IBM InfoSphere Traceability Server
Enhanced Sample Data

The enhanced sample data for IBM InfoSphere Traceability Server provides artifacts that allow you to quickly set up a system with sample data and explore the different applications and concepts of InfoSphere Traceability Server. These artifacts include event queries, tracked item queries, subscription queries, security policies, and serial number management resources, rules, and policies.

As depicted in Figure 1, the scenario for the enhanced sample data features two production and packing facilities in Sacramento and Charlotte, two distribution centers in Reno and Nashville, and two wholesalers in Salt Lake City (Williams Wholesaler) and Columbus (Columbus Wholesaler). The red arrows indicate the shipping routes from production and packaging facilities to distribution centers. The blue arrows indicate the shipping routes from distribution centers to wholesalers.

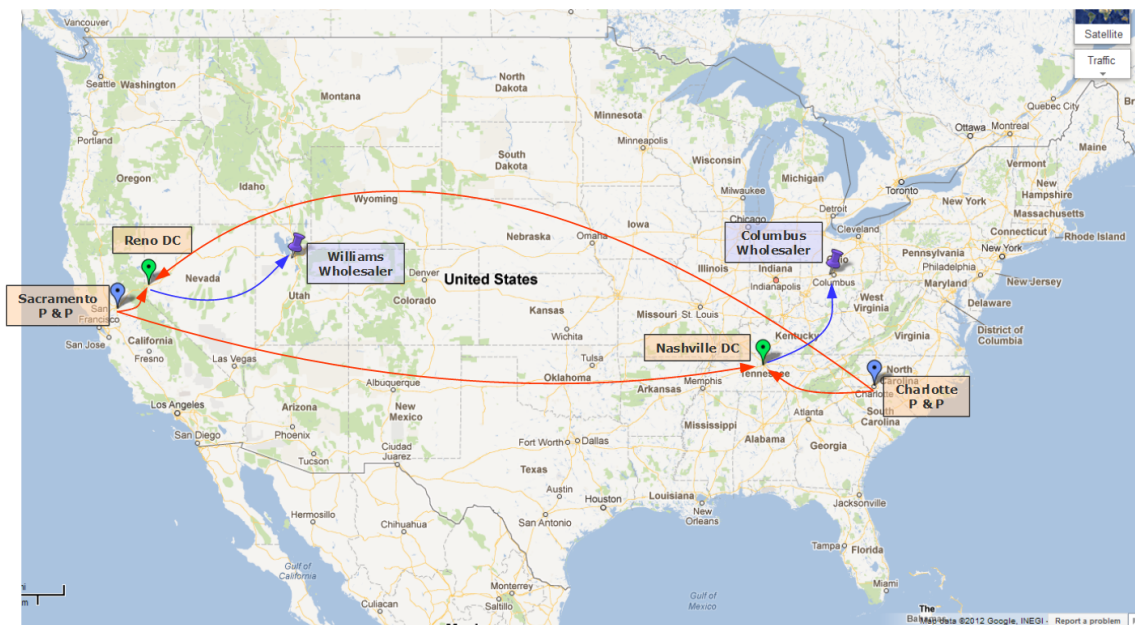The orange boxes in Figure 1 depict business locations of Maxwell Manufacturer.

Figure 1: Enhanced sample data scenario

The enhanced sample data for InfoSphere Traceability Server includes sample data artifacts for the Maxwell Manufacturer Traceability Server system and the Columbus Wholesaler Traceability Server system. You can choose to set up either the Maxwell Manufacturer system only or both. Setting up both will require two Traceability Server systems. If only the Maxwell Manufacturer system is set up and you enable the subscription query, it will be unable to deliver its results to

the Columbus Wholesaler system and you will receive errors in the logs. Hence, it is recommended to keep the subscription query disabled if the Columbus Wholesaler system is not set up.

The enhanced sample data provides events for both Maxwell Manufacturer and Columbus Wholesaler. Figure 2 depicts the event flow at the business locations of both Maxwell Manufacturer and Columbus Wholesaler.
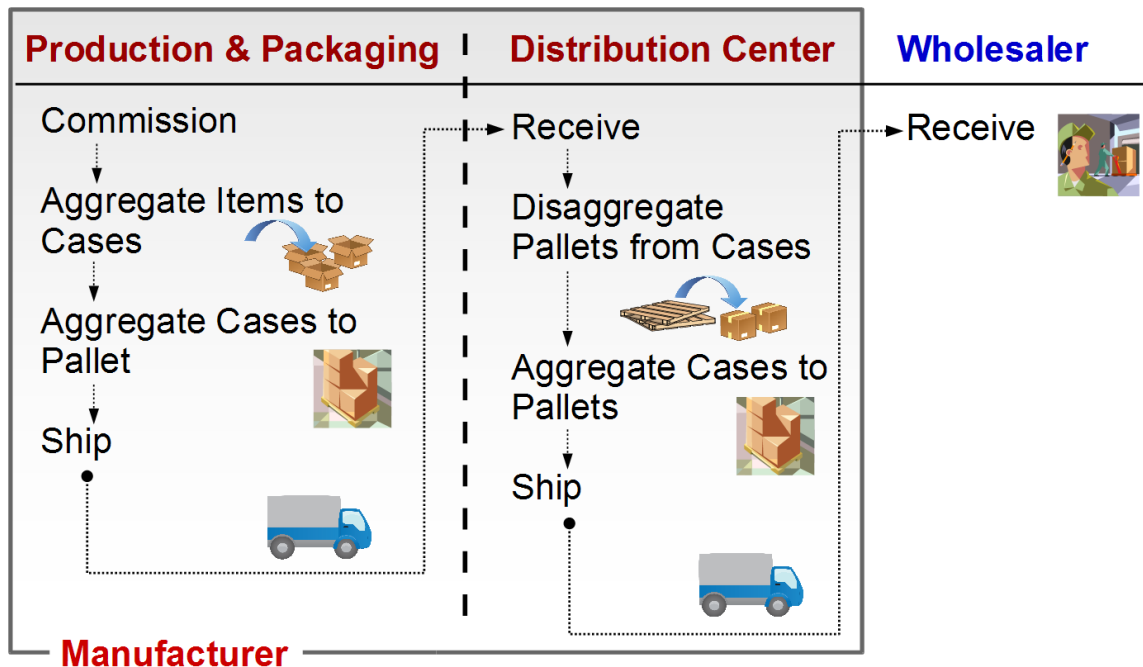

Figure 2: Event flow

Deploying the enhanced sample data

The enhanced sample data references specific user groups and users. These need to be assigned in the IBM WebSphere Application Server Administrative Console before you can deploy the enhanced sample data artifacts.

You can use the "Federated repositories" option in the WebSphere Application Server Administrative Console under *Security → Global Security → User account repository → Available realm definitions* to easily create user groups and users in the WebSphere Application Server Administrative Console under *Users and Groups → Manage Users* and *Manage Groups*.

If you choose to use local operating system security security, you will have to create the user groups and users on the operating system where the WebSphere Application Server instance is installed. If you choose to use a standalone LDAP registry, you will have to create the user groups and users in your LDAP registry.

Manufacturer system

IBM WebSphere Application Server user groups

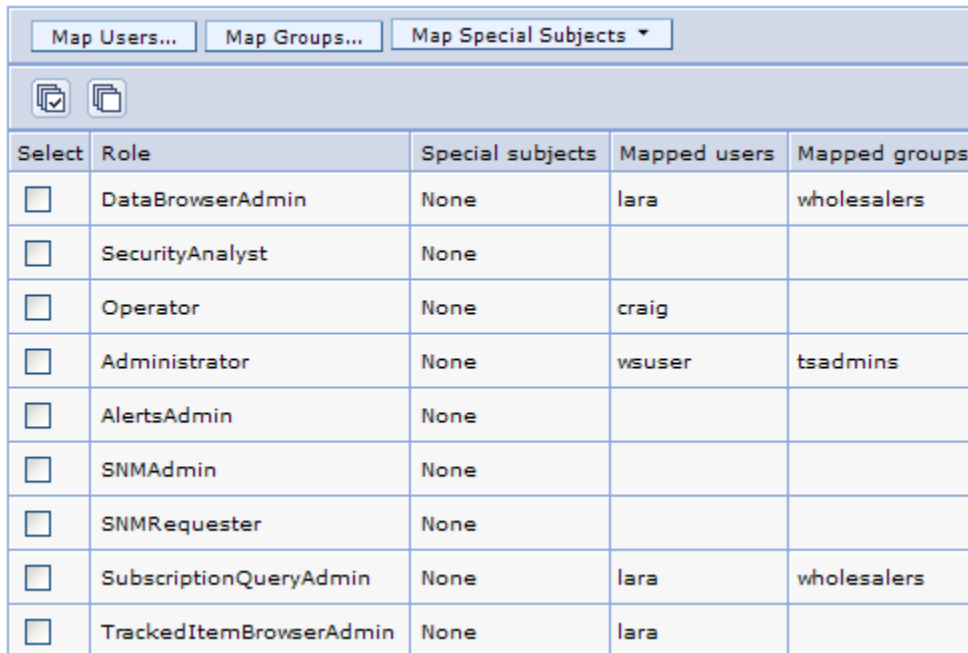Three user groups need to exist on the manufacturer's system:

- tsadmins
- tsusers
- wholesalers

Create one user in the "tsadmins" user group, e.g. user "ben".

Create two users in the "tsusers" user group, e.g. users "lara" and "craig".

Create one user in the "wholesalers" user group, e.g. "columbus_wholesaler".

In the WebSphere Application Server Adminstrative Console, map the user groups and users to the com.ibm.ts.web.uiEAR application, as shown in Figure 3. Note that the "wsuser" is the user that you specified during configuration of InfoSphere Traceability Server. This user does not have to be named "wsuser". Any other name can be used.

Select	Role	Special subjects	Mapped users	Mapped groups
☐	DataBrowserAdmin	None	lara	wholesalers
☐	SecurityAnalyst	None		
☐	Operator	None	craig	
☐	Administrator	None	wsuser	tsadmins
☐	AlertsAdmin	None		
☐	SNMAdmin	None		
☐	SNMRequester	None		
☐	SubscriptionQueryAdmin	None	lara	wholesalers
☐	TrackedItemBrowserAdmin	None	lara	

Figure 3: com.ibm.ts.web.uiEAR security role to user/group mapping

Also map the user "columbus_wholesaler" to the com.ibm.ts.webEAR application, as shown in Figure 4.

Select	Role	Special subjects	Mapped users	Mapped groups
☐	EPCISQuery	None	wsuser	
☐	NamedAnswerQuery	None	wsuser	
☐	AlertsRegistry	None	wsuser	
☐	HttpCapture	None	wsuser columbus_wholesaler	
☐	SecurityRegistry	None	wsuser	
☐	FailedEventManager	None	wsuser	
☐	ContainmentService	None	wsuser	
☐	TrackAndTraceService	None	wsuser	
☐	MasterDataServices	None	wsuser	

Figure 4: com.ibm.ts.webEAR security role to user/group mapping

Deploying manufacturer enhanced sample data artifacts

The enhanced sample data artifacts are located under directories

- *$TS_HOME/samples/tsar*
- *$TS_HOME/samples/enhanced_sample*

where *$TS_HOME* is the installation directory of InfoSphere Traceability Server.

The manufacturer enhanced sample data is comprised of a Traceability Server archive (TSAR) *manufacturer_enhanced_sample.tsar*, master data, and events.

You can deploy the TSAR by invoking the *importReplaceTSAR.sh* command. After the TSAR has been deployed, you can invoke the *importMasterdata.sh* command to import the master data files. Then, you can submit events using the *submitEvent.sh* command.

If you have set up the Columbus Wholesaler Traceability Server system, you should edit and enable the subscription query before you submit the events so that the shipping events get sent to the Columbus Wholesaler Traceability Server system.

Also note that the event folder contains an invalid event in the *invalid_event* folder. This event is invalid because the product code that is referenced in the event does not exist in the master data. Hence, the event will fail the

com.ibm.ts.rules.productCode event capture validation rule. In the *master_data* folder you will find a master data file that contains master data for the product code that is referenced in the invalid event. You can import this master data file using the *importMasterdata.sh* command and resubmit the failed event in the Failed Event Browser.

After all enhanced sample data artifacts have been deployed, the Maxwell Manufacturer Traceability Server system should contain the following artifacts:

Component	Sub-Component	Artifacts
Event Query Manager		9 event queries
Master Data Viewer		Location, Partner, Product master data. Vocabularies for Action, BusinessLocation, BusinessStep, BusinessTransactionType, Disposition, PackageType, ReadPoint, etc.
Tracked Item Query Manager		8 tracked item queries
Subscription Query Editor		1 subscription query
Security Policy Editor		3 security policies
Failed Event Browser		0 failed events
Alerts Management	Subscriptions	0 subscriptions
	Notifications Dashboard	0 notifications
Serial Number Management	Resource Manager	8 resources
	Rule Manager	8 rules
	Policy Manager	1 policy

Editing subscription queries

The Maxwell Manufacturer Traceability Server system contains a subscription query that sends shipping events to the Columbus Wholesaler system. This subscription query is disabled by default. Before the subscription query can work correctly, you need to edit it and change the destination URL. Replace the asterisks in the URL with the password that you assigned or are planning to assign to the "maxwell" user account. The "maxwell" user account is created as part of the set up for the Columbus Wholesaler Traceability Server system. In the

destination URL, also change the host name and port to match your system environment.

You may also need to configure SSL security and add the certificate of the receiver (Columbus Wholesaler) to the sender's trust store.

Finally, enable the subscription query.

Wholesaler system
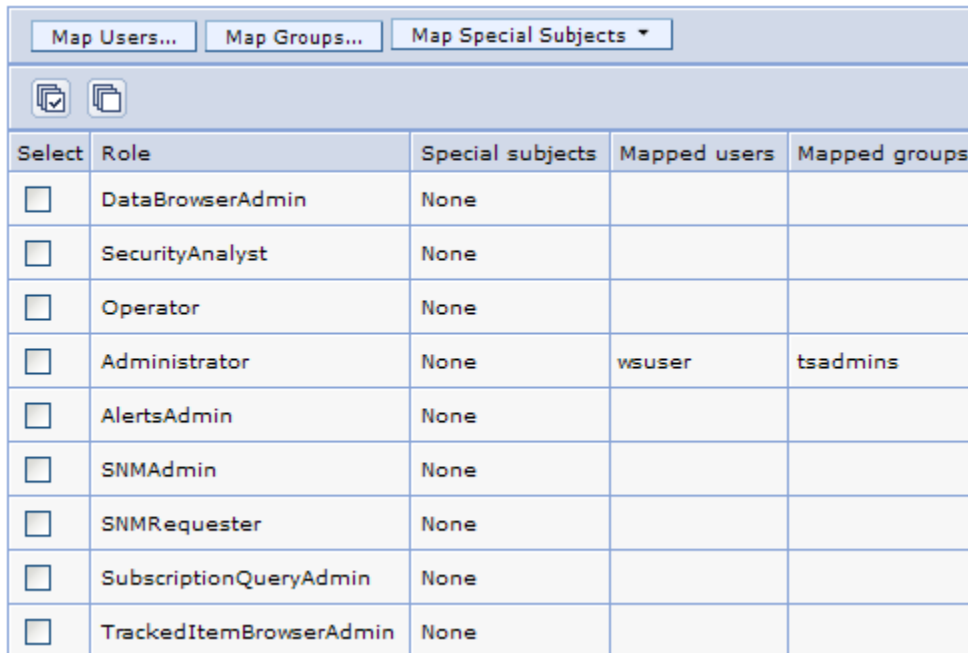
Creating IBM WebSphere Application Server user groups

Two user groups need to exist on the wholesaler's system:

* manufacturers
* tsadmins

Create one user in the "manufacturers" user group, e.g. user "maxwell".

Create one user in the "tsadmins" user group, e.g. user "wholesaler".

In the WebSphere Application Server Adminstrative Console, map the user group "tsadmins" to the com.ibm.ts.web.uiEAR application, as shown in Figure 5. Note that the "wsuser" is the user that you specified during configuration of InfoSphere Traceability Server. This user does not have to be named "wsuser". Any other name can be used.

Select	Role	Special subjects	Mapped users	Mapped groups
☐	DataBrowserAdmin	None		
☐	SecurityAnalyst	None		
☐	Operator	None		
☐	Administrator	None	wsuser	tsadmins
☐	AlertsAdmin	None		
☐	SNMAdmin	None		
☐	SNMRequester	None		
☐	SubscriptionQueryAdmin	None		
☐	TrackedItemBrowserAdmin	None		

Figure 5: com.ibm.ts.web.uiEAR security role to user/group mapping

Also map the user group "manufacturers" to the com.ibm.ts.webEAR application, as shown in Figure 6.

Figure 6: com.ibm.ts.webEAR security role to user/group mapping

Deploying wholesaler enhanced sample data artifacts

The enhanced sample data artifacts are located under directories

- *$TS_HOME/samples/tsar*
- *$TS_HOME/samples/enhanced_sample*

where *$TS_HOME* is the installation directory of InfoSphere Traceability Server.

The wholesaler enhanced sample data is comprised of a Traceability Server archive (TSAR) *wholesaler_enhanced_sample.tsar*, master data, and events.

You can deploy the TSAR by invoking the *importReplaceTSAR.sh* command. After the TSAR has been deployed, you can invoke the *importMasterdata.sh* command to import the master data files. Then, you can submit events using the *submitEvent.sh* command.

Before you submit the receiving events, you should edit and enable the subscription query first so that the receiving events get sent to the Maxwell Manufacturer's Traceability Server system.

After all enhanced sample data artifacts have been deployed, the Columbus Wholesaler Traceability Server system should contain the following artifacts:

Component	Sub-Component	Artifacts
Event Query Manager		4 event queries
Master Data Viewer		Location, Partner, Product master data. Vocabularies for Action, BusinessLocation, BusinessStep, BusinessTransactionType, Disposition, PackageType, ReadPoint, etc.
Tracked Item Query Manager		1 tracked item query
Subscription Query Editor		1 subscription query
Security Policy Editor		1 security policy
Failed Event Browser		0 failed events
Alerts Management	Subscriptions	0 subscriptions
	Notifications Dashboard	0 notifications
Serial Number Management	Resource Manager	0 resources
	Rule Manager	0 rules
	Policy Manager	0 policies

Editing subscription queries

The Columbus Wholesaler Traceability Server system contains a subscription query that sends receiving events to the Maxwell Manufacturer system. This subscription query is disabled by default. Before the subscription query can work correctly, you need to edit it and change the destination URL. Replace the asterisks in the URL with the password that you assigned to the "columbus_wholesaler" user account. Also change the host name and port in the URL to match your system environment.

You may also need to configure SSL security and add the certificate of the receiver (Maxwell Manufacturer) to the sender's trust store.

Finally, enable the subscription query.

Changing the number of event capture threads

As part of the enhanced sample data setup, a large number of events is submitted to the event capture interface of InfoSphere Traceability Server. Since these events are submitted all at the same time, a race condition can occur when multiple capture threads are used which can lead to events being captured in an incorrect order and therefore leading to failed events. The correct order of events is important – thus it is recommended to set the number of event capture threads to 1 for the purpose of deploying the enhanced sample data.

You can set the number of Capture threads in the WebSphere Application Server Administrative Console under *Resources > JMS > Activation specifications > tsCaptureActivation > Advanced properties > Maximum server sessions*.

Command Reference

To deploy the enhanced sample data, you have to execute certain commands on the command line. These commands are listed below in no particular order.

$TS_HOME is the installation directory of IBM InfoSphere Traceability Server. By default, the path is */opt/IBM/WebSphere/AppServer/ts*.

Deploying the manufacturer TSAR:

```
$TS_HOME/bin/importReplaceTSAR.sh -file
$TS_HOME/samples/tsar/manufacturer_enhanced_sample.tsar
```

Deploying the wholesaler TSAR:

```
$TS_HOME/bin/importReplaceTSAR.sh -file
$TS_HOME/samples/tsar/wholesaler_enhanced_sample.tsar
```

Importing master data for manufacturer and wholesaler:

```
$TS_HOME/bin/importMasterdata.sh
$TS_HOME/samples/enhanced_sample/master_data/*.xml
```

Submitting all events for manufacturer. The default queue "myeventq" is used:

```
$TS_HOME/bin/submitEvent.sh -queue myeventq
$TS_HOME/samples/enhanced_sample/events/manufacturer/*.xml
```

Submitting all events for wholesaler. The default queue "myeventq" is used:

```
$TS_HOME/bin/submitEvent.sh -queue myeventq
$TS_HOME/samples/enhanced_sample/events/wholesaler/*.xml
```