upload data files from Mainframe, Unix, AS400 & Windows
(SMART TS XL Reference Guide)

Create data types (libraries) in SMART TS XL Manager.
(SMART TS XL Administrative Guide)

Define upload and parsing options such as upload type (full upload or Differences only), Stop words, and EBCDIC to ASCII conversion tables. (SMART TS XL Administrative Guide)

Define linking exceptions, if needed. (SMART TS XL Administrative Guide)

Create Search Groups, if needed. (SMART TS XL Administrative Guide)

Set organization options such as login type (how users login is validated), Report options, and General options. (SMART TS XL Administrative Guide)

Upload and parse new data. (SMART TS XL Administrative Guide)

Training sessions. (SMART TS XL Training 101 PPT)

B. HARDWARE/ SOFTWARE REQUIREMENTS

Client

Software requirements:

- Microsoft Internet Explorer 5.01 or later. **That's IT!!**
- Firefox/Mozilla, Opera, and Safari are also supported

Server

Software Requirements:

- .NET Framework 2.0
- Microsoft Data Access Components 2.8
- Internet Information Services® (IIS) version 5.0 or later with latest security patches applied.
 - “Server Side Includes” enabled.
 - “Active Server Pages” enabled.
- Microsoft Windows 2000 Server® or later. (Windows 2003 Server® recommended).
- Microsoft SQL Server 2000® SP3/SP4.
- TCP/IP access to Microsoft SQL Server 2000® if used.

Hardware Requirements:

- **Processor** - 2.8 GHz Intel Pentium multi processor. (For optimal performance, 3.2 GHz or higher multi-processor is recommended).
- **Operating System** - Microsoft Windows Server 2003®* or Microsoft Windows 2008 Server®.
- **Memory** - 3 GB of RAM, 4 GB recommended.
- **Hard Disk Drive** - 60 GB minimum, 120 GB recommended. (15K SCSI)
- **Display** - Minimum 1024 x 768 or higher resolution display with 256 colors.

C. SMART TS XL PRE-INSTALLATION CHECKLIST

- 1.) What OS is it going to run on?
 - a. Windows 2000, XP and Vista are supported (for pilot and demo only) but not recommended.
 - b. **Virtual Machines** are **no longer supported** due to poor performance.
 - i. Exceptions made for POC (Proof of Concept installations)
 - c. **Windows 2003 server is recommended.**

Note:

- Windows 2000 runs IIS version 5.0; XP/2003 runs IIS version 6.0; Vista runs IIS 7.0 – all are supported.
 - If using XP or 2000 pro remember that IIS is limited to 10 concurrent connections.
- 2.) Required Windows Components:
 - a. MS Message Queue has to be installed on the server.
 - b. Internet Information Services
 - i. Active Server Pages
 - ii. ASP.NET
 - iii. Server Side Includes
 - 3.) **.NET Framework 2.0** is required to be installed on the server.
 - 4.) What are the technical specs of the server machine?
 - a. **Processors** – how many? How fast? - We recommend at least one processor for the system and one for the SQL Server at a minimum of 2.8 GHZ.
 - b. **RAM** – we recommend at least 3 GB if not running SQL on the same machine or 4 GB if you do.
 - c. **Hard drive** – the question always come up “how much free space do we need?” well it’s a bit of a catch 22...since we would not know how much data you will have until you upload it to the server...we offer these considerations:
 - i. Calculate about 3 times the size of the data you will upload. So if uploading 1 GB of data, prepare 3 GB of free space. We recommend allocating not less than 60 GB.
 - ii. SQL server data-files sizes are harder to predict since their size is a result of the amount of cross references and searches performed by the users. From our experience we recommend allocating not less than 4 GB of free space for the SQL data files.

- 5.) It is important to mention that SMART TS XL installs both the system files and the data files (not the SQL data files!) on the same physical drive.
- 6.) SQL Server:
 - a. SQL Server 2005 is supported and recommended.
 - b. MSDE (SQL Server Desktop Engine) 2000 is no longer supported!
 - c. Are you going to use an existing SQL Server? Or would we install SQL 2005 Express (SQL Server Desktop Engine)? **If not Express:**
 - i. The installation process creates the database in the SQL Server as well as a SQL user for usage by the application.
 - ii. For the installation process we will require to either login as a windows account that can access the SQL server or to have the details of a SQL system administrator account (an account that has rights to create databases and users).
 - iii. SQL Server must have TCP/IP connectivity with the SMART TS XL server.
- 7.) Login method to SMART TS XL:
 - a. **SMART TS XL** – Users will be created in our system and validated against it.
 - i. You may want to allow during the pilot for users to be able to login without the need for an administrator to activate them. This will make it easier and faster for users to start using the tool. (This is an option that can be set in the tool during the installation or later by an administrator).
 - b. **Windows Active Directory** – Users will be validated against Windows Active directory.
 - i. Are you going to use Active Directory Groups? **If YES:**
 1. You must create a windows system account that has read rights to the Active Directory to be able to support group validation.
 2. Is there more than one domain? If so they must have trusts setup between them for the system account to be able to read both Active Directories.
 - ii. This option does not require users to be activated by an administrator before they can login to the tool.
 - c. **Custom login page** – you can also use our API's to write a costume login page (for example to validate users against your mainframe security system)
- 8.) ACF2/RACF security – Are you going to use this security option during the pilot?
If YES:
 - a. Mapping between users and data types is done using reports that the system uploads. These reports cannot be used until both the users and the data types are setup in the system. This means that when a data type is set up with the security option set to true, users would not be able to view its data until the mapping report is uploaded.

- 9.) Initial upload method – we support upload files in 2 formats:
- Multi-programs file** - a file that contains many programs/modules separated by a header that includes a delimitation phrase and the module name.
 - Single-program file** – a file that contains only one program/module. In this case the name of the module is the name of the file. This method is not recommended for the initial upload of large libraries

It is crucial for a successful installation to have the data load files ready before the installation day. This will guarantee same day installation and usage. Data files need to be **Punched and FTP'd to server.**

- **Punched** – means that a flat file will be created for each data type (PDS, LIBRARIAN, PANVALET) containing all the members in stream with a separator word between them. FILEAID or IEBTPNCH can be used. They usually use the separator word of “-PUNCH” or “MEMBER NAME” followed by the 8 byte member/element name. *See Appendix C*
- **FTP'd** – from the mainframe to the server hosting SMART TS XL. To be done in mode BINARY. *SET TYPE = BI* command will ensure the data is sent to the windows environment AS IS in EBCDIC. SMART TS XL manager software then converts from EBCDIC to ASCII using our built in and user configurable conversion tables.

- 10.) Updates during the pilots – would you want to update the data during the pilot? **If**
YES:

There are two supported methods of updating data:

- Full update** – upload all of the data every update. This can be the easiest option during a pilot period.
 - Delta update** – upload only modules that have been added or modified as well as a list of modules that have been deleted.
- 11.) Consider what data you want to upload during the pilot.
- It is necessary to have enough “meat” for the pilot to be successful.
 - The more data loaded – the higher the ROI will be.

We have a large library of pre-developed code for creating the initial upload files and for creating the periodical delta update files (based on which system you use for change management control). We will be happy to assist you in preparing the data files.

You can read more about harvesting mainframe data, delta and full updates and more in the reference guide. Additional information regarding the installation process can be found in the administrative guide.

D. INSTALLING STEP BY STEP

STEP 1. Installing SMART TS XL

- The installation process is outlined in detail, step by step, in pages 9 thru 23 of the **ADMINISTRATIVE GUIDE.doc**
- During the installation process a form is filled out – indicating the steps taken.
- **Summary of Pilot Installation.docx**.
- Filling out the form ensures certain settings are SET to certain values during the installation. This process requires very basic IIS and Windows server knowledge.
- The process takes between 10-15 minutes.

STEP 2. Activating SMART TS XL

- The activation process is outlined in detail, step by step, in pages 75 thru 77 of the **ADMINISTRATIVE GUIDE.doc**.
- After installing the software – you generate a “request key” and email it to IN-COM or your distributor. IN-COM or your distributor then generate and send back to you an activation key. IN-COM can WEBEX and offer live assistance to clients during the installation process.
- Data may be loaded into SMART TS XL prior to activation.
- The process takes between 2-3 minutes.

STEP 3. Create load files

- The process for creating upload files is outlined in detail, step by step, in the **REFERENCE GUIDE.doc**.
- Mainframe and UNIX files need to be created then FTP'd or NDM'd in EBCDIC or BINARY mode, so that SMART TS XL can perform an accurate translation to ASCII.
- For loading Windows files like JAVA, VB.NET, SCRIPTS, SQL PROCS & TRIGGERS – the information can remain in ASCII as is and the SOURCEPREP tool is used. The function of the SOURCEPREP tool is to collect/harvest source code anywhere you point it to on your network/intranet. The tool then converts a top level directory of multiple file types and complex directory structure into a single load file with headers.
- This process can take a few hours, depending on how many load files are created and their size.

STEP 4. Create Data Types

- The process for creating Data types is outlined in detail, step by step, in pages 45 thru 55 of the **ADMINISTRATIVE GUIDE.doc**.
- A Data Type is any logical collection of information. The name should be meaningful to the user audience and is free text. Here are a few examples;
- **HR_EMPRESUME**
 - Can refer to all employee Curriculum Vitae Resumes in the HR department
- **JAVA_UNIX**
- **JAVA_AS400**
- **JAVA_MAINFRAME**
 - Can refer to all the JAVA code coming from the different platforms / Operating systems
 - Users will be able to search on a single, a few or all the data types at once.
- This process takes up between 10 - 30 minutes, depending on how many data types are defined.

STEP 5. Define upload and parsing options

- The upload and parsing options are outlined in detail, in pages 60 thru 70 of the **ADMINISTRATIVE GUIDE.doc**.
- **UPDATE TYPE**
 - Full upload – each time you load STSXL all the files are a fresh copy
 - Delta upload – first time you load all the files, then only the deltas
- **EMAIL NOTIFICATIONS**
 - Emails can be sent automatically when certain actions occur. These emails assist to maintain a the system. Also – any searches yielding ZERO results, can trigger immediate feedback and assistance from a search expert on call.
- **STOP WORDS**

- BY default – all members are hyperlinked. Sometimes there are program names you do not wish to hyperlink, such as REPORT or PARM. By adding these words to the STOPLIST, they will not be hyperlinked.
- **BINARY TO ASCII CONVERSIONS**
- When moving across platforms, there may be certain character loss, for example due to different interpretations of 7bit and 8bit ASCII. The conversion tables allow users to override any character translated across all platforms.
- This process is included in the 30 minutes of defining the data types.

NOTE: Steps 6, 7, and 8 are optional.

STEP 6. Define linkage exceptions

- The upload and parsing options are outlined in detail, in pages 78 thru 80 of the **ADMINISTRATIVE GUIDE.doc**.
- By default, STSXL hyperlinks across all data types. There are times when companies may decide NOT to link between certain data types. This would be the case if a company loaded both PRODUCTION and DEVELOPMENT libraries. Since the same core information exists in both regions, they will not want to hyperlink between the 2 regions.
- This step takes 2 to 5 minutes.

STEP 7. Define search groups

- Defining search groups is outlined in detail, in pages 84 thru 86 of the **ADMINISTRATIVE GUIDE.doc**.
- Companies can end up with hundreds of data types in a single STSXL installation.
- A group is a logical way to search on multiple data types, without needing to select them all. If a company loads 50 data types related to the mainframe and 100 data types related to AS400, then 2 groups can be set up in the system. Users can then select the MAINFRAME group that searches automatically all 50 mainframe related data types, or they can select the AS400 group that searches all 100 AS400 related data types.
- This step takes 2 to 5 minutes.

STEP 8. Set organizational options

- Organizational options are outlined in detail, in pages 88 thru 92 of the **ADMINISTRATIVE GUIDE.doc**.
- This step takes 2 to 5 minutes.

STEP 9. START the load

- The load process runs unattended. There is an option to start multiple load processes at once (Accelerated Mode) but it is recommended only if you have more than a single processor running the server.
- During the load process the following takes place:
 - INDEX – for quick immediate complex search
 - HYPERLINK – allows click to follow from program to program
 - CROSS REFERENCE – allows up to 9 levels of cross reference reporting
 - COMPLEXITY – analyzes each program for complexity levels
 - COLOR CODE – visually displays the code in color based on syntax
 - EQAL – Limits search to be code, strings, comments, literals, keywords, numbers & columns
- This step takes 1 hour for every 10,000,000 lines.

STEP 10. Training

- IN-COM recommends training sessions with HANDS ON exercises and in groups of 20-25 at a time. This requires a room with at least 12 workstations that have access to the newly loaded system and a projector with large screen.
- Companies receiving the FREE PILOT must allow at least 20 employees to be trained. This is a requirement.
- Training sessions are 4 hours each.

E. SUMMARY

- Installation can be performed via WEBEX with one of IN-COM's technical support people and should take no longer than an hour – IF all the hardware and software requirements are met in advance.
- The entire load process from start to training takes about 8 hours for a large load. Clients need to decide prior to installation what data and information they would like loaded on the SMART TS XL server.
- Initial load settings can also be performed via WEBEX with IN-COM guiding and advising.
- Training is a crucial part for a successful pilot. IN-COM will at no cost to the client, perform up to 4 training sessions of 25 users each.
- The more information loaded, the higher the ROI. IN-COM recommends loading all production code, trouble tickets, scripts, letters, jobs, file layouts, database structures, procedures, triggers, Firewall and router rule files, documents and any other information relevant to the IT departments.