IBM BUSINESS PROCESS MANAGER 7.5 – LAB EXERCISE

Developing business processes with Advanced Integration Services, the Integration Developer's perspective

A bottom-up approach

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What this exercise is about

IBM Business Process Manager Advanced (BPM) V7.5 is a single BPM solution that combines the best of breed human-centric and integration-centric capabilities into a unified platform.

When developing a business process that uses services to integrate functionality from other systems there are several different approaches that can be taken. With one approach, the integration developer creates the service interface and the service implementation and then makes them available to the process developer in a Toolkit. This *bottom up* approach works well when there is already a mature SOA architecture with reusable services.

Another approach is for the process developer to define the interface for the service to be called and the integration developer will then create the implementation based on the interface provided. This *top down* approach works well when the service does not already exist.

In this exercise you will learn how to use the *bottom up* approach for integrating *Advanced Integration Services* into your human centric business process.

Lab requirements

These products below are required for this exercise:

- IBM Business Process Manager V7.5 Server with IBM Process Center V7.5 stand-alone profile
- IBM Process Designer V7.5
- IBM Integration Designer V7.5
- DB2 V9.7.200.358 or higher

Throughout the lab, references to these products drop the IBM prefix and the version, calling the Process Center, Process Designer, and Integration Designer.

What you should be able to do

At the end of this lab you should be able to perform these tasks:

- As the integration developer using the Integration Designer
 - Create a Business Process Manager (BPM) Toolkit, using the Process Center perspective of the IBM Integration Designer
 - Associate SCA modules and libraries with the BPM Toolkit
 - Publish the BPM Toolkit containing SCA services to the Process Center server
 - Create a snapshot of the BPM Toolkit to make it available for inclusion into Process Applications and Toolkits.
- As the process developer using the Process Designer
 - Create a process application and simple business process that uses the *Advanced Integration Services* provided by the BPM Toolkit which the integration developer published to the Process Center server
 - Correctly configure the activity in the process application that calls the advanced integration service
 - o Correctly pass data between process activities
 - Test the process application using the Process Inspector.

Introduction

This lab exercise has two parts to it. As you work through the lab you will be switching roles from *integration developer* to *process developer*.

The business process used for this exercise models a customer service process which is supported by a set of services for integrating with an existing CRM system. The operations defined on the *AccountServicesInterface* are:

- createNewAccount
- deleteAccount
- accountStatus
- addAccountFeature
- getAccountInfo

As the *integration developer* you will start in the *Process Center* perspective of the Integration Designer and create a new BPM Toolkit called *Account Services*. You will then import the Account Services implementation and library and associate them to the Account Services toolkit. Next you will publish your work to the Process Center where the operations will be available to the *process developer* as *Advanced Integration Service*.

In the second part of the exercise you will assume the role of the *process developer* and using the Process Designer, create a business process flow using one of the *Advanced Integration Services* provided by the integration developer. Once the business process is completed, you will then test the flow and the invocation of the *Advanced Integration Service* using the process inspector.

Part 1: Integration Designer – Implementing the Advanced Integration Service

In this part of the lab exercise, you play the role of the integration developer and work within the IBM Integration Designer tool.

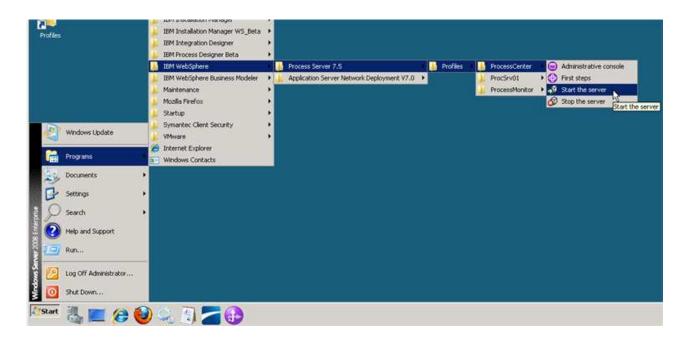


A basic outline of this part is:

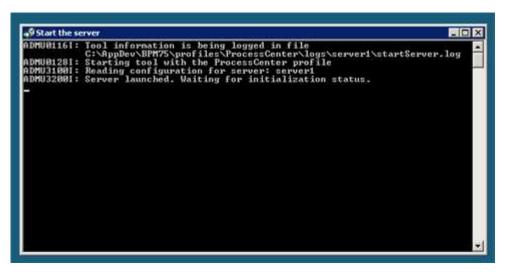
- Start the Process Center server and the Integration Designer development environment
- Create a new BPM Toolkit
- Import and inspect an SCA module from a project interchange file
- Associate the SCA module with the BPM Toolkit
- Create a snapshot of the BPM Toolkit
- Publish the BPM Toolkit to the Process Center server

__1. Start IBM Process Center V7.5

____a. Select Start → Programs → IBM WebSphere → Process Server 7.5 → Profiles → Process Center → Start the Server



___ b. Wait for the server to start, which can take a few minutes. While it is starting, you should see this window:



____ c. When the server startup completes, you will see some additional messages in the window and then it will then close automatically. When the window disappears, you are ready to continue.

2. Start IBM Integration Designer

____a. Start IBM Integration Designer in a new workspace by clicking on the IBM Integration Designer from the Windows *Start* menu.

i IBM Lotus Widget Fa	actory		۲	IBM Integration Designer 7.5
All <u>P</u> rograms 🕨 📷 IBM	• 🖻	BPM Advanced 7.5	· 🚺	IBM Support Assistant
	Log Off 🛛 👩 Shi 🚞	BPM Advanced - Process Server 7.5		Uninstall
	Eod ou 🔽 Dui 💹	IBM Integration Designer		Update
🎒 Start 🧊 👸 🍋 🍇	. 🗭 🖻	IBM Process Designer		
💓 🖂 🚫 🖉 🖏	' 📁 —		_	

____ b. In the Workspace Launcher dialog, enter C:\AppDev\WorkSpaces\Tutorials-BottomUp for the workspace location.

🚯 Workspace Launcher		×
Select a workspace		
IBM Integration Designer 7.5 stores your projects in a folder called a workspace. Choose a workspace folder to use for this session.		
Workspace: C:\AppDev\WorkSpaces\Tutorials-BottomUp	<u>-</u>	Browse
Copy Settings		
(?) OK		Cancel

When opening with a new workspace, Integration Designer will initially open to the default Business Integration perspective but quickly switches to the Process Designer perspective in order to login to the Process Center. Logging into the Process Center first is important because you need to connect to the Process Center in order to have a target for where your work will be published. The Process Center server must be running to perform this step.

NOTE: You use Process Designer to develop process applications and toolkits, and Integration Designer to develop SCA services. The Process Center Perspective is the way for you to establish and maintain relationships between BPM Toolkits, and process applications and SCA services. You can do things such as create a new process application or toolkit, associate SCA services with a process application or toolkit, import process application and toolkit artifacts into Integration Developer, publish process applications and toolkits to the Process Center, and so on.

NOTE: SCA services that are associated with a Process Center as part of a process application or toolkit are referred to as *Advanced Integration Services*.

NOTE: The user that will be publishing the Process Application or Toolkit that contains Advanced Integration Services must have either *Deployer* and or *Configurator* administrative privileges in the WebSphere Process Server user registry. This is managed through the Process Server administrative console.

_ c. Type these credentials into the Process Center Connection Details prompt and click Connect:

Process Center URL: <u>http://localhost:9080/ProcessCenter</u> User Name: <your user id> (default administrative user is 'admin') Password: <your password> (default administrative password is 'admin')

Process Center URI Example: http://server.port/ProcessCenter	
http://localhost.9080/ProcessCenter	
Username:	
tw_admir;	
Password L	

____d. Click the X on the welcome dialog in the Process Center perspective to close the welcome dialog.

Welcome to Process C	enter 7.5	
	Videos Creating a process What is IBM BPM?	Need Help? View online help topics
		Community and support BPM community wiki Forums
Start with a sample	What do you want to do?	What do you want to kno
 Hiring process Hiring process (Advanced) Brocurement process (Advanced) 	 Create a process Participate in a process Administer a process 	Business process management ove How to plan a BPM project Product overview

NOTE: In the following steps, you create a new toolkit. In this scenario, the person in the integration developer role will make some existing SCA services available to the business process developer as a BPM toolkit. In this case, the BPM toolkit does not yet exist, so the integration developer is given the capability to create the toolkit with which to associate the SCA services. When the integration developer publishes the toolkit containing the SCA services to the Process Center, a person in the role of process developer will create a process application with a dependency on the toolkit. This dependency will provide access to the *Advanced Integration Service*, to the process application.

- ____ 3. The next step is to create a new Toolkit.
 - ____a. Select the Toolkits tab
 - ____b. In the upper right corner of the Process Center perspective, click the **Create New Toolkit** link.

Process Center - IBM Integration Designer 7.5 - D:\AppDev\WorkSpaces\BottupUp with TK 0420	
Eile <u>W</u> indow <u>H</u> elp	
Process Apps Toolkits Servers Admin	
Sort By: Recently Updated V All Second	
Est updated on 4/20/11 by tw_admin System Data (TWSYS) ☆ Last updated on 4/20/11 by tw_admin	 Create New Toolkit Import Toolkit Import Toolkit Launch Getting Started Toolkits are collections of Lombardi assets that can be shared across multiple projects in IBM Process Designer. From the Designer view in IBM Process Designer, you can elect to create a dependency and choose the toolkit that you want. Managing and using toolkits

__ c. In the Create New Toolkit dialog, provide the name and acronym for the toolkit; Toolkit Name -→ Account Services Tools Acronym → AST001

Create New Toolkit	X
Toolkit Name:	
Account Services Tools	
AST001	
Description: A set of reusable Advanced Integration	
Services for working with customer	
accounts.	_
Create	

And click the **Create** button.

- ____4. You can see the Account Services Tools toolkit in the list of Toolkits. You are now ready to work with the SCA services and associate them with this toolkit.
 - ____a. Switch to the Business Integration perspective by clicking the "Open in workspace" link.

Process Center - IBM Integration Designer 7.5 - D:\AppDev\WorkSpaces\BottupUp with TK 0420 [le Window Help	
Process Apps Toolkits Servers Admin	📼 😮
Sort By: Recently Updated 💌 All 🗎 🖈 Favorites 🛛 Archived	- Croata New
Account Services Tools (AST01) ☆ C C Last updated on 4/22/11 by wpsadmin	 ← Create New Toolkit <u> ← Import Toolkit </u>
System Data (TWSYS) ☆ [@] Last updated on 4/20/11 by tw_admin	
	▲ Launch Getting Started
	⑦ Toolkits

____b. Accept the default implementation project and library.

🚯 Open Process Applications or Toolkits in Workspace
Select process applications or toolkits to open in the workspace:
Image: Construct Services Tools Image: Construct Services_Tools_Implementation (to be initialized) Image: Construct Services_Tools_Library (to be initialized) Image: Construct Services_Tools_Library (to be initialized)
Select All Select Required Only
OK Cancel

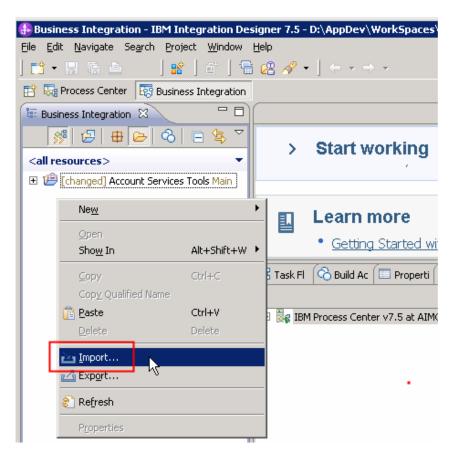
____ c. You should now see the Business Integration perspective:

🖶 Business Integration - IBM Integration De	signer 7.5 - D:\AppDev\WorkSpaces\BottupUp with TK 0420
Eile Edit Navigate Search Project Window	Help
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🕼 Business Integration 😂 📃 🗖	
	> Start working
<all (changed)="" account="" and="" applications="" control="" main<="" process="" references="" services="" switch="" td="" to="" toolkits="" tools=""><td>Simple Mode</td></all>	Simple Mode
Advanced Integration Services Processes Dependent Toolkits E E Account_Services_Tools_Implementati B Assembly Diagram	Learn more Getting Started with IBM Integration De
	88 Task FI 🕜 Build Ac 🗔 Properti 🔝 Problem 👔 Server 🖇
Data Data Interfaces Transformations Account_Services_Tools_Library Dependencies Integration Logic Data Data Interfaces Transformations	■ BM Process Center v7.5 at AIMCP024 [Started, Republish]

Expand the folder and it should look like this. If it does not, then you may need to toggle the Simple/Detailed mode button shown above.

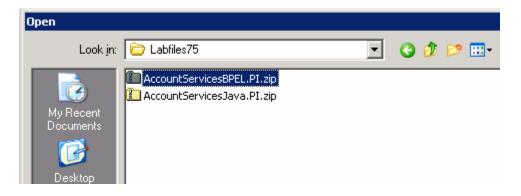
NOTE: In the following steps you import an existing SCA module and library from a project interchange file. Normally, in a bottom up scenario, the integration developer is iteratively developing and testing an SCA module before performing the integration steps with a process application. However, this lab is focusing on the integration aspects of a bottom up scenario and therefore it makes sense to use an existing SCA module rather than developing one as part of the lab.

- _____5. Import the Account Services implementation and library.
 - ____a. Initiate the import by selecting **Import** from the pop-up menu. (right-mouse-click)



- 🚯 Import Select Import a project and its dependent projects from a Zip file. Select an import source: type filter text 🗄 🗁 Business Integration ٠ 🗄 🗁 Business Monitoring 🗄 🗁 CVS 🗄 -- 🧁 EJB 🗄 🗁 Java EE 🗄 🗁 Modeling 🗄 🗁 Plug-in Development 🗄 🗁 Profiling and Logging 🗄 🗁 Run/Debug 🗄 🗁 Team 🗄 🗁 Test 🗄 🗁 Web 🗄 🧀 Web services 🗄 🗁 XML 🖻 🧀 Other 👰 Project Interchange Ŧ ? Cancel Next
- ____b. Select Other → Project Interchange and click Next.

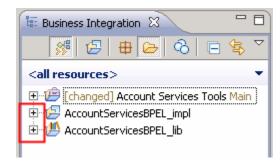
____ c. In the Import Project Interchange Contents dialog, click the **Browse** button next to **"From zip file**" and navigate to **C:\Labfiles75\AccountServicesBPEL.PI.zip** and click **Open**.



____d. Once you see the two modules to be imported (AccountServices_impl, AccountServices_lib), click **Finish**.

🚯 Import Project Ir	nterchange Contents	
Import Projects Import Projects from	a zip file.	ļ
From zip file: Project location root:	D:\Labfiles75\AccountServicesBPEL.PI.zip D:\AppDev\WorkSpaces\BottupUp with TK 0420	Browse
 ✓	_ ·	
Select All Deselect	t All Select Referenced	
?	< <u>B</u> ack <u>N</u> ext > <u>Finish</u>	Cancel

- ___6. Inspect the contents of the projects that you have just imported.
 - ____a. In the Business Integration view, click the + icons in the navigation tree to expand the contents of the projects



____b. Under AccountServicesBPEL_lib → Interfaces... double-click AccountServicesInterfaces

<all resources=""></all>
💭 Data
🕮 Interfaces
Transformations
E- 😬 AccountServicesBPEL_lib
/ Integration Logic
🛱 🖉 Data
🛱 AccountInfo
💭 NewFeature
□ □ Interfaces
AccountServicesInterface
Transformations

____ c. Notice that all the operations are defined here in a single interface. You will be using the createNewAccount operation for this exercise. The AccountInfo business object is used for both the input and the output.

I AccountServic	esInterface 🔅					_
▼Interface						
Configuration		-				
Namespace			Refactor name Refactor namesp			
					itaral pap wrapped	Mara
binding Style	Binding Style document literal wrapped More					
▼Operations	3 3					
Operations and	l their paramete	rs				
		Name		Туре		
🗢 👹 create	NewAccount	L				
DI Inputs		newAccountInfo		AccountInfo		
C Outputs		theAccountInfo		AccountInfo		
🔻 👹 deleteA	ccount	·				
D Inputs		accountId		string		
uputs		reason		string		
COUTPUTS		resultStr		string		
🔻 👹 accoun	tStatus					
D Inputs	Di Inputs accountId			string		
C Outputs	IC Outputs accountStatus			string		
🗢 👹 addAcc	ountFeature					
EN reade		accountId		string		
Inputs		newFeature		NewFeature		
COUTPUTS	ID Outputs resultStr			string		
🗢 👹 getAcci	ountInfo					
E 11		accountId		string		
D Inputs		requestorInfo		string		
COUTPUTS		theAccountInfo		AccountInfo		

_____d. Likewise, under AccountServicesBPEL_lib → Data, double-click AccountInfo. Examine the business object definition of AccountInfo, which defines the data to be passed in and out of the createNewAccount method.

Business	abject 🔄 🗄
Configuration	1
Name	Accountinfo Refactor name
Namespace	http://AccountServices/AccountServices Refactor namespace
Definition	
Accou	
Accou	ntinfo
Accou	intinfo s.to filter>
C Accou	ntInfo k to filter> ountID string

NOTE: There are other aspects of the projects that you can inspect; however understanding the createNewAccount method and AccountInfo business object is sufficient for what is needed to understand this lab exercise. You can examine some additional aspects of the projects, such as the assembly diagram, the interface, and other method definitions.

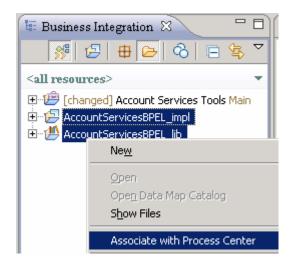
__7. Next , take a look at the AccountServicesBPEL_impl → Integration Logic → BPEL Processes → AccountServices_impl___

🔠 Business Integration 🛛
<all resources=""></all>
⊡… 🤁 AccountServicesBPEL_impl
🗄 🕀 Assembly Diagram
🚊 🗁 / Entegration Logic
BPEL Processes
👷 AccountServices_impl
Data

8. Inspecting the BPEL you will see that there is a Receive Choice that will route the business process based on the operation being called. In the case of the *createNewAccount*, the status is updated and some messages are logged to the System Out log using the createAccount snippet.

E Set Status				Receive Choice		
🙀 Reply-createNewAccount	request	est the Account	Set Result	accountStatus	deleteAccount	Set Status

- _ 9. In this step you associate the AccountServices_impl and AccountServices_lib with the Account Services Tools toolkit you previously created. Once associated with the toolkit, the SCA service operations will be referred to as Advanced Integration Services.
 - _____a. In the business integration perspective, highlight both the AccountServices_impl and AccountServices_lib. Right-click the blue highlighted area and select Associate with Process Center



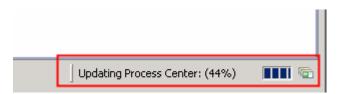
___ b. In the drop-down box, select Account Services Tools toolkit and click Next

🖶 Associate Project	
Associate with a Process Application or Toolkit	
You must associate dependent libraries with the process center. You can also associate additional modules and libraries.	
Select the process application or toolkit that will contain the projects:	Browse
Select projects to associate:	
AccountServicesBPEL_impl AccountServicesBPEL_lib	
Select All Unassociated Clear All Select Referenced	
Association changes some aspects of module and library behavior. <u>More</u>	
Back Next > Finish	Cancel

__ c. Click Finish on the Confirm Changes dialog

leave the second					
Confirm Changes The following changes will be applied to the selected projects before they are associated with the Process Center.					
The date when processes will be valid will be deleted for all processes within the selected modules. More					
< <u>Back</u> Mext > Finish	Cancel				

_____ 10. Watch the status at the bottom right.



11. Once the association is complete, inspect the changes that have occurred. In the Business Integration view, notice that the Account Services Tools toolkit has been added to the workspace and that both the AccountServicesBPEL_impl and AccountServicesBPEL_lib have been moved into it.

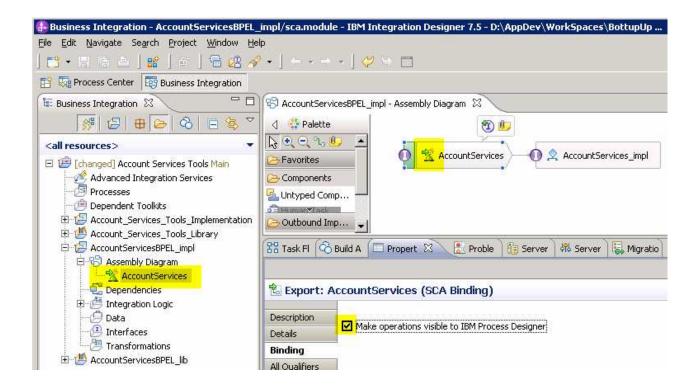
Also notice the SCA Export that was created. Double click the SCA Export and then in the properties, select bindings for the export.

Business Integration - AccountServicesBPEL_	impl/sca.module - IBM Integration Designer 7.5 - D:\AppDev\WorkSpaces\BottupUp 📕 🗖	X
File Edit Navigate Search Project Window He	Þ	
] 📑 🔹 🗟 📥] 📽] 🗉] 🗃 🖉 🔗	? ▼] ← + → +] ↔ ⇔ □	
📸 💀 Process Center 🐻 Business Integration		
🕼 Business Integration 🛛 🗖 🗖	😵 AccountServicesBPEL_impl - Assembly Diagram 🕱	
🚿 🕹 🖶 🔄 🗟 🖃 🐐 ▽	A state 1 and a state 1 and a state 2 and	
<all resources=""></all>		
🖻 🕮 [changed] Account Services Tools Main	Pavorites	
Advanced Integration Services	Components	
SCA Exports	Lutyped Comp	
Processes	CollectionservCash	
E 2 Account_Services_Tools_Implementation	🔀 Task FI 🔞 Build A 🔲 Propert 🕱 🔝 Proble 👸 Server 👯 Server 🐺 Migratio 🧮	
Account_Services_Tools_Library AccountServicesBPEL impl		4
	Export: AccountServices (SCA Binding)	
	Description	
	Details	
	Binding	
	All Qualifiers	

By default the "**Make operations visible to IBM Process Center**" attribute is not set. This attribute must be set. If it is not set, then when you get to the Process Center, you will wonder where your services are.

Set the attribute and save the Assembly Diagram.

12. Notice the changes. There is a new icon for the export and the SCA Export is no longer in the folder.



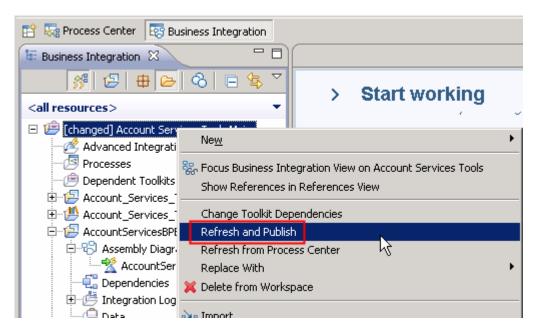
13. Publish the Account Services Tools Main to the Process center.

Before publishing a toolkit or process application that contains SCA components to the Process Center, the user doing the publish operation must have either *Deployer* and or *Configurator* administrative privileges in the WebSphere Process Server user registry. This is managed through the WebSphere Process Server administrative console.

- ____a. Users (not groups) that are defined in the Process server administrative console are reflected into the WebSphere Process Server user registry.
- ___b. If you are using tw_admin or your default administrative user ID, you will be OK.

Integrated Solutions Console	100				
Integrated Solutions Console Welcom	e wpsadmin		Help Logout	ibm.	
View: All tasks	<u>Cell=AIN</u>	ICP024Node02	Cell, Profile=ProcCtr02	Close pag	
Welcome	Adminis	trative user rol	95 15	(2) -	
🕀 Guided Activities	Admi	nistrative user	roles		
E Servers			l, update or to remove administrative roles to		
	users enables them to administer application servers through the administrative console or through wsadmin scripting.				
H Services	Logout Add Remove				
🗄 Security	Ø	679			
Environment	Selec	t User 🛟	Role(s) 🗘	Login Status 🗘	
		bpmAuthor	Operator, Deployer	Not Active	
⊕ System administration	Г	tw admin	Operator, Deployer	Not Active	
🖯 Users and Groups	Г	tw author	Operator, Deployer	Not Active	
Administrative user roles		wpsadmin	Primary administrative user name	Active	
 Administrative group roles Manage Users 		wpsadmin	Administrator	Active	
Manage Groups	Tota	15	1		
Monitoring and Tuning ■					
🖽 Troublesbooting	100				

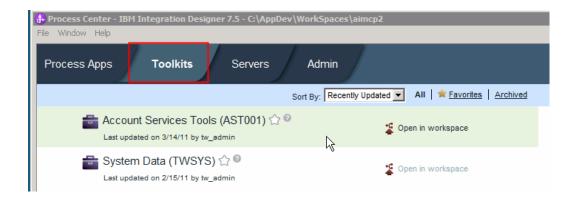
___ c. Right-click the Account Services Tools and select Refresh and Publish



______d. The **Account Services Tools** toolkit has now been published to the Process Center, including the code imported from the project interchange file. The SCA artifacts are also deployed to the Process Center server at this time. Notice that the [changed] indicator on the left of the toolkit name is gone. This indicates that the contents of the integration designer workspace are synchronized with the Process Center repository.

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	▽	
<all resources=""></all>		ating a new project in the Business mport a project into your workspace.
	Learn more • Getting Started wi	ith IBM Integration Designer ith IBM Process Center
 Integration Logic Data Interfaces Transformations 	Task F 🖓 Build A 🔲 Proper 🕅	💽 Proble) 👸 Server) 税 Server) 🕃 Migrati) 🖓 🗖
🗄 🏴 AccountServicesBPEL_lib	Property	Value
	Toolkit Name Acronym Track	Account Services Tools AST01
	Track Acronym	Main Main
	Process Center URL	http://localhost:9081/ProcessCenter
	Connection State	Connected

- _____e. Before handing the toolkit over to the business process developer there is one last step you need to do. Assuming that the services that you are providing have been thoroughly tested and that you are the person responsible for their integrity and reliability, you will need to create a snapshot of the toolkit. This will lock the version down so that no one will be able to make changes to the services without creating a new version. This step is required for the toolkit to be used by process applications or other toolkits.
 - 1) Still in the Integration Designer, switch to the Process Center perspective and select the Toolkits tab



2) Select the Account Services Tools toolkit

Process Center - IBM Integration Designer 7.5 - C:\AppDev\WorkSpaces\aimcp2			
File Window Help			
Process Apps Toolkits Servers	Admin		
s	ort By: Recently Updated 💽 All 🚖 Favorites Archived		
Last updated on 3/14/11 by tw_admin CAST001) ☆ ©	Cpen in workspace		
System Data (TWSYS) ☆ Last updated on 2/15/11 by tw_admin	Open in workspace		

3) Select the snapshots tab

Process Center - IBM Integration Designer 7.5 - D:\AppDev\WorkSpaces\BottomUp 0419 <u>Fi</u> le <u>Window</u> <u>H</u> elp	_ [] ×
Process Apps Toolkits Servers Admin	
Account Services Tools (AST001) 🟠 Snapshots History Manage Sort Snapshots By: Date All Archived	 Create New Snapshot Undeploy TIP Open in workspace
	Snapshots

4) Select Create New Snapshot (on the right)

Process Center - IBM Integration Designer 7.5 - D:\AppDev\Work5paces\BottomUp 0419 File Window Help	
Process Apps Toolkits Servers Admin	
Account Services Tools (AST001) Snapshots History Manage Sort Snapshots By: Date All Archived	+ Create New Snapshot
	 Undeploy TIP Open in workspace
	Copen in workspace
	③ Snapshots

5) Provide a name, a unique acronym, and a description.

Create New Snapshot	X
Snapshot Name: AST Iteration 01	
Description: This is the first iteration of the Account Services Tools	
Create	

6) The toolkit is now ready to share with the process developers.



Part 2: Process Designer – Implementing and testing the process application

In this part of the lab exercise, you play the role of the process developer and work within the IBM Process Designer tool. A basic outline of this part is:

- Create and open the CustomerServices application in the Process Designer
- Inspect the contents published from Integration Designer.
- Create a new process in the CustomerServices process application
- Define data variables and activities for the process
- Define the activity flow sequence and add variable initialization for the process
- Test the process application using the Inspector

____1. Start the Process Designer.

____a. Start Process Designer by using the Windows Start Menu.

· 🖻	IBM Lotus Widget Factory	•			
All Programs 🕨 🛅	IBM	🕨 🕨 🛅	BPM Advanced 7.5	×	
	💋 Log Off	💽 Shi 🚞	BPM Advanced - Process Server 7.5		🚽 IBM Process Designer 7.5 💦
		💆 🛅	IBM Integration Designer	•	Z Uninstall パ
🍠 Start 🚺 🕅	🔎 🙆 🍇 🍞 -	m	IBM Process Designer	•	🚽 Update
	🞔 🤝 📂 💙			_	

____b. Enter the credentials

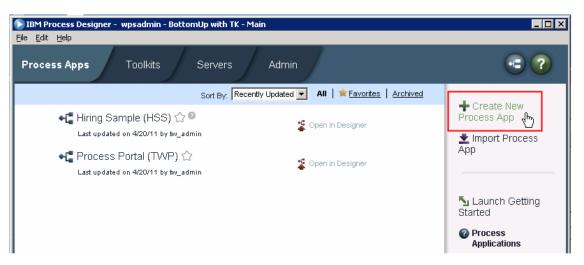
User Name:	<you name="" user=""></you>
Password:	<your password=""></your>

and then click the Login button.

	IBM.
User Name tw_admin	
Password Login Cancel	
· · · · · · · · · · · · · · · · · · ·	

____ c. If you are presented with Getting Started screen, you can close it.

2. Create the CustomerServices process application.



____a. Provide the name and unique acronym

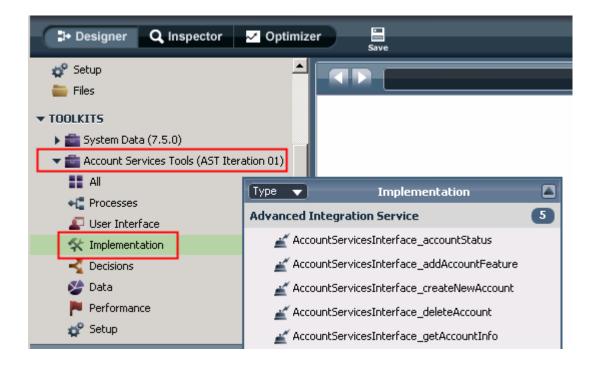
Create New Process App 🛛 🗙
Process App Name:
CustomerServices
Acronym: CSTEST1 Description:
The Customer Services process applications uses the Account Services Tools.
Create

- Open the CustomerServices process application in the Process Designer. 3.
 - **Process Apps** Toolkits Servers Admin Sort By: Recently Updated - All | * Favorites | Archived 📲 CustomerServices (CSTEST1) 🏠 🖗 🐒 Open in Designer Last updated on 2/15/11 by bpmadmin 📲 Quick Start Tutorial (TWQST) 🏠 🐒 Open in Designer Last updated on 2/15/11 by tw_admin 📲 Process Portal (TWP) 🏠 🐒 Open in Designer Last updated on 2/15/11 by tw_admin
 - ____a. Click the **Open in Designer** link corresponding to the **CustomerServices** application.

- ____4. Set the dependency between the CustomerServices process application and the Account Services Tools toolkit.
 - ____a. Setting the dependency will make the Data (Business Objects) and Advanced Integration Services available to the CustomerServices process application.

3• Designer	Q Inspector	- Opt
Data Data Performance Setup Files TOOLKITS System Data	ı (7.5.0)	
 ✓ Setup Files ▼ TOOLKITS ▶ mathing System Data 	(7.5.0)	Add dependency Account Services Tools AST Iteration 01
≺ TOOLKITS →	ı (7.5.0) vices Tools (AST Ite	eration 01)

- 5. Now you will examine the artifacts in the toolkit that were created from the SCA service that was associated with this toolkit in the Integration Designer.
 - _____a. In the library of the **Designer** view, in the **Toolkits** section, click the **Implementation** category. It shows a list of the *Advanced Integration Services* that are part of the toolkit. There is one service for each method on the AccountServices interface of the SCA module.



____b. Click **Data** to see a list of the Business Objects from the SCA module.

▼ TOOLKITS			
🕨 💼 System Data (7.5.0)			2
🗢 💼 Account Services Tools (AST I	teration 01)		.0
All			
Processes			
🖉 User Interface			
🛠 Implementation	Туре 🔻	Data	
🚽 Decisions	Business Objects		2
🎯 Data	😵 AccountInfo		
🏲 Performance	ም NewFeature		
🗬 Setup			

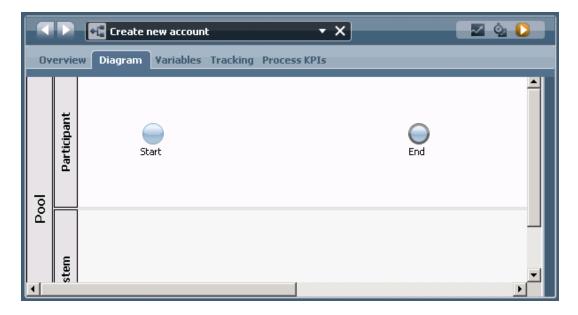
- ____ c. If you click **Processes** you will see that there are no processes defined yet. The process application at this point only contains the artifacts required to interface with the advanced integration services. It is up to the process developer to implement the processes.
- 6. Create a new business process definition (BPD) in the process application
 - ____a. In the library of the **Designer** view, click the **+** to the right of **Processes** to get the Create New menu and then select **Business Process Definition**.

le Edit Help		
⊅ Designer	Q Inspector	✓ Optimizer Save
CUSTOMERSERV	ICES	
All		Create New
•C Processes		+ Business Process Definition
🖉 User Interfac	e	A Participant Group
🛠 Implementatio	n	III Historical Analysis Scenario
🚽 Rules		Simulation Analysis Scenario
🔮 Data		

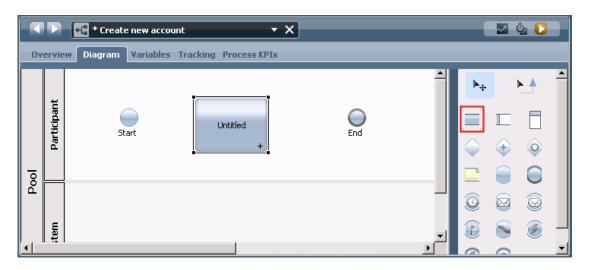
____b. Name the business process "Create new account" and click Finish.

New Business Process Definition		_ 🗆 🗙
New Business Process Definition Creating a new Business Process Definition		•=
Name: Create new account		
	Einish	Cancel

____ c. The new process diagram is shown. It has **Start** and **End** events in the **Participant** lane.



- _____7. Next, you will add the activities that make up the business process.
 - ____a. The palette on the right side of the window contains icons representing various elements of the process. **Drag and drop** the activity icon to the **Participant** lane to add a new activity to the business process



____b. Select the activity and then in the **Properties** view below, name the activity. **Enter New Account Information**.

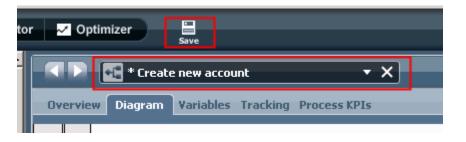
🔨 🖸 📲 * Create new account 🔹 🗙						
erview Diagr	am Variables Trac	king Process KPIs				
Participant	Start	Enter new Account Information +	End			
item						
Properties Validation Errors Where Used						
ulation lementation ting	Presentation:	Color C Icon	→ Multi Instance I			
	erview Diagr tuedio participation mat operties cali palation lementation	erview Diagram Variables Trac tudining Variables Trac Start () Start ()	Diagram Variables Tracking Process KPIs Image: Start Image: Start Image: Start Image: Start Image: Start Image: Start Image:	Prview Diagram Variables Tracking Process KPIs Image: Start Start Information Information Image: Start Image: Start <th>Prview Diagram Variables Tracking Process KPIs Image: Start Enter new Account Information Image: Start Imag</th>	Prview Diagram Variables Tracking Process KPIs Image: Start Enter new Account Information Image: Start Imag	

- 8. In a similar way, add two more activities to the business process.
 - ____a. Add an activity to the **System** lane and name it **Create New Account**.
 - ____b. Add another activity to the **Participant** lane and name it **Review New Account**.
 - ____ c. Your business process should now look similar to what is in this screen capture.

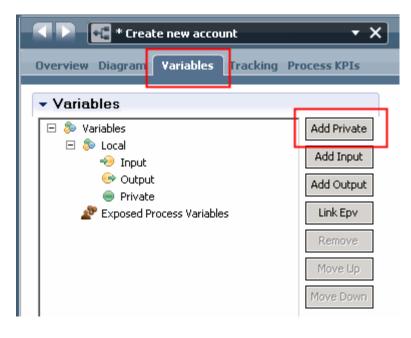
		Overview
	End	Pool Participant
Create New Account +		

NOTE: The Create New Account activity is the one that will be used to call the advanced integration service defined in Integration Designer. Activities that are invoked without human interaction, such as services or Advanced Integration Services should always be placed in the System lane of a process diagram.

- 9. Save the process.
 - ____a. Notice that the process name is prefixed with an asterisk, *Create new account. The asterisk indicates that the editor contains unsaved changes.
 - ____b. Save the process by clicking on the **Save** icon above the process name.



- 10. Add an AccountInfo type variable to the process. Variables that are defined here are scoped to the entire process, and therefore can be made available to activities and serve as a way to pass data between activities. This business process does not have any input and output data, and therefore the variable can be defined as private. The AccountInfo type was created based on the AccountInfo business object definition from the SCA module. In this simple process, it is the only variable that is needed.
 - ____a. Click the Variables tab and then click the Add Private button to create a new variable.



_ b. Name the variable theAccountInfo.

_____ c. Set the Variable Type by clicking on the Select button and choosing AccountInfo from the list. Notice that the AccountInfo data is qualified with the name of the Account Services Tools toolkit that is coming from.

* Create new account	•	×	S 🖉 🖉
Overview Diagram Variables Tracking	Process KPIs		
✓ Variables		🝷 Details	^
Solution Solution	Add Private Add Input Add Output	Name: Documentation: Is List:	theAccountInfo
Exposed Process Variables	Remove Bus	Variable Type: iness Objects AccountInfo Accour ANY System Data	String System Data Select New

- _ 11. Define the human service for the Enter New Account Information activity
 - ____a. Go back to the **Diagram** tab, right click the **Enter New Account Information** activity and select **Activity Wizard**



____b. Use the default values in the first screen of the Activity Wizard and click Next

Activity Wizar	d			
Activity Wiza Select the Servic whether to creat	e Type to at	• ttach to the Act		()
ctivity Name: Service Type —	Enter Nev	w Account Infor	mation	
 Human Serv Decision Serv 			eraction) without human ir	nteraction)
Service Selection Create a New New Service Nar Attach an ex Attaching Servic	v Service ne: Ent isting Servic		t Information vice SystData	Select
	< Back	Next >	Finish	Cancel

____ c. This next panel in the Activity Wizard is where you define which variables from the process application are to be input and output parameters of the activity. In this case, there is only one variable at the process application level, **theAccountInfo**, so it is the only one listed.

🕞 Activity Wizard		
Activity Wizard - Parameters If creating new Service, you can setup which variables to pass to it.		
Setup paremeters:		
Business Process Variable	Input	Output
🔵 theAccountInfo (AccountInfo)	true	true

NOTE: What this does is specify that this activity will have a local variable named theAccountInfo of type AccountInfo. Although the variable name is the same as the one you previously defined for the process application, this is in fact a different instance of the

variable that is scoped just to this activity. Notice that the previous screen capture shows **true** for **Input** and **Output**. What this does is create an input and output data mapping for this variable. It is through this data mapping that the values in the process application scoped theAccountInfo variable are passed into and out of the activity scoped theAccountInfo variable. It is possible to have different variable names at each scope, but when the wizard is used to define the implementation of the activity it generates locally scoped variables using the same names.

Since this is the first activity in the process application and the process application is not passed any input data, there is no need for an input data mapping to the activity. However, this activity will initialize the local theAccountInfo variable, so there needs to be an output mapping to pass it back up to the process application scope.

1) In the Setup parameters panel, click true below Input, which toggles it to false

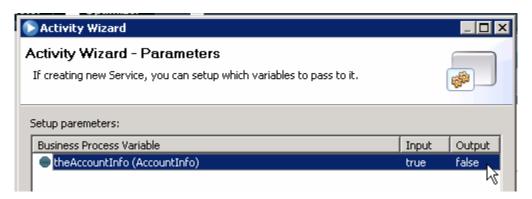
🕞 Activity Wizard		
Activity Wizard - Parameters If creating new Service, you can setup which variables to pass to it.	(*
Setup paremeters:		
Business Process Variable	Input	Output
theAccountInfo (AccountInfo)	false	true
	74	

_ d. Click the **Finish** button at the bottom of the window to complete the wizard.

____12. In a similar manner, define the human service for the **Review New Account** activity.

____a. Launching the Activity Wizard

- ____b. Accept the defaults on the first panel
- ____ c. On the second panel define the input and output parameters. However, this activity is the last activity in the process application, so the input parameter should be mapped but the output parameter does not need to be mapped.



- 13. Define the implementation of the Create New Account activity. This activity performs the call to the advanced integration service. Advanced Integration Services must me in a system lane and of type automated.
 - ____a. Click the Create New Account activity in the process diagram.
 - ___ b. In the Properties view,
 - 1) click the Implementation tab
 - 2) select the Service (Automated) type from the drop down list
 - 3) click Select button

Ov	ervi	Diagram Variables Tracking Process KPIs	2	
Pool	Participant	Start Enter New Account Information, Review Account +		
Å	Svstem	Create New Account +		
↓ Pr	oper	ties Validation Errors Where Used		
Stej Sim Imp	ulati	Implementation Service (automati Default System Service System Data	Select	

____ c. Scroll and select AccountServiceInterface_createNewAccount from the Advanced Integration Service section. Hover over the selections to get the full text. Note the toolkit name



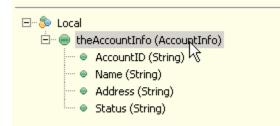
- _____ d. The data mapping of the input and output parameters needs to be done now. For this activity, theAccountInfo needs to be mapped for both input and output.
 - 1) In the Properties view, click the Data Mapping tab

Properties Vali	dation Errors Where Used		18
Step Simulation	+ Input Mapping	🐅 👻 Output Mapping	10
Implementation	🔤 🗢 temáccountinfo (ácco		54
Routing			
Data Mapping			
Pre & Post			
KPIs			

2) Under Input Mapping, click the button next to the input field.

oping	2
	countinfo (Acco
	oping

3) A selection dialog is displayed that shows the local variables scoped to the process application. Select **theAccountInfo** by doubling clicking.



4) The result is the mapping of **theAccountInfo** variable scoped to the process application into the **theAccountInfo** input parameter of the activity.

Input Mapping	4
tw.local.the&ccountInfo	😼 🗢 newAccountinfo (Acco

5) In a similar manner, map **theAccountInfo** in the **Output Mapping**.

👻 Input Mapping 🍇	 Output Mapping 		25
tw.local.the&ccountInfo 📧 🗢 newAccountInfo(Acco	theAccountInfo (Acco 👄 🗍	tw.local.the&ccountInfo	6

_____14. Save all the changes made to the process by hitting the Save button.



- _____15. Wire the activities in the process, establishing the sequence of execution.
 - ____a. Select the **Sequence Flow** icon from the palette.

_	2	20
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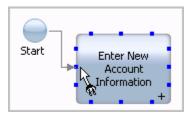
- __ b. Wire the Start activity to the Enter New Account Information activity. For this first wire, the Process Designer steps for wiring are explained.
 - 1) Using the **Sequence Flow pointer**, **hover** over the **Start** activity. This causes the wiring connection points to be shown.



2) Place the pointer directly over one of the **connection points** and click to select it as the source point for the wire.



3) Drag the wire to the target activity and place the pointer directly over one of the connection points displayed.

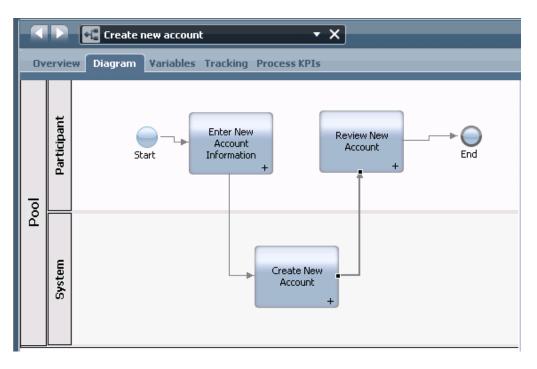


4) With the **pointer directly over one of the connection points**, you must then **click** to establish the wire. If you did it correctly, the result should look like this:



____ c. Continue, using the same technique, and add these wires to the diagram:

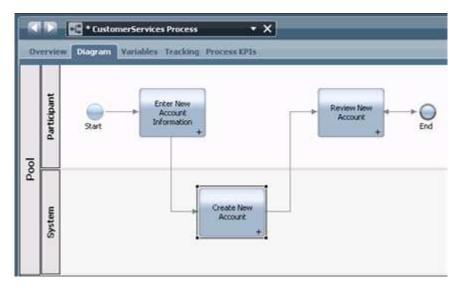
- 1) Wire Enter New Account Information to Create New Account
- 2) Wire Create New Account to Review New Account
- 3) Wire Review New Account to End
- 4) Your resulting process diagram should look similar to this (it will vary depending upon the specific connection points you selected on each activity)



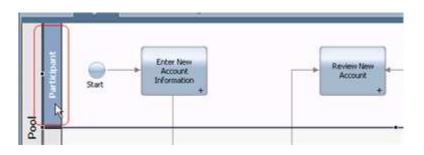
_____d. You are done with the wiring. Go back to the palette to choose the **Selection tool** or **click Esc key to activate the Selection tool**.



____ e. Now that you are done wiring, you might want to move some of the activities to make the diagram prettier and easier to follow the flow.



- 16. It is best to provide meaningful names for the swim lanes in the process diagram. You can also add color to the swim lanes to more easily distinguish between activities performed by different roles.
 - ____ a. Change the name of the **Participant** lane to **Account Manager**, indicating the role of the person who will perform these activities in the business process. Also, change the color to yellow.
 - 1) Select the **Participant** label on the left of the swim lane.



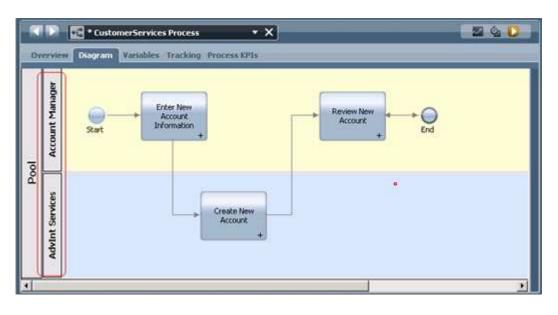
2) In the Properties view, change the name to Account Manager

Properties	Validation Errors Where	thed	1
Step	- Common		- Behavior
	Name:	Account Manager	Default Lane Participant Group:
	Presentation Color:	Default	Is System Lane:
	Documentation:		

3) Change the presentation color to **yellow** using the drop down box.

Step	- Common		
	Nome:	Account Manager	
	Presentation Color:	Default	•
	Documentation:	Default Red Orange Yellow	
	4	Green 🔓 Blue	

- _____b. In a similar manner, change the name of the **System** swim lane to **AdvInt Services** and the color to **blue**.
- ____ c. The result looks something like this:



17. Before testing the application, the variable **theAccountInfo** needs to be initialized with some default values. This will be done in the first activity of the process application.

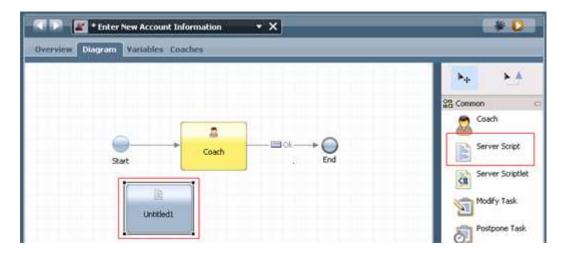
NOTE: Variables might need to be initialized to default values based on the logic of your process application. There are two kinds of variables that need to be considered, simple types such as strings or integers and complex types that are defined as business objects. The initialization requirements for these are different.

Simple types: Only need to be initialized if there is a dependency in the process logic on the variable containing a value. If not, the variable does not need to be initialized. **Complex types**: Always need to be created. So a variable for a complex type must be assigned a new object of that type. Simple types within the complex type do not need to be initialized as described in the rule for simple types.

____a. Double click the Enter New Account Information activity in the process diagram to open the human service implementation.

< 🕨 🗶 Enter Ne	w Account Informatio 🔹 🗙
Overview Diagram	Variables Coaches
Star	t End

____ b. Drag and drop a Server Script activity to the flow. Do this by clicking on the Server Script in the palette and dropping it onto the canvas.



___ c. In the **Properties** view, rename the server script to **Initialize**.

Step	- Commo	n	 Behavior
Implementation	Name:	Initialize	Save Execution Context:
Pre & Post	Documentatio	ne	2

____d. In the Properties view, click the Implementation tab and add this script:

```
tw.local.theAccountInfo = new tw.object.AccountInfo();
tw.local.theAccountInfo.AccountID = "acct123";
tw.local.theAccountInfo.Name = "Bob";
tw.local.theAccountInfo.Address = "nowhere";
tw.local.theAccountInfo.Status = "none";
```

The result should look like this:

Step	• Se	cript	
Implementation	E F	Ity.local.the&ccountInfo = new ty.object.&ccountInfo();	
Pre & Post		2tw.local.theAccountInfo.AccountID = "acct123";	
		<pre>3tw.local.the&ccountInfo.Name = "Bob";</pre>	
	đ	4tw.local.the&ccountInfo.&ddress = "nowhere";	1.00
		Stw.local.theAccountInfo.Status = "none";	+
		d and a second se	эŤ

_____e. Using the same wiring technique as previous taught, wire the Initialize server script between the Start and the Coach. You need to obtain the Sequence Flow pointer from the palette to do this. The result should look like this



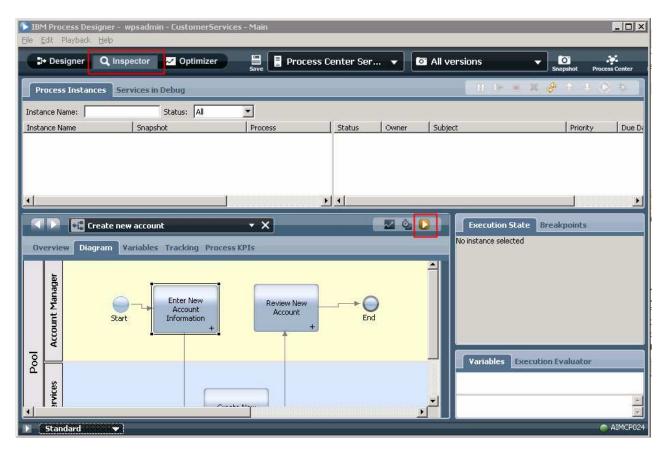
- _____f. Save the changes to Enter New Account Information using the Save button.
- _____ g. Close the editor for Enter New Account Information, returning to the CustomerServices Process. You close the editor by clicking on the X that is on the right side of the title.



- 18. Switch to the **Inspector** view
 - ____a. In the Process Designer, switch to the **Inspector** perspective by clicking on the Inspector link at the top of the window.



- _____ 19. Start a new process instance.
 - ____a. To start the instance, click the **Run Process** icon in the upper right of the panel for **Create new account** process



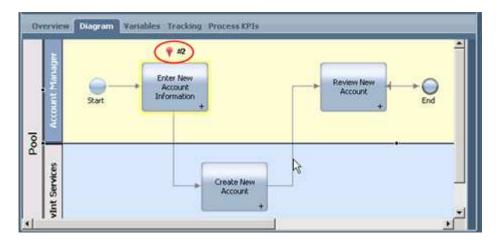
____b. In the Process Instances panel, in the left pane, you can see the active instance of the Create new account process.

		us: All 🗾							
stance Name	Spapshot	Process	Status	Due Da	Status	Owner	Subject	Priority	Du
Create new account:103	Tip	Create new account	Active	May 6,	Received	(ROLE) Al	Task: Enter New Account Information	Normal	Ap
	·								

____ c. In the right pane, you can see where in the process this instance currently is. Notice that it says **Received** for the task **Enter New Account Information**.

nstance Name:	State	us: All									
instance Name	Snapshot	Process	Status		Status	Owner	Sabject			Priority	Do
Create new account:103	Tip	Create new account	Active	May 6,	Received	(ROLE) Al	Task: Enter Nev	w Account	Information	Normal	Ap
	-										
,					_						
4					4						

____d. In the process diagram, you can see an **indicator** on the diagram, also showing that the instance is currently at the **Enter New Account Information** activity.



____e. In the Execution State, you can also see that the instance is at the Enter New Account Information activity.



- 20. Run the Enter New Account Information activity.
 - ____a. In the Process Instances right panel, select the **Received** status representing the task **Enter New Account Information** and then hit the **Runs the selected task** icon at the upper right corner.



Process Instances Ser	rices in Del	nuñ :	_					K (# 1	
Instance Name:	9.0	stus: 🗚 💌							
Instance Name	Snapshot	Process	Ratus	Due Date	Status	Owner	Subject	Priority	Due Date
CustomerServices Proces	Tip	CustomerServices Pr	Active	Mar 8, 20	Received	(ROLE) Al	Task: Enter New Account Information	Normal	Feb 22, 2011

____ b. The **Pick User From Role** dialog is displayed. You are able to select a user from the drop down box. Since you are running as tw_admin, just press OK

🕞 Pick User	From Role
	u want to run is owned by a Role. You need to select a user in run this task as.
tw_admin	
	·
	OK Cancel

____ c. A browser window automatically opens with the coach for the Enter New Account Information activity. It contains the default values that were initialized in the activity.

Enter New Acc	ount Information - Mozilla Firefox	- 0 2
Elle Edit Yew	Higtory Bookmarks Iools Help	
3 • • •	😂 🔀 🔝 http://aimcp123.austin.bm.com:9080/teamworks/facuRedirec 🏠 🕣 🔀 - Google	Q
Most Visited] Getting Started 🦲 Latest Headlines 📄 Admin Console 📄 ProcessAdmin 📄 IBM Process Portal	
Enter New A	iccount Information	
Enter New Acco	ount Information	
The Account	Info	
Account I D:	acct123	
Name:	Bob	
Address:	powhere	
Status:	none	
-		maxin
		Ok
Done		-

____ d. Update the Address field to 123 Main St

R ,	ccount I D;	acct123
	Name:	Bob
ſ	Address:	123 Main St
	Status:	none

____e. Hit the **OK** button to complete the dialog. You will see **The service has finished** in the browser.

Elle	Edit View	Higtory E	ookmarks	Tools	Help		
3	0.0	C × ·		http://ai	mcp123.	austin.ibm.com:90	80/team
A M	ost Visited	Getting Sta	rted 👗	Latest Hea	dines	Admin Console	E Pro
	The activity	/ has finished	1		÷		

- _21. Examine the current state of the process instance. There are several things to note.
 - _____a. Go back to the Process Designer. You might notice that it is in the same state as it was before you ran the **Enter New Account Information** activity. This is because the Inspector does not always reflect the current start of process instances. To update the Inspector to the current state, you need to hit the **Refresh** button. There may be a little delay in executing the *Create New Account* automatic service. If you do not move to the next activity, wait a minute and try the refresh again.



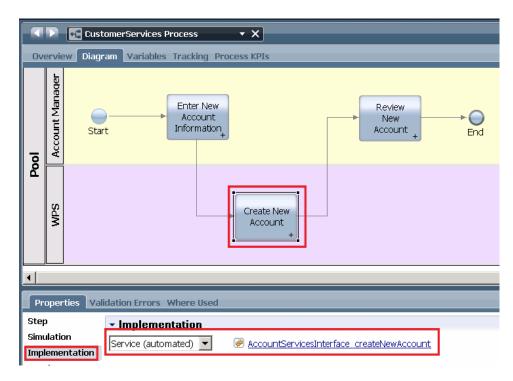
b. You can now see that the Enter New Account Information task is in Closed status and that the Review New Account task is in Received status. This can be seen in the Process Instances right panel.

Instance Name:	Sta	tus: All 💌	1						
Instance Name	Snapshot	Process	Status	Due Date	Status	Ouper	Subject	Privity	Due Date
SustomerServices Proces	Тр	CustomerServices Pr	Active	Mar 8, 20	Closed Received	tw_admin (ROLE) Al	Task: Enter New Account Information Task: Review New Account	Normal Normal	Feb 22, 201 Feb 22, 201

____ c. Also look at the **indicator** in the **process diagram** and the state shown in the **Execution State** panel.



- 22. The next thing of importance to notice is that the **Create New Account** activity ran and that the inspector did not stop before this activity.
 - ____a. In the screen capture, notice that the implementation of the Create New Account activity is configured as **Service (automated)**, and is a call to the advanced integration service **AccountServicesInterface_createNewAccount.** Because it is an automated service the inspector runs it without stopping.



- b. You can verify that the activity completed automatically in the background by checking the SystemOut.log file for the process center server.
 - 1) This is a screen capture from the SystemOut.log file that shows the log entry written from the SCA service. You may remember examining the code earlier in this lab that writes this message to the log.

<status xmlns="http://Acc</th><th>countServices/AccountServices">123 Main St ountServices/AccountServices">none</status> 	
[2/22/11 17:02:31:775 CST]	000032ad systemout o *********** New Account Created *****
[2/22/11 17:02:32:041 CST] [2/22/11 17:02:32:041 CST]	

2) If you want to look at the log file yourself, you can open it in **Notepad.** It is located at: C:\AppDev\BPM75\profiles\ProcessCenter\logs\server1\SystemOut.log

- 23. Run the Enter New Account Information activity.
 - ____a. In the Process Instances right panel, select the **Received** status representing the task **Review New Account** and then hit the **Runs the selected task** icon

					6 🔗 1	€ €	0	菸
Status	Owner	Subject	Priority	Due Date	Tas			
Closed		Task : Enter New Account Inf	Normal	Feb 17, 201			_	_
Received	(ROLE)	Task: Review New Account	Normal	Feb 17, 201	14			

- ____ b. In the **Pick User From Role** dialog, select the **tw_admin** and hit **OK**.
- ___ c. A second browser window opens automatically, displaying values corresponding to Review New Account activity.

view New Account		
The Account Info		
Account I D: acct123]
Name: Bob		1
Address: 123 Main St		
Status: new		

- ____ d. Notice the values displayed.
 - 1) Account ID and Name were not changed during the process and therefore retain the values they were initialized to.
 - 2) The **Address** was updated to **123 Main St** by the Enter New Account Information human service when you entered the value in the browser dialog.
 - 3) The **Status** was updated to **new** by the Create New Account advanced integration service.
- ____e. Click the OK button to complete the dialog.
- 24. Go back to the Process Designer window and click the **Refresh** button again. You will notice that the process has completed successfully.

Instance Name:	SU	tus: Al 💌							
Instance Name	Snapshot	Process	Status	Due Date	Status	Öwner	Subject	Priority	Due Date
SustomerServices Proces	. Tip	CustomerServices Pr	Completed	Mar 8, 20	Closed	tw_admin	Task: Enter New Account Information	Normal	Feb 22, 2011
					Closed	tw_admin	Task: Review New Account	Normal	Feb 22, 2011

What you did in this lab exercise

In this exercise you...

- In the Integration Designer
 - Created a toolkit in the Process Center perspective
 - Brought the toolkit into your Integration Designer workspace
 - Imported an existing SCA service implementation and library
 - Associated the SCA modules to the toolkit and published it to the *Process Center* repository
- In the Process Designer
 - Created a business process application that uses the toolkit created in part 1
 - Created a business process flow in the CustomerServices process application that was has a dependency on the toolkit created by the *integration developer*.
 - That used the createNewAccount *Advanced Integration Service*.
 - Tested the business process flow and the service invocation using the *Process Inspector*.