

This is Part 2 of the IMS Enterprise Suite for Explorer Hands-on-lab. You will create the metadata required to access an IMS database and see how this can maintained in a centralized area called the IMS Catalog. The IMS Catalog was introduced as part of IMS version 12. Once the metadata is available in the IMS Catalog, the IMS universal drivers can be configured with a connection to access the database.

If you did not participate in the Part 1 hands-on-lab then please reference pages 2 to 3 of this document to understand the environment.

# **IMS Enterprise Suite Explorer for Development**

In this part of the lab, the IMS Explorer is used to create the PSB *extended source* by parsing the IMS PART Database PSB and DBD sources.

Note that in your workstation environments, the IMS Explorer is a plug-in to Rational Developer for System z.

# 1. Start Rational Developer for System z

**Click** on Start > All Programs > IBM Software Delivery Platform > IBM Rational Developer for System z with Java V8.0.3 > IBM Rational Developer For System z with Java



You may be prompted to select a workspace. A workspace is a directory that stores all of the files for the projects. You can select your own directory, e.g., C:share\explorerlab\work or take the default directory.

😨 Workspa	ace Launcher	
Select a w IBM Rationa Choose a w	rorkspace al Developer for System z with Java stores your projects in a folder called a w orkspace folder to use for this session.	orkspace.
Workspace:	C:\share\explorerlab\work	Browse
Use this a	is the default and do not ask again	OK Cancel

When Explorer startup is complete, you may be shown the Welcome Screen.

Welcome			
erview	First Steps		
5 Enterprise Suite Explorer for Development IS Explorer)	IMS Enterprise Suite Explorer for Development (IMS Explorer)	More >>	More >>
Close this window and start using IMS Explorer	Creating an IMS Explorer project , You must open or create an IMS Explorer project before used and other frequently in IMS	Web Resources	Tutorials
To return to this window, click Help > Welcome.	Explorer.	Product Information for IMS Enterprise Suite	IMS Enterprise Suite Explorer for Development (IMS Explorer)
IMS Explorer product overview Loam about the tasks that the IMS Explorer helps you with.	Creating or editing IMS program definitions (PSBs and PCBs)	Resources and support for IMS Enterprise Suite.	Yew video screencasts that demonstrate common
IMS Explorer Projects INS Explorer projects store the resources for modifying INS databases and developing INS applications.	To develop IMS applications, you must before the speciation view of the IMM distribution. The speciation view is specialized through IMS program definitions: a program specification block (252) and its related program control blocks (PCDS).	Resources and support for IBM Information Management System (IMS).	IMS Explorer tasks, such as creating an IMS Explorer project, visualing IMS databases, and accessing IMS data using SQL.
	Visualizing an INS database and editing IMS	TMS Enternrise Suite Evoluter	More >>
More >>	database field attributes You can use the IMS DBD editor in the IMS Explorer to view the segment hierarchy for an IMS database and to add the field attributes for a surgester. Even the	Resources and support for IMS Enterprise Suite Explorer (IMS Explorer).	Samples
irate	1945 DBD editor, you can also view logical relationships and indexes for the database.		IMS Enterprise Suite Explorer for Development (IMS Explorer)
Enterprise Suite Explorer for Development S Explorer)	-79	inter of	Sample DBDs
Importing DLIModel utility plug-in projects You can import projects that were created with the IMS DLIModel utility plug-in to IMS tuplorer.	Accessing IMS data by using SQL queries You can access and manipulate data stored in an IMS database by creating and running SQL queries in IMS tophree.		The samples for IMS Explorer include sample database descriptions (CBEP) and program specification block (PSB) files for illustrating how to visualize and access IMS databases.
More >>	Hare so 🖉		More as

If so, close the Welcome page (x the tab at the top of the screen on the left). Close the Welcome page.

**2.** Click on File > New > IMS Explorer Project. (If you don't see "IMS Explorer Project" as a choice then click on File > New > Other and open the IMS folder).

🕏 IMS Explorer - IBM Rational Develo	per for System :	z with Java		오 New
File Edit Navigate Search Project Run New Open File	Window Help	👘 IMS Explorer Project	te Syste ( »	Select a wizard Create an IMS Explorer project.
Close Close All	Ctrl+W Ctrl+Shift+W	Program Specification Block (PSB) Example	_	<u>Wizards:</u> Type filter text
Save As	Ctrl+Shift+S	Ctrl+N		<ul> <li>⊕ Example EMF Model Creation Wizards</li> <li>⊕ Example EMF Model Creation Wizards</li> <li>⊕ End File Manager</li> <li>⊕ End File Manager</li> </ul>
Move Rename Refresh Convert Line Delmitters To	F2 F5			⊕ Graphical Modelling Framework     ⊕ Host Connection Emulator     ⊖ TMS     ☐ MS Explorer Project
Print  Switch Workspace Partset	Ctrl+P	Error K Proble	I SQL R	Verogram Specification Block (PSB)     See Java     See Java EE     See Java Emitter Templates
kestalt ≧r Import r⊿ Export		<ul> <li>Properties are not available.</li> </ul>		H → JavaScript H → IFT Transformations.
Properties 1 zserverosdemosibmcom.hce [HostConne 2 SQLcalis.sol [playimsexplorer] 3 DF5IV97DotabaseView.java [playimse. 4 updScript12.sol [RemoteSystemsTempF	Ak+Enter			Image: Cancel

😨 New IMS Ex	plorer Project 📃 🗖 🔀
Create a new Enter a project r	IMS Explorer project
*Project name:	Lab2Pnn5AM09
?	< <u>B</u> ack <u>N</u> ext > <u>Fi</u> nish Cancel

Enter a Project Name, e.g., Lab2PnnSAM09 where nn is your team number

Click Next.

On the Import IMS Resources (DBDs and PSBs) you can use Local file systems when the source files have been downloaded to your workstation. You can select z/OS system and connect to your z/OS system where your DBD/PSB is stored. For IMS 12 with Catalog function enabled you can obtain the Metadata. If you participated in Part 1 of the hands-on-lab then this set of instructions are similar to what you did earlier.

For this initial part of the lab we will assume that the metadata to access the IMS database does not yet exist in the IMS Catalog. To begin, use a connection to the z/OS system and download source from z/OS to create the Metadata.

😤 New IMS Explorer Project	
Select an Import Source	
Import from:	
O Local file system	
Prerequisite: Before you can import IMS resources, you must copy the files from your z/OS environment to your local workstation by using FTP.	
⊙ z/O5 system	
Prerequisite: Before you can import IMS resources, you must have access to a PDS file in your z/OS system.	
O IMS catalog	
Prerequisite: Before you can import IMS resources from an IMS catalog-enabled system, you must create an IMS connection profile for that system.	
? < <u>B</u> ack <u>N</u> ext > <u>Finish</u>	Cancel

### Select z/OS system to obtain the source

Click Next.

Sew IMS Explore	Project	
Select Resources f	rom z/OS System	1 L
PSB (program specifica PSBs to import:	tion block)	
P5B Name	Path	Add PSB Delete PSB
DBD (database descrip DBDs to import:	tion)	2
?	< <u>B</u> ack <u>N</u> ext >	<u>Finish</u> Cancel

Select the **Add PSB** button.

**3.** You will be asked to provide the z/OS connection information. If you did not attend the previous lab, you will see a "No z/OS connection." If you attended the previous lab and used this same workspace then you may see an existing connection and you may proceed to instruction 4.

If you do not already have a connection then click on the "No z/OS connection" to open the Connections box.

☞ Import IMS Resources (DBDs and PSBs)	
Connect to z/OS System and Select Resources to Import Browse the remote z/OS system to select DBDs and PSBs to import from a PDS or Sequential Data Set.	<u>A</u>
System z connection:	
? Einish	Cancel

#### select New.

pe filter text	Connections	$\langle \Rightarrow \Rightarrow \Rightarrow \Rightarrow$	-
- General Agent Controller - Auto Comment - Auto Comment - Backward Compatibility - Bidirectional Development - BMS Map Editor - Connections - Credentials - Client Certificates - COBOL - Data Management - Ecore Diagram - Enterprise Service Tools - File Manager - Help - IMP - IMP - IMP - IMP - Importer - IMS Explorer - INS Explorer - Install/Update	Connection Type: System z - FTP Name: Location Host name: Port number: Authentication Credentials: FTP Additional Details Transfer mode Passive Active Attempt secure connection Enable MBCS support	<u>C</u> onnect Delete	
in Java In Java FF	Restore <u>D</u> efaults	Apply	ר

In the Name field enter PnnSAM09 where nn is your team number In the Host name field enter zserveros.demos.ibm.com

:ype filter text	Connections 🔶 - 🔿 - 🤜
General     General     General     Aduc Controller     Ant     Auto Comment     Badward Compatibility     Bidrectional Development     Gronections     CrCS Explorer     Connections     CrCS Explorer     Clent Certificates     Cobol     Data Management     Ecore Diagram     Enterprise Service Tools     File Manager     Help     ImP     Importer     ImS Explorer     Instal/Update	Connection Type: System z - FTP Name: P175AM09 Connect Delete Location Host name: zserveros.demos.ibm.com Port number: Authentication Credentials: FTP Additional Details Transfer mode Passive Active Attempt secure connection Enable MBCS support
🗈 Java FE	Restore Defaults Apply

Click Apply and then OK to return to the Connect to z/OS System and Select Resource to Import box which now has your connection name.

**4.** To establish a connection click the orange box and choose the connection you created to open the System z –FTP New Credentials box

😨 Import IMS Resour	ces (DBDs and PSBs)		
Connect to z/OS Sy Browse the remote z/OS	stem and Select Resources to Import system to select DBDs and PSBs to import from a PDS or Sequential	Data Set.	
System z connection:	P175AM09		
?	Einis	sh 🗌	Cancel
😨 Signon			
System z - FT	'P: New Credentials		
User ID: Password: Save passw Saved pas difficult, b	IMPOT word swords are stored on your computer in a file that is ut not impossible, for an intruder to read.		
?	OK Cancel		

In the userid field enter IMPOTxx where xx is your team number.

In the password field enter IBM07POT.

Click  $\mathbf{OK}$  to establish the connection.

5. You are now ready to retrieve your IMS resources.

😨 Import IMS Reso	ources (DBDs and PSBs)	
Connect to z/OS Browse the remote z/	System and Select Resources to Import OS system to select DBDs and PSBs to import from a PDS or Sequential Data Set.	<u>x</u>
System z connection:	● ▼ P175AM09	
High-level qualifier:	IMS.V12R1.SDFSISRC	(0)
?	Einish	Cancel

Change the **High-Level qualifier** field to **IMS.V12R1.SDFSISRC** and hit **Enter** on your PC keyboard.

😨 Import IMS Reso	ources (DBDs and PSBs)	
Connect to z/OS Browse the remote z/	System and Select Resources to Import OS system to select DBDs and PSBs to import from a PDS or Sequential Data Set.	E Constantino
System z connection:	● ▼ P175AM09	
High-level qualifier:	MS.V12R1.SDFSISRC	(219)
ARCHJCL 		
?	Einish	Cancel

Scroll down the list and select your PnnSAM09 PSB where nn is your team number.

😨 Import IMS Reso	ources (DBDs and PSBs)	
Connect to z/OS : Browse the remote z/	System and Select Resources to Import OS system to select DBDs and PSBs to import from a PDS or Sequential Data Set.	
System z connection:	● ▼ PnnSAM09	
High-level qualifier:	IMS.V12R1.SDFSISRC	(219)
P01SAM09     P02SAM09     P03SAM09     P04SAM09     P04SAM09     P05SAM09     P05SAM09     P05SAM09     P07SAM09     P07SAM09     P09SAM09     P09SAM09		
?	Einish	Cancel

Click **Finish** to activate the parsing of the PSB and DBD.

Note you will be prompted to add the DBD DI21PART. Select the **ADD DBD** button. Scroll through the list and select **DI21PART**.

🧟 New IMS Explorer Project 📃 🗖 🔀		
Select Resources from z/OS System		
PSB (program specification block) PSBs to import: PSB Name Path P1SSAM09 IMS,V12R1,SDF5ISRC,P15SAM09 Delete PSB		
DED (database description)     DEDs to import:	Import IMS Resources (DBDs and PSBs)           Connect to z/OS System and Select Resources to Import           Browse the remote z/OS system to select DBDs and PSBs to import from a PDS or Sequential Data Set.	
DBD Name       Referencing PSB or DBD       Path       Add DBD         Delete DBD       Delete DBD         Image: DBDs to import for the selected PSBs or DBDs:       This list shows any DBDs that you still need to import based on your selected PSBs or DBDs, because a PSB or a DBD that you added references that DBD.         DBD Name       Referencing PSB or DBD         DBD Name       Referencing PSB or DBD         DI21PART       P15SAM09	System z connection:	(219)
Image: Section of the section of t	? Einish	Cancel

Click **FINISH**.

After parsing completes your project is created.

6. In the **Project Explorer** box, click the + to open your Lab2PnnSAM09 project and navigate to the DBD folder.

To open the basic view double click on DI21PART. You will see a view of DI21PART.



The Manage Fields function is used to add more fields to the segment since only the key fields are defined. Right click on PARTROOT and select **Import COBOL or PL/I Structures.** 

2 IMS Explorer - PnnSAM09/DBD/DI21PA	RT. dbd - IBM Rational Developer for System z with Java	
	er kun window nep	) »
Project Explorer 23	0' DI2IPART.dod       3            Project: PmSAM09    Database name: DI2IPART    Database access type: (HISAM, VSAM)            View:       0''         IDBD name:       DI2IPART    Database access method: (HISAM, VSAM)	
Class Cource     Cource	Add, Edit, or Remove Fields     Add, Edit, or Remove Fields     Add, Edit, or Remove Fields     Add, Edit, or Remove Segment Maps     Add, Edit, or Remove Segment Maps     Bartix     Add, Edit, or Remove Segment Maps     Expand All     Collapse All     Reset Layout     Show Properties     Print     Sev As     Collapse All     Sev As     Control     Control	Ш
ML Data Source	Debug As     Profile As     Profile As     Validate     Software Analyzer     Properties X      Profile Team     Compare With     Replace With     Keplace With	

The **Import Data Structures** box opens. You will need to import the COBOL structures. The copybook was previously downloaded to your workstation. Select the **Browse** button and look for the following directory **C**share\anaheim2012\lab\source.

Select File		? 🛛
Look in:	source 🔽 🧿 🎓 🖽	
My Recent Documents	COOSAM09.cpy DS00SPART.dbd PnnSAM09.psb	
Desktop		
My Documents		
My Computer		
	File name: C00SAM09.cpy	Open
My Network	Files of type: **	Cancel

Select C00SAM09 and click Open.

Use the Drop down list to specify the structure for the PARTROOT segment.

오 Import				
Import Data Struc Import COBOL or PL/I (	t <b>ures</b> data structures (from copybooks	or includes) from the	e local file system.	
* Source folder:	C:\share\anaheim2012\lab\sou	rce	~	
* Data structure file:	C00SAM09.cpy		~	Browse
* Data structure name:	PART-ROOT	* Segment name:	PARTROOT	
Map name:	Unmapped fields	Case name:	~	Add
Segment Name	Data Structure Map Name	Case Name	e Data Structure	Remove
?			Finish	Cancel

Select Add button.

Click **Finish** to complete the import process.

The PARTROOT segment (table) will now have all the fields (columns).

2 IMS Explorer - PnnSAM09/DBD/DI21PA	RT. dbd - IBM Rational Developer for System z with Java
File Edit Navigate Search Project IMS Explo	rer <u>R</u> un <u>W</u> indow <u>H</u> elp
i 📬 • 🖩 🕼 🚔 i 🏊 • i 🥖 i 🔗 •	2 - 2 - 4 + 1 0 5 kplorer »
Project Explorer 🛛 🗖 🗖	07 *DI2IPART.dbd 🛛 🗖 🗖
🗆 😫 🏓 🏹	Project: PnnSAM09    Database name: DI21PART    Database access type: (HISAM, VSAM)
PnnSAM09     Diversal Drivers Metadata     Diversal Drivers Metadata     Diversal Drivers Metadata	View:
Cliptogram FieldBM() Cliptogram FieldBM()	PARTOT Length: S0 bytes ■ FART_NO_EDIT ■ REJECT_CODE
Lokacase Connectors     Lokacase Connectors     Derby Sample Database     Derby Sample Connection     Con Data Sources     Derby Tein Data Source     Disc Data Source     With Data Source     With Data Source     With Data Source	STANING Length: 85 bytes STANKEY CYCCOUNT Length: 25 bytes EACKORDR Length: 25 bytes
KX	Image: Constraint of the second s
i D¢	Fetching children of DNET612.*

Repeat the above process for the other segments.

This completes the field definitions. Use Ctrl-S to save the changes or just use the x tab to close the view. Follow the path Lab2PnnSAM09> DBD Source >Generated Source> IMS Catalog-enabled DBD source > DI21PART and double-click to view the updates to the DBD source.



Notice the extension information such as ENCODING, EXTERNALNAME, etc.

This completes the building of the DBD macros source definitions for creating the Catalog metadata.

Once the metadata has been created, the next step is to send the source back up to the System z environment so that the PSB/DBD and ACB gen jobs can be run. For IMS V12 Catalog environments, a new ACBGEN utility (ACB Generation and Catalog Populate utility DFS3UACB) is used to generate the ACB member and corresponding metadata records in the IMS Catalog.

NOTE: For this lab these jobs have already been submitted. The IMS Catalog for IMSB on zserveros.demos.ibm.com has been updated so that you can use it in the next section.

**7.** You will now use the Data Store Explorer (DSE) in IMS Explorer to access the IMS PART database using the metadata from the IMS Catalog.

If you already have the **Data Source Explorer** box open at the bottom of your RDz window then you can skip the following instructions.

If you do not have the **Data Source Explorer** box then click on the **Window** tab at the top of the RDz tool and follow the following: **Show View > Other.** In the **Show View** box, click **+ Data Management,** select **Data Source Explorer** and click **OK.** 

😤 IMS Explorer - IBM Rational Developer for System z with	Java 📃 🗖 🔀	Show View	×
File Edit Navigate Search Project Run Window Help			
i 🗗 • 🔝 😨 👌 i 🗛 • New Window i ⊕ - ∑ - ♥ ↔ ↔ ↔ ↔ ↔ ↔ ₩ew Editor	IMS Explorer »		
C Project Explorer S Show View	Error Log Alt-	E COBOL E De Coverage	^
Customize Perspective Save Perspective Save Perspective Close All Perspectives DISSAM09DatabaseView.it DISSAM09Datab	%     Navigator       %     Outline       Alt-Image: Project Explorer       Project Explorer       Other	CVS     Data Management     Data Project Explorer     Data Source Explorer     Execution Plan     Model Report     Source Explore	
OBD     OBD     OBD DeD Source     PSB     Source     SCLMConfigProject		Debug     D	
Connections     Prop	🔮 Error 🖹 Probl 🗖 🗖 MS Universal Drivers Metadata	DK Cancel	

In the **Data Source Explorer** window, right-click the **Database Connections** folder, and click **New**.



The **New Connections** box opens up. Select **IMS** as the database manager and the driver name **IMS Universal JDBC Drive**r as the JDBC driver.

Connection identification  Cgmection identification  Cgmection Name: [JPS DB  DBC drivers] DDBC drivers [IMS Universal 3DBC Driver Default  Popertias BE for Linux, UNDX, and Windows BE for L	onnection identification Use default naming convention genection Name: IPIS DB  ext a database manager: audscape 2 for Infl. VMUX, and Windows 7 for Infl. VMUX and Windows 7 for Infl. VMUX and Windows 7 for Infl. VMUX 1 generated a succe 7 for Infl. VMUX and windows 7 for Infl. VMUX 1 generated a succe 7 for Infl. VMUX and windows 7 for Infl. VMUX 1 generated a succe 7 for Infl. VMUX 1 generated by the DLIModel ulity plug-in or IMS 7 generated a succe 7 for INS Catalog 9 for 1 for Infl. VMUX 1 generated a succe 7 for INS Explorer project 9 for Infl. VMUX 1 generated a succe 7 for INS Explorer project 9 for Infl. VMUX 1 generated a succe 7 for INS Explorer project 9 for Infl. VMUX 1 generated a succe 7 for INS Explorer project 9 for Infl. VMUX 1 generated a succe 7 for INS Explorer project 9 for Infl. VMUX 1 generated a succe 7 for INS Explorer project 9 for Infl. VMUX 1 generated a succe 1 generated a	ou must specify a valid port number for you	database server.	
✓ Use default naming convention         Cgnnection Name:       IPS DB         Jacksape Bar for BiOS BB for Linux, LNIX, and Windows BB for Linux, LNIX, LINX, L	Usg default naming convention         genection Name:       UPS DB         set a database manager:       uudscape         uudscape       2 for linux, URLX, and Windows         2 for jubs       Control         2 for linux, URLX, and Windows       Properties         0000       General Tracing Optional         *Connection name:       IPS DB         0010       General Tracing Optional         *Connection name:       IPS DB         0020       General Tracing Optional         *Connection name:       IPS DB         Data store:       Potenties         *Potenties       Potenties         Start       Potenties         *Potenties       Potenties         Data store:       Potenties         *Potenties       Potenties         Start       Potenties         *Potenties       Potenties         *Poten unible:       Potenties	opection identification		
grinettion Name: DE DE liect a database manager: loudscape 22 for Jinux, UIX, and Windows 22 for Jinux, UIX, and Windows 25	ametkin Name: [HS DB set a database manager: uddscape 2 for IR/S (JOS 2 for IR/S (JOS) 2 for IR/	Use default naming convention		
iect a database manager: loudscape B2 for IS/OS B2 for IS/OS B2 for IS/OS SQL0E SQ	ext a database manager: uudscape 2 for IKJOS 2 for IKJ	nnection Name: IMS DB		
Zordscape       Zord Klyos         Zord Klyos       Zord Klyos         Zord Klyos       Zord Klyos         Zord Klyos       Zord Klyos         Square       Second         Second       Second         Second       Second         Second       Second         Second       Second         Second       Second         Second       Second </td <td>Audicade 2 for R(I)GS 2 for R(I)GS 100 GO 2 for R(I)GS 2 for R(I)G</td> <td>rt a database manager:</td> <td></td> <td></td>	Audicade 2 for R(I)GS 2 for R(I)GS 100 GO 2 for R(I)GS 2 for R(I)G	rt a database manager:		
B2 for B/OS       URX, and Windows         B2 for B/OS       WIX, and Windows         B2 for B/OS       General Tracing Optional         SQL0B       General Tracing Optional         MaxDB       *Connection name: IMS DB         Data store:       Image: Imag	Properties     For Linux, UNIX, and Windows     Properties     Curb BDC     Cu	udscape	JDBC driver: IMS Universal JDBC Driver Default	~
B2 for 2(05)         entry DBC SQL08         General Tracing Optional         Connection name: IMS D8         Data store:         Properties         General Tracing Optional         Connection name: IMS D8         Data store:         Prot number:         Port number:         Port number:         Port number:         Port number:         Password:         Default schema:         Metadata source         Metadata source         Metadata source         Mit Schema:         Mit	2 for z(OS try CUBC CUCB Construction name: IMS DB Data store: Sol Sol Sol Sol Sol Sol Sol Sol	? for i5/OS ? for Linux, UNIX, and Windows	-	
Properties     General Tracing Optional     General Tracing Optional     "Connection name: [MS DB     Data store:     [MAddress     "base	Wy to BGC QUEB       Properties         General Tracing Optional <ul> <li>Connection name: [MS DB</li> <li>Data store:</li> <li>Data store:</li> <li>Data store:</li> <li>Port number: [portNum</li> <li>Date name:</li> <li>Password:</li> <li>Save password</li> <li>Default source</li> <li>The MS Liviensal DBC driver uses this information to process SQL calls to IMS. Select a PSB systep? a Java metadata class (generated by the DLIModel utility plug-in or IMS Explorer project</li> <li>Project:</li> </ul> <li>Project:</li>	for z/OS		
SQLDB         General         Tracing         Optional           Soft         *Connection name:         IMS DB           polls         basis         Pollasistore:         Image: Soft           polls         basis         *Host:         IpAddress           whose         *Port number:         portNum           User name:         Password:         Image: Softward           Save password         Default schema:         Metadata sources           Metadata sources         TMS Catalog         TMS Catalog	QLOB       General Tracing Optional         ormix	DY heric JDBC	Properties	
*Connection name: IMS DB     Torinic	ornacioname:       IMS DB         SOL       Data store:         SOL       Thest:         UpAdress       Part number:         base       Port number:         Port number:       PortNum         User name:       Password!         Save password       Default schema:         Password:       Password!         Save password       Default schema:         Password:       Password         Default schema:       Password!         User name:       Password!         Default schema:       Password!         Default schema:       Password!         Password!       Password!         Password!       Password!         Password!       Password!         Password!	QLDB	General Tracing Optional	
axOB SQL ade U.Server base desphere Data store: #host: base portNum User name: Password Default schema: Metadata source Metadata	MCB       Data store:         SQL       Thost:         base       ipAddress         base       *Tort number:         pasword:       Pasword!         Default schema:       Metadata source         The IM5 Inviersal JOBC driver uses this information to process SQL calls to IM5. Select a PS6 or specify a Java metadata class (generated by the DLIModel utility plug-in or IM5 Explorer project.         IMS Explorer project.       Project:	ormix	*Connection name: IMS DB	
SQL adv ver       *Host:       ipAddress         base base obsphere       *Port number:       portNum         User name:       Password         Default schema:       Metadas source         THE MS burger Juby alwa metadata class (generated by the DLIModel usility plug-in or IMS Explore).       IMS Catalog	SQL L Sarver base biphere	OB	Data store:	
L Gever  L Gever  Port number: portNum  Possword:  Save password  Default schema:  Metadata source  The IMS Univeral 208C driver uses this information to process SQL calls to IMS. Select PS6 or sport'ya Java metadata class (generated by the DLIModel ublity plug-in or IMS E Explorer).  Mis Catalog	L'Broards L'Broards Port number: Part number: Part number: Password: Password: Save password Defaut schema: Metadata source The IMS Intriversal JDBC driver uses this information to process SQL calls to IMS. Select a PSB or specify a Java metadata class (generated by the DLIModel utility plug-in or IMS Explorer). Metadata Surce IMS Catalog PSB: Local IMS Explorer project Project:	sQL ide	*Hoch	
base potriumber: portium User name: Password: Save password Default schema: Metadata source The INS Universal 208C driver uses this information to process SQL calls to IMS. Select PSB or sport'ya Java metadata class (generated by the DLIModel utility plug-in or IMS Explorer). (IMS Catalog)	Dese bisphere	Server	IDAddress	
User name: Password Default schema: Metadata scurce The INS Universal JOBC driver uses this information to process SQL calls to IMS. Select PSD nos process to IMSD nos process SQL calls to IMSD nos process SQL calls to IMSD nos process SQL calls to IMSD nos process t	User name: Password: Save password Default schema: Metadata source The IMS Iniversal JDBC driver uses this information to process SQL calls to IMS. Select a PSB or specify a Java metadata class (generated by the DLIModel utility plug-in or IMS Explorer). PSB: Local IMS Explorer project. Project: Pro	Sybase Websphere	*Port number: portNum	
Password: Save password Default schema: Metadata source The IN'S Universal JUBC driver uses this information to process SQL calls to IM's. Select PSB or specify a Java metadata class (generated by the DLIModel utility plug-in or IM's Explorer). IM's Catalog	Password:  Save password  Default schema:  Metadata source  The IMS Livivesal DBC driver uses this information to process SQL calls to IMS. Select a PSB or specify a Java metadata class (generated by the DLIModel utility plug-in or IMS Explorer).  MIS Catalog  PSB: Local IMS Explorer project  Project:	ophoto	User name:	
Save password Default schema: Metadata source The IMS Linkead DBC driver uses this information to process SQL calls to IMS. Select PSB or specify a Java metadata class (generated by the DLIModel utility plug-in or IMS Explore). IMS Catalog	Save password Default schema: Metadata source The IMS Universal JOBC driver uses this information to process SQL calls to IMS. Select a PSB or specify a Java metadata class (generated by the DLIModel utility plug-in or IMS Explorer). IMS Catalog PSB: Coal IMS Explorer project Project:		Password:	
Save password Default schema: Metadata source The IMS Universal JDBC driver uses this information to process SQL calls to IM5. Select PSB or specify a Java metadata class (generated by the DLIModel utility plug-in or IM5 Explorer). IM5 Catalog	Save password Default schema: Metadata source The IMS Iniviewal JDBC driver uses this information to process SQL calls to IMS. Select a PSB for specify a JAva metadata class (generated by the DLIModel utility plug-in or IMS Explorer). PSB: Local IMS Explorer project. Project:			
Metadata source The IMS Universal JDBC driver uses this information to process SQL calls to IMS. Select PSB or specify a Java metadata class (generated by the DLIModel utility plug-in or IMS Explorer). IMS Catalog	Default schema:  Metadata source  The IMS Linkversal JDBC driver uses this information to process SQL calls to IMS. Select a PSB or specify a Java metadata class (generated by the DLIModel utility plug-in or IMS Explorer).  IMS Catalog  PSB:  Local IMS Explorer project  Project:  Project:  Project:  Project:  Project: Projec		bave password	
Metadata source The IMS Linkvestal 208C driver uses this information to process SQL calls to IMS. Select TSB or specify a Java metadata class (generated by the DLIModel utility plug-in or IMS Explorer). IMS Catalog	Metadas source The IMS Linkersal XBC driver uses this information to process SQL calls to IMS. Select a PSB or specify a Java metadata class (generated by the DLIModel utility plug-in or IMS Explorer). IMS Catalog PSB: Local IMS Explorer project Project:		Default schema:	
The IMS Universal JOBC driver uses this information to process SQL calls to IMS. Select PSB or specify a Java metadata class (generated by the DLIModel utility plug-in or IMS Explorer).	The IMS Iniversal JDBC driver uses this information to process SQL calls to IMS. Select a PSB or specify a JAva metadata class (generated by the DLIModel utility plug-in or IMS Explorer).  PS8:  Local IMS Explorer project.  Project:		Metadata source	
IMS Catalog	IMS Catalog       PSB:       Local IMS Explorer project       Project:		The IMS Universal JDBC driver uses this information to process S PSB or specify a Java metadata class (generated by the DLIMod Explorer).	QL calls to IMS. Select a al utility plug-in or IMS
	PS8:     Local IMS Explorer project.     Project:		/ IMS Catalog	
PSB:	Local IMS Explorer project  Project:		O PSB:	
	Project Project			
Local IMS Explorer project	Project:		Local IMS Explorer project	
Project:			Project:	★
P58:	PS8:		P58:	~
-1 oral file system			Local file system	
LULALING SYSTEM	Local file system		Cite Incentions	Derever 1
Euclarine system	Local file system			browse
File location: Browse	Local file system     File location:     Browse		Metadata class:	
<ul> <li>Local file system</li> </ul>			Local file system	
	Loud Blo sucher		El la system	
Local nie system	Local file system		<ul> <li>File location:</li> </ul>	Browse
File location:	Local file system		Matadata darci	

Connection identification			
Connection Name: IMPOTyx			
elect a database manager:			
Cloudscape 182 for 15/05	JDBC driver: IMS U	Iniversal JDBC Driver Default	Δ
082 for Linux, UNIX, and Windows			
)erby	Properties		
ieneric JDBC ISQLDB	General Tracir	g Optional	^
MS nformix	*Connection na	me: IMPOTxx	
laxDB	Data store:	IMSB	
racle	*Host:	zserveros.demos.ibm.com	í I
QL Server ybase	*Port number:	7013	í I
/ebsphere	User name:	IMPOT10	í
	Password:	•••••	
	Save passw	ord	,
	Default schem	a:	
	-Metadata sou	rce	
	The IMS Unive PSB or specify Explorer).	rsal JDBC driver uses this information to process SQL calls to IMS. Select a a Java metadata class (generated by the DLIModel utility plug-in or IMS	
	● PSB: P	105AM09	
		S Eveloper evelopt	
	Drojesti	S Explorer project	
	PSB:		
	-Local file	system	
	File local	ion: Browse	
Lest Connection			

In the Connection Name field enter IMPOTxx where xx is your team number

- In the Data Store field enter IMSB
- In the HOST field enter zserveros.demos.ibm.com
- In the Port number field enter 7013
- In the userid field enter IMPOTxx where xx is your team number
- In the password field enter IBM07POT

Scroll down to IMS Catalog and select the radio button

Then enter PnnSAM09 for your PSB value

Click Finish.

The connection is displayed in the Data Source Explorer.

To test the connection in the Data Source Explorer section under Database Connections, right click on your IMPOTxx connection.



Expand the path to tables and select PARTROOT.

Right click, select Data then click on return all rows to return data.

7. The next exercise is to access the IMS Catalog to obtain the metadata that was generated earlier.

Click on File > New > IMS Explorer Project

😨 IMS Explorer - IBM Rational Deve	loper for System	z with Java	
File Edit Navigate Search Project Ru	un Window Help		
New	Alt+Shift+N	🛉 🎁 IMS Explorer Project	te Syste
Open File		📬 Project	
Close	Ctrl+W	Program Specification Block (PSB)	
Close All	Ctrl+Shift+W	-^	
Save	Ctrl+S	Example	
Save As		📬 Other Ctrl+N	
😭 Save All	Ctrl+Shift+S		·
Revert			
Move			
Rename	F2		
🔊 Refresh	F5		
Convert Line Delimiters To		Prope X V Frror R Proble	SOLR 0
🚔 Print	Ctrl+P		~ ⊽
Switch Workspace		, II	
Restart			
i≥s Import		Properties are not available.	
🛃 Export			
Properties	Alt+Enter	-	
1 zserverosdemosibmcom.hce [HostCon	ne]	-	
2 SQLcalls.sql [playimsexplorer]	-		
3 DFSIVP37DatabaseView.java [playims	e]		
4 updScript12.sql [RemoteSystemsTemp	F]		

Enter a new Project Name, e.g., Lab2DFSSAM09.

😨 New IMS Ex	plorer Project	
Create a new Enter a project n	IMS Explorer project Name.	
*Project name:	LAB2DFSSAM09	
?	< Back Next > Finish	Cancel

Select **Next** to specify the IMS Catalog as the import source.



Select **Next** to import the PSB metadata.

오 New IMS Explo	rer Project	
Select Resource	s from IMS Catalog	
PSB (program speci PSBs to import:	fication block)	
PSB Name	Path	Add PSB Delete PSB
DBD (database des DBDs to import:	cription)	
?	< <u>Back</u> Next >	Einish Cancel

Click Add PSB.

You will be asked to specify your connection profile. Specify IMPOTxx where xx is your team number.

😨 Import IMS Resources (DBDs and PSBs)
Select Resources from IMS Catalog
IMS Connection Profile         Select the profile that contains the resources to import.         Profile: <select connection="" profile="">         IMS DB part1         Resource       <select connection="" profile="">         Available P385 to import:       PSBs to import:         &lt;       &lt;         &lt;       &lt;</select></select>
? Einish Cancel

A list of resources from the IMS Catalog will appear. Use PSB **DFSSAM09** and DBD **DI21PART.** 

😒 Import IMS Resources (DBDs and PSBs)	🛛 😒 Import IMS Resources (DBDs and PSBs)
Select Resources from IMS Catalog	Select Resources from IMS Catalog
IMS Connection Profile         Select the profile that contains the resources to import.         Profile:       IMPOTxx         Resources to Import         Available PSBs to import:       PSBs to import:         DFSIVP7       Import         DFSIVP9       Import         DFSSAM02       Import         DFSSAM03       Import         DFSSAM04       Import         DFSSAM05       Import         DFSSAM06       Import         DFSSAM08       Import         DFSSAM09       Import         Import       Import         I	IMS Connection Profile         Select the profile that contains the resources to import.         Profile:       Importxx         Resources to Import       DEDs to import:         Available DBDs to import:       DEDs to import:         CELDCUSX       Import         CELDPROX       Import         CELDPROX       Import         CELOPROX       Import         DBFSAMD1       Import         DBFSAMD2       Import         DBFSAMD3       Import         DBFSAMD4       Import         DBFSAMD5       Import         DBFSAMD6       Import         DBFSAMD7       Import         DBFSAMD8       Import         DBFSAMD9       Import         DBFSAMD4       Import         DFSCN000       Import         DFSCN000       Import         Import       Import         Import
? Einish Cancel	? Einish Cancel

오 New IMS Expl	orer Project	
Select Resourc	es from IMS Catalog	<b>E</b>
PSB (program spe PSBs to import:	cification block)	
PSB Name DFSSAM09	Path	Add PSB Delete PSB
<		>
DBD (database de DBDs to import: DBD Name DI21PART	Referencing PSB or DBD Path	Add D6D Delete D6D
<	fff )	>
?	< <u>B</u> ack <u>N</u> ext >	Einish Cancel

### Select Finish.

Follow the path lab2DFSSAM09> DBD Source >Generated Source> IMS Catalog-enabled DBD source > DI21PART and double-click to view the extended the DBD source.



You can now also create SQL scripts in this project.

In the **Project Explorer** box, select your project e.g., lab2DFSSAM09 Right click **New > Other** 



In the Select a Wizard box expand the Data folder and select SQL or XQuery Script then click Next.

🕏 New	
Select a wizard Creates a new SQL or XQuery script	
<u>W</u> izards:	
type filter text	
Business Intelligence and Reporting Tools     Constant of the second secon	
Show All Wizards.	Cancel

S New	
Select a wizard Creates a new 5QL or XQuery script	
Wizards:	
type filter text	
C Back Next > Finish	Cancel

You will see the New SQL or Xquery Script box change Name to SelectScript1.

😨 New SC	L or XQuery Script	
Project, S Select the p	S <b>cript, and Tool</b> project, name the script, and choose the tool to use to create it.	
<u>P</u> roject:	lab2xDFSSAM09	•
Name: Edit usin O SQL a O SQL C	Script1 g and XQuery <u>e</u> ditor (for scripts that contain one or more SQL and XQuery Query Builder (for single SQL SELECT, INSERT, UPDATE, or DELETE state	statements)
Sta	atement type: SELECT	~
?	< Back Next > Finish	Cancel

Choose your **Project** lab2nnDFSSAM09 from the dropdown list. Under the radio button **SQL Query Builder** note that you can choose your Statement type. The default is **Select.** 

S New SC	L or XQuery Script	
Project, 9 Select the p	Script, and Tool project, name the script, and choose the tool to use to create it.	
<u>P</u> roject:	RemoteSystemsTempFiles	
Na <u>m</u> e: Edit usin SQL a SQL 0	Script1 g and XQuery <u>e</u> ditor (for scripts that contain one or more SQL and XQuery statements) Query Builder (for single SQL SELECT, INSERT, UPDATE, or DELETE statement)	
Statement type: SELECT SELECT INSERT UPDATE DELETE FULLSELECT WITH		
?	<back next=""> Einish Cancel</back>	

When you have changed the values, click Finish.

😨 New SQ	L or XQuery Script	
Project, S Select the p	Script, and Tool project, name the script, and choose the tool to use to create it.	
<u>P</u> roject:	lab2xDFSSAM09	~
Name: Edit using O SQL a O SQL C	SelectScript1 g and XQuery <u>e</u> ditor (for scripts that contain one or more SQL and XQuery sta Query Builder (for single SQL SELECT, INSERT, UPDATE, or DELETE stateme	atements)
Sta	atement <u>t</u> ype: SELECT	~
?	< <u>B</u> ack <u>N</u> ext > <u>Finish</u>	Cancel

When you have chosen your Statement type, e.g. SELECT for a query, click Finish.

BIRT Classic Models S Derby Sample Connect	iample Database		
Derby Sample Connec	ampie Database		I
Derby Sample Conner			New
TMD OT	ation		C raia
	IMPOTxx		
IMS DB part1	IMS DB part1		
			Delete
<ul> <li>Properties</li> </ul>			
Property	Value		
Name	IMPOTxx		
Description			
Category	Database Connections		
Database	IMPOTxx		
JDBC Driver Class	com.ibm.ims.jdbc.IMSDriver		
Class Location	C:\Program Files\IBM\SDP\lib\imsudb.jar		
Connection URL	jdbc:ims://zserveros.demos.ibm.com:7013/P10		
User ID	IMPOT10		

You will need to select a connection profile for the database you want to access. Choose the one you created earlier, e.g., **IMPOT***xx*. Click **Finish**.

The SQL Query Builder Box opens up.

In the Add a table window right click and select Add Table.

IMS Explorer - lab2xDFSSAM09/QueryScript1.s	ql - IBM Rational Developer for System z with Java 💦 🔲 🔀
Eile Edit Navigate Search Project Run SQL Window	/ <u>H</u> elp
🗈 - 🖩 🖻 🕒   🗛 -   🥖   🛷 -   🖢 -	- 🖏 - 🎨 🔶 - 🕴 📴 👔 🔀 😭 🖬 👔 🚱 👘
Project Explorer 😫 📄 📮 📮 🗆	Script1.sql     QueryScript1.sql
Bilds2P195AM09     Bab2x0FS5AM09     Bab2x0FS5AM09     Bilds2x0FS5AM09     Bilds	SELECT * FROM To add a table, right-click in this pane and use the pop-up menu.
⊕     ••••••••••••••••••••••••••••••••••••	DISTINCT Columns Conditions Groups Group Conditions
🛍 Data Source Explorer 🖾 📃 🗖	🔲 Prop 🔮 Error 🔝 Probl 🔲 SQL 🕺 🚜 Rem 📲 Rem 🦳 🗆
Database Connections     Database Connections     Database Connection     Database Connection     Database     Database     Database     Database     Database     Database     Database     Connection     DMPOTxx     DMPOTx     DMPOTx     DMPOTx     DMOtx     DMA Data Sources     Cassic Models Inc. Sample Database	Type query expression here Status Operation De Status Status Status Status Status Succeet Return All R Jul Succeet SELECT PCB Jul Succeet SELECT PCB Jul Succeet Return All R Jul Succeet Return
Database t,connected	5

You will be able to choose which tables to add, and check which columns to include.

	IMS Explorer - lab2xDFSSAM09/QueryScript1.s	gl - IBM Rational Developer for System z with Java 💦 🔲 🔀
Eile Edit Navigate Search Project Run SQL Window Help		
	i 🗈 • 🔛 🕼 🗁 i 💁 • i 🥖 i 🛷 • i 🖢	🖓 - 🏷 🔶 - 🔅 🕞 🖹 🔞 IMS Explorer
	🎦 Project Explorer 🛛 📄 🔄 🍰 🌄 🗆	🖸 *QueryScript1.sql 🛛 🗖 🗖
	Apple 20195AM09     Apple 20195AM09     Apple 201955AM09     Body 201955AM09     Body 201955AM09     Body 20195AM09     Body 20195AM09	SELECT PART_NO_EDIT, REJECT_CODE
	🗷 🚵 JRE System Library [jdk]	×
	B C DBD	
	B B DBD Source	PARTROOT
	PSB Source     QueryScript1.sql	FILLO PART_NO_EDIT 4
		REJECT_CODE
🛿 Add Table 🔀	SelectScript1.sql	DISTINCT
BACKORDR	Data Source Explorer 2	Prop 🕑 Error 🖹 Probl 🔲 SQL 😆 📕 Rem 📲 Rem 🧮
	e 🕏 🖬 🖬 🚳 🔤 🖉	📃 🗶 💥 📄 🗎 🏃 🏹
	🖃 🧁 Database Connections 🔗	Type query expression here Status Result1
	😑 🏭 BIRT Classic Models Sample Database (Apache	Status Operation Da Return All Rows
	🖻 🗍 BirtSample	Starting run
	Derby Sample Connection	Succeed SELECT PCB Jul SELECT PROMPCBULPARTROOT
Table <u>a</u> lias:		✓ Succeed ELECT PCB Jul
	IMS DB part 1	🗸 Succeec Return All R Jul 🥃
OK Cancel	□ Displayed 12 of 12 results: 12 succeed…ermina	ted, 0 warning, 0 critical error

Note how the script is built. When you are done, position your cursor to the upper box, right click on the **Select** statement that was built and choose the **Run SQL** option.

The results can be viewed in the bottom box.



IMS Explorer - lab2xDFSSAM09/QueryScript1.se     Elle Edit Navigate Search Protect Pup SOL Window	ql - IBM Rational Developer for System z with Java 📃 🗖 🗙	
	SELECT PART_NO_EDIT, REJECT_CODE FROM PCB01.PARTROOT	
imsudb.jar - C:\Program Files\IBM\SDP\lib     DBD     DBD Source     PS8     PS8 Source     QueryScript1.sql     Script1.sql     SelectScript1.sql     pxxsam09	PARTROOT FILL_0 PART_NO_EDIT REJECT_CODE	
SCLMConfigProject	Prop 🔮 Error 🔝 Probl 🗖 SQL 🕺 🚚 Rem 🚚 Rem	
Connections     Database Connections     BIRT Classic Models Sample Database (Apachel     BIRTSample     Derby Sample Connection     IMPOTxx     IMPOTxx     IMPOTxx     IMS DB part1	Yppe query expression here     Status     PART_NO_EDIT     FILL_0       Status     Operation     De     PART_NO_EDIT     FILL_0       Succeec     Result     1     01P305AM09       Succeec     SELECT PCB     Jul     2     02AN960C10     MQ       Succeec     SUCCeec     ISERT INT     Jul     3     02CSR13610     Yes       Succeec     SELECT PCB     Jul     Succeec     SUCCeec     Yes     Yes       Succeec     SUCCeec     Result     Succeec     Yes     Yes       Succeec     Result     Succeec     Yes     Yes	
Displayed 12 of 12 results: 12 succeederminated, 0 warning, 0 critical error		

Note that there are two tabs. One for **Status** and one for **Results**.

Other examples of how to use the SQL Query Builder can be found on pages 24 -32.

This completes the lab.