Servoy Beginners Guide

This document is aimed to provide the basic guidelines and a structure to grasp the concepts involved in getting hold of the technology SERVOY. By the end of this document you would be able to develop fully functional web enabled applications in servoy.

Servoy is the fastest and coolest way to develop and deploy cloud-based business applications anywhere and on any device .With Servoy, you develop once and deploy anywhere - from desktops to smartphones as it has various kinds of deployment tools.The tools are enterprise-grade but still intuitive, leverage existing development skills and fuel creativity. You'll pick them eventually and gradually as you advance to the completion of this documentation.

We will advance slowly with a refresher of the prerequisites and then will further proceed to the main distinct features of Servoy. First I want you to know that Servoy has launched several versions right from Servoy v3.5 to currently Servoy v6.1.

We will proceed according to a Road map which would let you know at which points you need to focus and and which point you will need to trace back your learning and revise the previous stuff.

During this whole tutorial you need to keep in mind that the complete documentation in a form of PDF is available for the servoy 4 so keep in mind that you need to read from those PDF and then clarify and check up with the new additions and enhancements from the _WIKI link of Servoy_ which is the main source you need to refer at all the times because up to date online documentations are available on this link .

RoadMap for Learning

1. Refresher of the prerequisites (Pre Preparation)
   - A basic knowledge of SQL
   - A basic knowledge of Object Oriented Programming
   - Basic knowhow of Eclipse (IDE) concepts and programming environment
2. Phase I (1 Day)
   - Downloading the Servoy Software
   - Downloading the PDF's for the references
   - Setting up Servoy software
   - Connection with database using PgAdmin(Postgresql Tool)
3. Phase II (3 Days)
   - Introduction to servoy
   - Overview Servoy 's Architecture
   - Servoy Developer and Eclipse Concepts

4. Phase III (3 days)
   - Solution Object model
   - Introduction to relations and tables
   - Introduction to value lists
5. Phase IV(2 days)
   - Introduction To data providers
   - Review of all the concepts done until now.
6. Phase V (4 days)
   - Forms
   - Styles
   - Methods and plugins
7. Phase VI (2 days)
   - Servoy Naming conventions
   - Locking and Transactions
   - Printing and Previewing
8. Phase VII(3 days)
   - Security
   - Importing and Exporting Data
   - Database Connections
   - Installing a Database as a Service

9. Phase VIII (4 days)
   - Working with modules
   - Working with the form designer
   - Working with the script editor
   - Debugging
10. Phase IX (4 days)
    - Servoy client application preferences
    - Solution settings
    - Media: Importing, deleting a file
    - Deployment: Smart Client, Web Client, Headless Client
    - Servoy server
    - Servoy repository
    - Internationalization in Servoy

11. Phase X (1 week)
    - Synchronization of the changes in the new version 6.
    - Drag and Drop feature
    - SaaS Implementation
    - Usages of Tree View
    - Enhanced Security
    - Meta data import
    - Query builder
    - API changes
    - WAR Export and Deployment.

Remember that you would learn the concepts only and only with the practical implementation side by side along with reading this document.

<u>Refresher of the Prerequisites</u>

This should be done actually before you seriously get into learning servoy because these are very important topics which you need to have hold on to understand the further concepts of servoy.

1. <u>SQL:</u>

Its useful to know a little SQL, but in most cases it?s not necessary, and certainly not when you're just getting started with Servoy.Servoy provides its own set of straightforward commands for retrieving data, but Servoy also gives you the option to query your db using SQL. For example you can pass an SQL query to a function called loadRecords() to retrieve rows from a database and display it on a form exactly as if you?d used Servoy's built-in search commands. This is a convenient option for those who are comfortable writing SQL queries, but you can almost always get by without it.

Certain complex, multi-join queries are beyond the capabilities of Servoy's built-in search functions and can only be achieved using SQL. With a mature, complicated database, directly querying the database using SQL will often improve the performance significantly on some queries. Technically, you can even use the rawSQL plugin to modify your database using SQL update, insert and delete commands, but this is only for expert Servoy users who understand the risks of doing this. Rarely, this is going to be necessary.

You could refer to the following links :

http://www.w3schools.com/sql/sql_quickref.asp
http://net.tutsplus.com/tutorials/databases/sql-for-beginners-part-3-database-relationships/
http://publib.boulder.ibm.com/infocenter/db2luw/v8/index.jsp?topic=/com.ibm.db2.udb.doc/admin/c0004733.htm

2. Object Oriented Concepts :

This is an essential base which you would require in almost every language as all have started using object based structure this promotes the modularity and reusability of the methods and in turn program as a whole.

You can refer to the following links
http://docs.oracle.com/javase/tutorial/java/concepts/

You might find this video handy too :
http://www.youtube.com/watch?v=hX1Q9wQ5QMk

3. Basic knowhow of Eclipse (IDE) concepts :

As Servoy is a plugin to Eclipse, so you need to have some basic understanding of eclipse IDE as to how things work in that.

For Text reference:

- Chapter 5-Topic 5.1 Eclipse Concepts (*Servoy Developer Volume I - User's Guide*)

For a Introduction you could go through this video links :

http://www.youtube.com/watch?v=23tAK5zdQ9c
http://www.servoy.com/docs/servoy_4/tutorials/servoy_4_perspectives/highres/perspectives.htm

<u>Phase I</u>

<u>1. Downloading the Servoy Software:</u>

You could download it from the link which follows. You just need to register and you are good to go.

<u>Link</u>:

http://www.servoy.com/

2. <u>Downloading the PDF's for the references</u>

These are the PDF's which will be the reading source primarily

<u>Link</u>:

Download Servoy Developer User Guide

http://www.servoy.com/docs/servoy_4/ServoyDev4UserGuide.pdf

Download Servoy Developer Reference Guide

http://www.servoy.com/docs/servoy_4/ServoyDev4ReferenceGuide.pdf

Servoy beginner Handbook - Adrian McGilly

http://www.mcgilly.com/wp-content/uploads/2012/04/Servoy-Beginners-Handbook-PREVIEW.pdf

3. <u>Setting up Servoy software :</u>

You could go through the video provided in the link below to better understand how to installing servoy step by step. Also you can refer to the following suggested chapters in the PDF's provided..

<u>Reference:</u>

- Chapter 4 (*Servoy Developer Volume II - Reference Guide)*
- Chapter 4 (*Servoy Developer Volume I - User's Guide*)

<u>Link</u>:

http://wiki.servoy.com/pages/releaseview.action?pageId=9044645

4. **Connection with database using PgAdmin(Postgresql Tool) :**

   Postgresql comes bundled up with servoy and need not be initialized but servoy can work with any SQL but it is important that you go through the default database for better and easy understanding

Link:

http://wiki.servoy.com/display/public/tutorials/PostgreSQL+Primer

Phase II

1. Introduction to servoy :

Servoy is a development and deployment platform. Servoy is inspired on 4GL in terms of how applications are developed but unlike many 4GL's does not have proprietary languages and databases but instead bases its language on open standards.So to understand the usability we need to learn the basic features .

Text reference:

Servoy Developer Volume I - User's Guide

- Getting Started

Link:

http://www.servoy.com/docs/servoy_4/tutorials/servoy_4_gettingStarted/highres/GettingStarted.html

2. Overview Servoy 's Architecture :

Before getting into coding and developing, you need to assimilate what architecture is Servoy basically based upon and how it works.

Text Reference:

The Servoy Beginner Handbook

- Overview of Servoy architecture

Servoy Developer Volume I - User's Guide

- Servoy Workbench

3. Servoy developer and Eclipse Concepts :

As we know that, Servoy is a plugin to Eclipse IDE, therefore to properly exploit its features we will need to develop a good understanding of this IDE and its concepts.

Text Reference:

Servoy Developer Volume I - User's Guide

- *Concepts*

The Servoy Beginner Handbook

- Servoy Developer and Eclipse

Link :

http://www.servoy.com/docs/servoy_4/tutorials/servoy_4_perspectives/highres/perspectives.htm

Phase III

1. Solution Object model :

A solution is one application built with Servoy Developer. One Solution consists of one or more forms, methods and connections.

The servoy project structure rests upon this Solution Object Model (abbreviated

as SOM) of which a solution is the basic entity. You can view, edit or update databases using any form in your solution.

Text References:

Servoy Developer Volume I - User's Guide

- Solutions

2. <u>**Introduction to relations and tables**</u> :

These two terms-- relations and table, can be termed as backbone, because we will definitely need the databases. And the prime constituents are the tables, whereas relations are the link which connect the two tables. Also we will need to soak up the purpose and use of Foundsets in Servoy, as every form in Servoy has an underlying Foundset which handles database for it.

<u>Text References</u> :

Servoy Developer Volume I - User's Guide

- Chapter 8 - Portion 8.5

The Servoy Beginner Handbook

- *Connecting To SQL*
- *Foundsets*
- *JS Foundset Classes*

<u>Link:</u>

http://www.servoy.com/docs/servoy_4/tutorials/servoy_4_introToRelations/highres/intro_to_relations.htm

3. <u>**Introduction to value lists**</u> :

Value lists play a vital role as it need to be attached along with the fields to retrieve the values from the database or could have static values as per the need and requirement. It helps in speeding up data entry.

<u>Text References</u>**:**

Servoy Developer Volume I - User's Guide

- Chapter 8 - Portion 8.6

<u>Link:</u>

http://www.servoy.com/docs/servoy_4/tutorials/servoy_4_introToValuelists/highres/intro_to_valuelists.htm

Phase IV

1. Introduction to Dataproviders:

_____A named property that contains data. The property can be tied to a element in the UI or can be interacted with in scripting.

A dataprovider can either be:
- a variable in the scope of a Form,
- a variable in the global scope or
- the dataproviders of the selected record in a FoundSet

Text References:
Servoy Developer Volume I - User's Guide
- Dataproviders (Chapter 9)

Servoy Developer Volume II- Reference Guide
- Introduction to Dataproviders (Chapter 4- Portion 4.7)

The Servoy Beginner Handbook
- Dataproviders

2. Introduction to Events:

_____A javaScript method can be designed to be executed when an event occurs, events like mouse click, database changes,etc.etc. Events always occur in a particular sequence which you need to keep in mind all the time.
:
1. [Form design time Events](#)
2. [JS Events](#)
3. [JSDNDEvents](#)(Drag And Drop Events)
4. [Renderable events](#)

Text References :

Servoy Developer Volume II- Reference Guide
- Events (chapter 5-portion 5.4,5.5)

3. Review of all the concepts done until now:

_____You need to practically apply all the concepts covered until now in the developer, so that further concepts could be easily understood . You need to focus on as to how does the data flows from the database to the destination because at the end this very fact will be responsible for deciding the course of development at the later stage. You need to understand the concept of dataproviders, foundsets (foundSets as per version 6.1) and the most important are the relations as this is the basic thing which helps in data retrieval.Things you need to focus are
1. Architecture
2. Solution Object Model
3. Foundsets
4. Dataproviders

5. Relations
6. Value Lists
7. Events

NB: *The Events need to be thoroughly read as you need to know that which event is fired when , and in what sequence they occur as when you will start developing you would need to keep in mind that where to define which event.*

Phase V

1. Forms:

_____A Form is an object that provides a UI and/or contains business logic. The UI of a Form is built up of Form Parts, which in turn contain Elements.Form contain several objects and parts which you can change graphically or optionally by coding,The forms are the base where all the elements are held or you can say what user can see. In Servoy a UI is provided by Forms with their Form Parts which contain Elements

Text references:

Servoy Developer Volume I - User's Guide
  - Forms (Chapter 10)

Servoy Developer Volume II- Reference Guide
  - Forms(Chapter 5)

Links:

- *Introduction to Forms:*

    This tutorial gives you a basic overview of forms and form properties in Servoy -- including a quick look at form design;form parts for creating reports; setting a tab sequence for form objects; and form security.
    http://www.servoy.com/docs/servoy_4/tutorials/servoy_4_introToForms/highres/intro_to_forms.htm

- *Introduction to Form Objects:*

    This tutorial gives you a basic overview of the different form objects you can use on your forms/reports in Servoy.
    http://www.servoy.com/docs/servoy_4/tutorials/servoy_4_introFormObjects/highres/intro_to_form_objects.htm

2. Styles :

Styles would give you application a new visual look and basically is used to enhance the UI. There are several ways to do that which we could learn from following resources.

Servoy uses CSS to design its forms.

Text References:

Servoy Developer Volume I - User's Guide

- Forms (Chapter 11)

Servoy Developer Volume II- Reference Guide

- Forms(Chapter 6)

Link:

This tutorial gives you a basic overview of what methods are, how they're created and some tips on how to use code samples, autocomplete and more Servoy.

http://www.servoy.com/docs/servoy_4/tutorials/servoy_4_introToStyles/highres/intro_to_styles.htm

3. Methods and plugins:

Servoy methods utilize JavaScript as the main scripting language. With Servoy Developer - as an Eclipse plug-in - you can include Java code directly in your Servoy method(s); and if you require more customized Java capabilities, you could write your own Servoy plugin.Servoy enables you to create, edit and delete Servoy methods (scripts) from the Solution Explorer view and/or List view; and access open Servoy methods (scripts) in the Scripts editor - displayed in the Editor view of the Form Design perspective.

Text References :
Servoy Developer Volume I - User's Guide
  ● Forms (Chapter 12)
Servoy Developer Volume II- Reference Guide
  ● Forms(Chapter 7)

Link:
Introduction to Methods
This tutorial gives you a basic overview of what methods are, how they're created and some tips on how to use code samples, autocomplete and more Servoy.
http://www.servoy.com/docs/servoy_4/tutorials/servoy_4_introToMethods/highres/intro_to_methods.htm

Phase VI

1. Servoy Naming conventions :

_____One need to follow particular designing and naming conventions in order to write good and legible code.

Link:
https://docs.google.com/document/d/1Aj74kAQolCWRv-iMj36wma2eF3fQHEe2CA3HRuvz8U0/edit

2. Locking and Transactions

Servoy has extensive support for both locking and transactions to ensure the consistency of your data. Both transactions and locking are managed using Servoy methods. By default, Servoy does no locking or transactions.

Reference Text:

Servoy Developer Volume I - User's Guide
- Locking and Transactions(Chapter 13)

3.Printing and Previewing
_____

Reference Text **:**

Servoy Developer Volume I - User's Guide
- Printing and Previewing (Chapter 14)

Phase VII

1. Security

_____Security is a very important feature which sets the data security and secures the software overall . Servoy supports two levels of security in a solution:

☐ Database security.

☐ Servoy solution-level security

*Text Reference***:**

Servoy Developer Volume I - User's Guide
- Security (Chapter 15)

Link:

http://www.servoy.com/docs/servoy_4/tutorials/servoy_4_introToSecurity/highres/intro_to_security.htm

http://wiki.servoy.com/display/public/DOCS/Security

2.Importing and Exporting Data:

This refers to the importing any data in servoy from recommended format of the data and that data can be utilized, and in the same way the data inside servoy could be exported for external usage.

Text Reference:

Servoy Developer Volume I - User's Guide
- Importing and Exporting (Chapter 16)

3. Database Connections

In Servoy, you can connect to one or more databases. Each connection is referred to by a named server connection.

Text Reference:

Servoy Developer Volume I - User's Guide
- Database Connections (Chapter 17)

Link:

http://wiki.servoy.com/display/public/DOCS/Database+Connections

4. Installing a Database as a Service

This deploys the dtabase as a service which makes it more handy.

Link:

http://wiki.servoy.com/display/public/DOCS/Running+the+server+as+a+service

Phase VIII

1. Working with modules:

You need to understand the modular concept as implementing this your code could be effective and deployable at any stage as it would contain independent code.

Text Link:

http://wiki.servoy.com/display/public/DOCS/Working+With+Modules

Video Links:

http://www.youtube.com/watch?v=qPZfDfI74SU
http://www.youtube.com/watch?v=qPZfDfI74SU
http://www.youtube.com/watch?v=Ka0p-Bi8nKo

2. Working with the form designer :

Knowing the basics of form designer is very important because it will help you to implement various features and design an effective form as it is the base on which all the development occurs.

3. Working with the script editor

The Script Editor is used to add and edit business logic in Servoy solutions that are defined by JavaScript functions and variables. The Script Editor features several useful code writing and navigation tools, with support for JSDoc and refactoring. This chapter begins with the basics for using the Script Editor

4. Debugging

Servoy comes with a full-featured debugging environment to allow developers to debug their script logic using debug clients, including the Smart Client and Web Client.

Link:

- This provides a general overview of the debugging process, followed by a description of features available in the Debug perspective.
  http://wiki.servoy.com/display/public/DOCS/Debugging
- This is a tutorial of using debugger :
  http://servoy.com/docs/servoy_4/tutorials/servoy_4_debugger/highres/debugging.htm

Phase IX

1,Servoy client application preferences and Solution Settings

The Solution Settings are global settings that affect all solutions hosted on the Servoy Application Server

*Text Reference***:**

Servoy Developer Volume I - User's Guide

- Settings (Chapter 21)

2.Media: Importing, deleting a file

Each Servoy solution has its own media library - that is accessible from the Media tree in the Solution Explorer view of the Form Design perspective.The Servoy Media Library can store various kind of medias.This is actually important as you need to place all the icons/pictures inside servoy in order to use it.

*Text Reference***:**

Servoy Developer Volume I - User's Guide

● The Servoy Media Library (Chapter 22)

3. Deployment: Smart Client, Web Client, Headless Client

When you start the development always the final goal in the mind is the deployment of the software/application,so Servoy gives us flexibility in deployment. As Servoy solution can be deployed with:

☐ Servoy Smart Client.
☐ Servoy Headless Client (SHC).
☐ Servoy Web Client

Text Reference:
Servoy Developer Volume I - User's Guide
● Deployment(Chapter 22)

Link:
This is a deployment guide you could go through
http://wiki.servoy.com/display/public/DOCS/Deployment+Guide

4. Servoy server

Servoy Server is installed with a default installation of Servoy

Text reference:
Servoy Developer Volume I - User's Guide
● Chapter 23 - Portion 23.5

5. Introduction to Team sharing-Servoy repository

This feature compliments you with asynchronous development and allows multiple users to work together and synchronize on the basis of the revisions and additions in the SVN repositories.

Text reference:
Servoy Developer Volume I - User's Guide
● Team Sharing (Chapter 24)_____

Link:
● This contains the basic terminologies of sharing
http://wiki.servoy.com/display/public/DOCS/Team+Development+Concepts
● This desribes the team sharing workflow

- This tell about the SVN Team provider
  http://wiki.servoy.com/display/public/DOCS/SVN+Team+Provider

6. Internationalization in Servoy

_____Servoy provides internationalization (i18n) tools that allow developers to conveniently convert their applications into multiple languages. Developers can use i18n keys instead of hardcoded text to call the appropriate language from an i18n database table.Servoy feature that enables you to develop solutions that:

☐ Support multiple languages.

☐ Do not require additional forms or elements to display more than one language.

☐ Can display multiple languages based on Locale preferences

Text Reference:

Servoy Developer Volume I - User's Guide

- Team Sharing (Chapter 26)

Link:

- This chapter gives an overview of the Servoy tools provided to create internationalized solutions.
  http://wiki.servoy.com/display/public/DOCS/Internationalization
- This tutorial gives you a basic overview of how to use internationalization functions in Servoy to make your solutions multilingual.
  http://www.servoy.com/docs/servoy_4/tutorials/servoy_4_introToi18n/highres/intro_to_i18n.htm

Phase X

1.Synchronization of the changes in the new version 6.1

There are various additions in the new version of the Servoy which you need to implement and understand as you need to be updated with the latest modifications. There are several new things like:

1. User Interface Modifications
2. Programming API
3. Deployment

Link:

- http://wiki.servoy.com/display/public/DOCS/New+in+this+release
- This is a video which describes all the latest modifications.
  http://www.youtube.com/watch?v=VyNC_CO26P4

2. Drag and Drop feature

_____This is a feature which allows you to define methods which would be fired when the drag and drop events occur this is very handy in making the things easy productive, so that even the drags could be defined and utilized.

Link:

We could define the JSDNDEvents described in the following link
http://wiki.servoy.com/display/public/DOCS/JSDNDEvent

3. SaaS Implementation

_____Servoy can also be deployed using SaaS. There are a couple of ways to do this:

● on your own infrastructure (at a datacenter or not)
● in the cloud

Link:

http://wiki.servoy.com/display/public/DOCS/Software+as+a+Service+%28SaaS%29+deployment

4. Usages of Tree View

5. Enhanced Security

_____This is the enhanced inbuilt security of Servoy which allows all the security measure to be taken easily.

Link:

http://wiki.servoy.com/display/test61/Implementing+Security

6. Meta data import

_____Data stored in tables that are marked as meta tables will be included in the export file, when the file is imported in the application server, the meta data will be merged with the existing data.

Link:

http://wiki.servoy.com/display/test611/Metada+data+import

7. Query builder

8. WAR Export and Deployment.

_____Servoy Developer 6.1 offers the option to export the Servoy Application Server to a so-called WAR file . This WAR file can then be deployed on any J2EE standards compliant application server, like Glassfish ,IBM WebSphere , Jetty or Apache Tomcat for example.

Link:

http://wiki.servoy.com/pages/releaseview.action?pageId=12386917

By the end of this learning Document you can call yourself a Servoy Developer,but remember you can never learn everything keep an habit of always keep on learning.You can always refer to the wiki website of servoy and could also post your doubts in servoy forum.

GOOD LUCK!!

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