



IBM Software Group

CICS Business Event Publisher for MQSeries V1.2



Bertrand.tyl@fr.ibm.com



June 2004

© 2004 IBM Corporation

Trademarks

- IBM, CICS, WebSphere, WebSphere MQ, WebSphere MQ Integrator, MQSeries, DB2, IMS, OS/390, and z/OS are trademarks of International Business Machines Corporation in the United States, other countries, or both.
- The following is a trademark of Microsoft Corporation
Windows
- The following is a trademark of InstallShield Software Corporation
InstallShield

Basic Assumptions

- There is still a lot of important data and applications residing on mainframe systems
- Companies want to “extend” legacy apps...
 - quickly
 - without changes to existing applications
 - with minimal changes
 - with existing skills

What is CICS BEP V1.2?

- Tool to easily 'extend' legacy applications and data
- Detects CICS, IMS and DB2 events on OS/390 or z/OS
 - Creates messages from events and associated information
 - Based on user-specified message content rules
- Creates MQPUT messages for MQSeries queue
 - Based on user-specified Queue names, MQPUT options

What is CICS BEP V1.2?

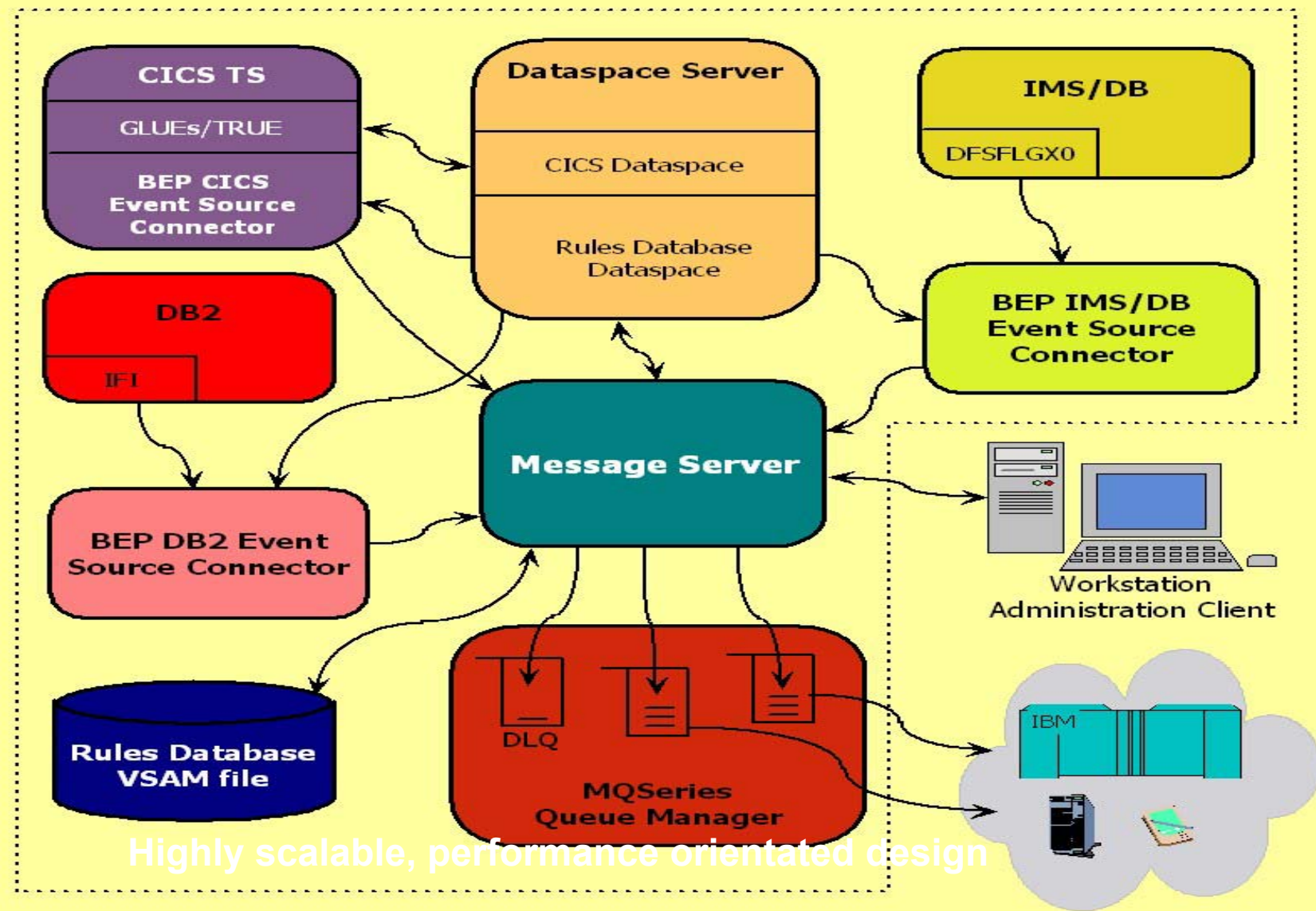
- Provides easy to use GUI for selection and rules creation
- No change to existing application programs
- Provides for real time action and results
- Provides for a low cost, low risk integration strategy

CICS Business Event Publisher Events

- Multiple Events monitored
- CICS – V1.1
 - VSAM File Control
 - Temporary Storage
 - Transient Data
 - Interval Control start
 - Program control (LINK) request
- IMS – IMS/DB database events – V1.2
 - Add/update/delete for IMS databases
 - Most database formats supported, including IMS Fastpath from all sources (not just CICS)
- **DB2 – database events - V1.2**
 - Insert/update/delete for DB2 tables from all sources (not just CICS)

CICS BEP V1R2 Architecture

OS/390 or z/OS

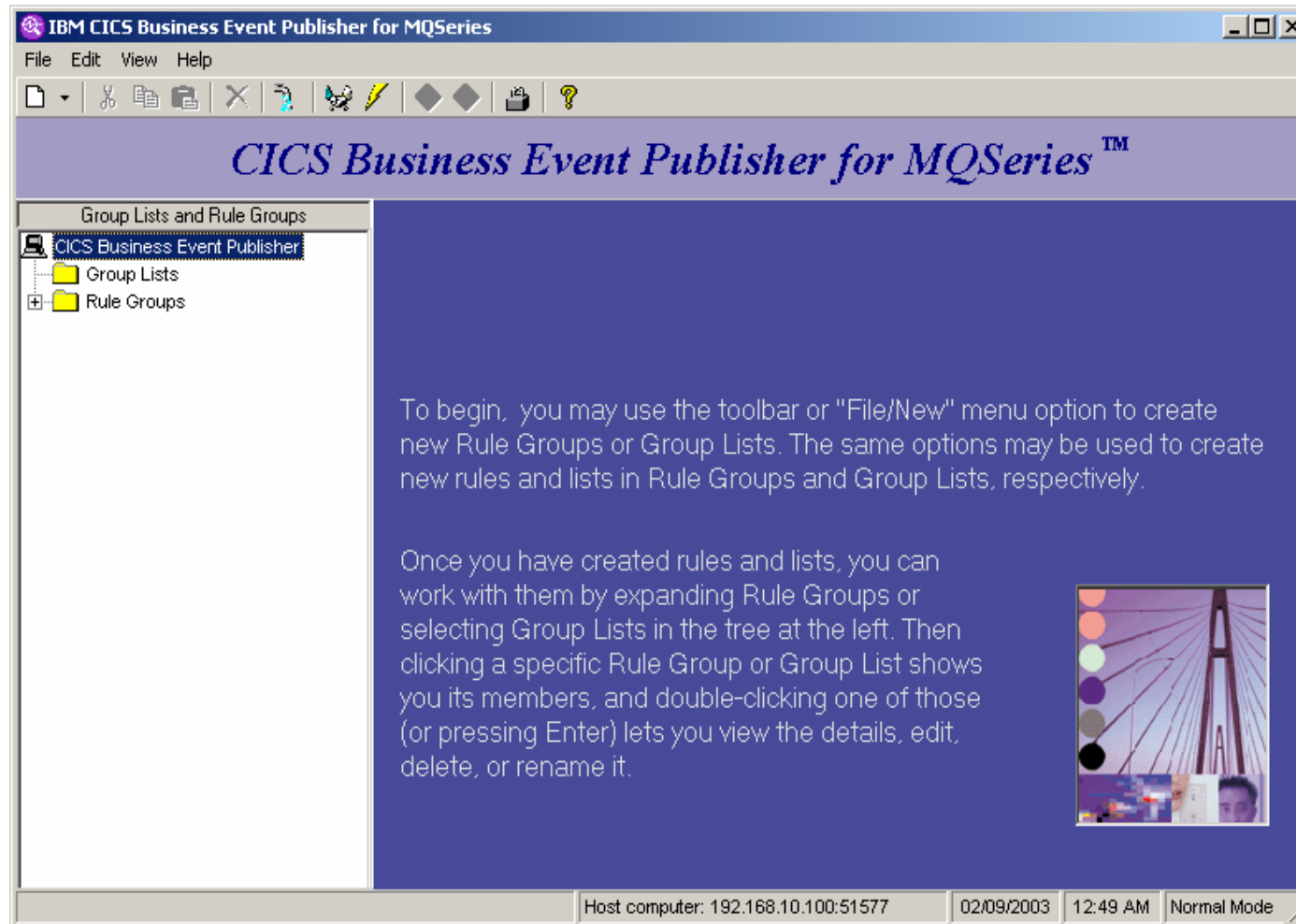


Highly scalable, performance orientated design

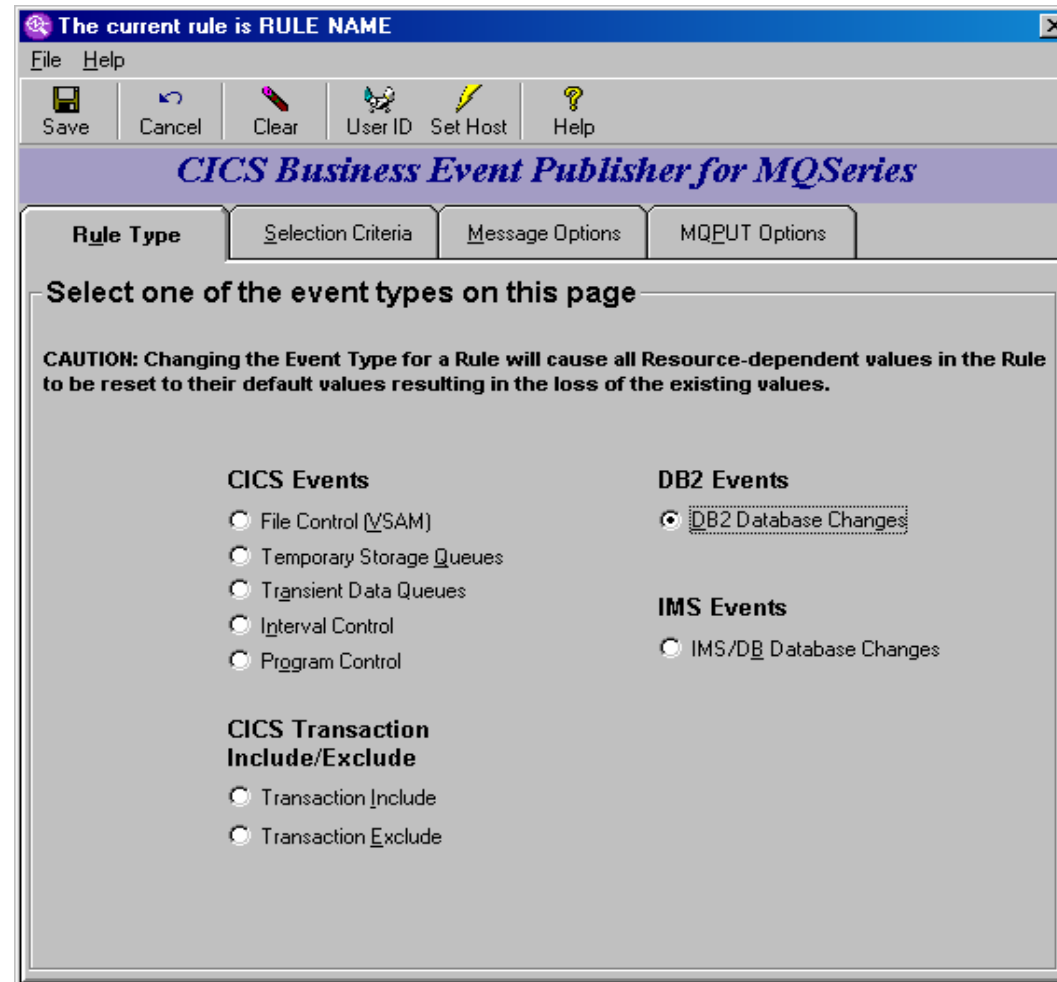
Workstation Client (GUI) Introduction

- **How to Create Rules**
- **Rules Selection Criteria**
- **Message Options**

Workstation Client



Workstation Client



Workstation Client: File control sample

The current rule is NEW ORDER

File Help

Save Cancel Clear UserID Set Host Help

CICS Business Event Publisher for MQSeries™

Rule Type Selection Criteria MQPUT Options Message Options Return Options

File Name ORDRFILE

Enter Selection Criteria

Selection Criteria Enabled

All fields below are case sensitive

Select by Transaction ID

Include ORDA

Exclude

Select by User ID

Include

Exclude

Select by Terminal ID

Include

Exclude

Select by APPLID

Include

Exclude

Advanced Selection Criteria

Intercept These Request Types

WRITE

REWRITE

READ

READ With Update

STARTBR

RESETBR

READNEXT

READNEXT With Update

READPREV

READPREV With Update

ENDBR

DELETE

UNLOCK

Workstation Client: File control sample

Advanced Selection Criteria for NEW ORDER

Resource Name: Resource Type:

Current Selection Criteria

| And/Or | Field Name/Type | Index | Offset | Length | OP | Compare to |
|--------|-----------------|-------|--------|--------|----|------------|
| | ITEM-ON-HAND | 1 | | 4 | EQ | 0 |
| | | | | | | |
| | | | | | | |
| | | | | | | |

Move Up | Remove and Edit Message Field
Move Down | Remove from List

Datamap Fields

| Level | Field name | Occu... | Type | Picture | Usage | Length |
|-------|---------------|---------|-----------------|---------|---------------|--------|
| 02 | ORDER-ITEMS | 10 | Group | | Display | 54 |
| 03 | ITEM-NUMBER | 10 | Numeric: zoned | 9(8) | Display | 8 |
| 03 | ITEM-QUANTITY | 10 | Numeric: binary | S9(4) | Binary (CO... | 2 |
| 03 | ITEM-ON-HAND | 10 | Numeric: binary | S9(8) | Binary (CO... | 4 |
| 03 | ITEM-PRICE | 10 | Numeric: zoned | 9(6)... | Display | 8 |
| 03 | ITEM COMMENTS | 10 | Alphanumeric | V(32) | Display | 32 |

Datamap Name:
Download Datamap | Remove Datamap from Criteria List

AND | Field Name | Length | Index | Operator | Compare to Data Type | Compare to | Add to Criteria

OR | | | | | | | Add to Criteria

Fields by Offset/Length

AND | Offset | Length | Operator | Compare to Data Type | Compare to | Add to Criteria

OR | | | | | | | Add to Criteria

Create a message on these conditions: Conditions Selected:

NORMAL
 ERROR
 CHANGED

Action:

Enable Complex Selection Criteria

OK | Cancel

Workstation Client: File control sample

The screenshot displays a window titled "The current rule is NEW ORDER" with a standard menu bar (File, Help) and a toolbar containing icons for Save, Cancel, Clear, UserID, Set Host, and Help. The main window title is "CICS Business Event Publisher for MQSeries™". Below the title is a tabbed interface with five tabs: "Rule Type", "Selection Criteria", "MQPUT Options" (which is the active tab), "Message Options", and "Return Options".

Under the "MQPUT Options" tab, there are two input fields:

- Queue Name:** A text box containing the value "new.orders.queue".
- Queue Manager Name:** An empty text box.

At the bottom of the form, there are two buttons:

- Specify Message Descriptor Options (MQMD_*)
- Specify Put Message Options (MQPMO_*)

Workstation Client: File control sample

Put Message Options (MQPMO_*)

Syncpoint Options

- MQPMO_SYNCPOINT
- MQPMO_NO_SYNCPOINT

MQPMO_FAIL_IF QUIESCING

Reset to Default Options

Message Context

- MQPMO_NO_CONTEXT
- MQPMO_DEFAULT_CONTEXT
- MQPMO_PASS_IDENTITY_CONTEXT
- MQPMO_PASS_ALL_CONTEXT
- MQPMO_SET_IDENTITY_CONTEXT
- MQPMO_SET_ALL_CONTEXT

OK **Cancel**

Workstation Client: File control sample

IBM CICS Business Event Publisher for MQSeries

File Edit View Help

CICS Business Event Publisher for MQSeries™

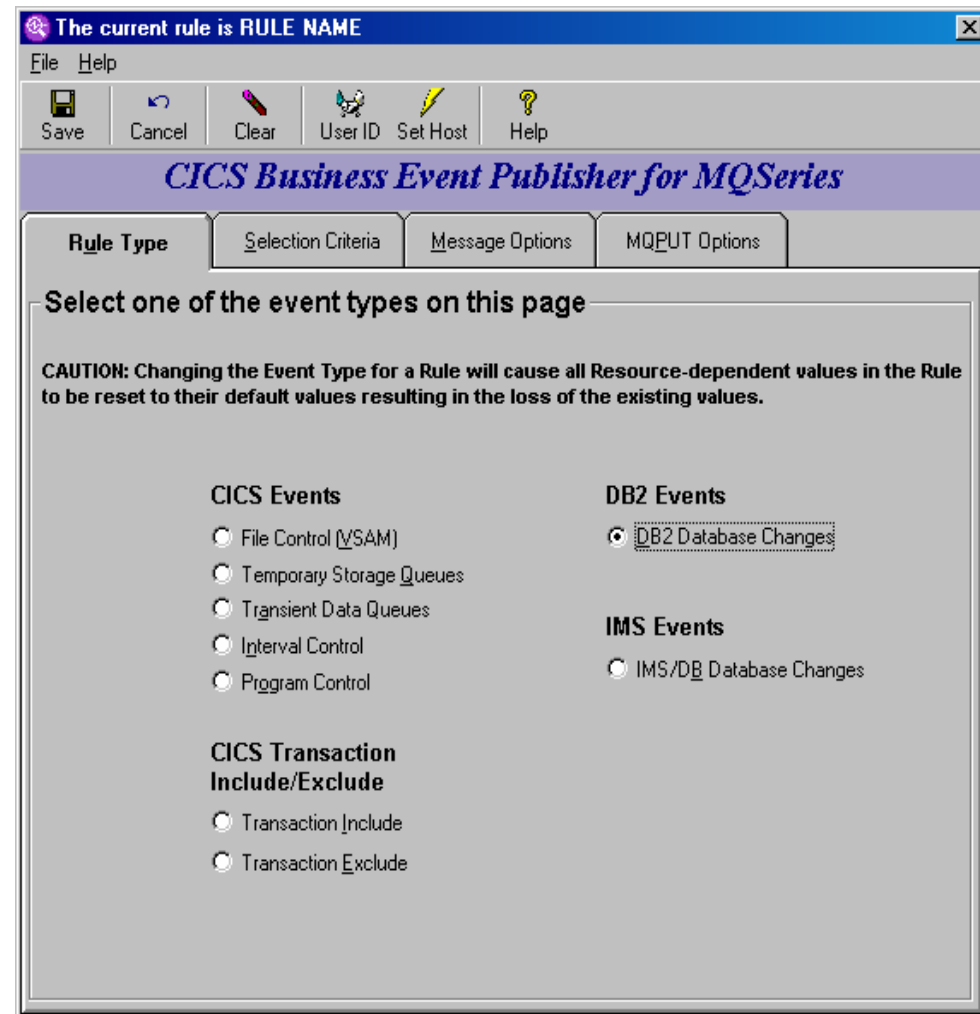
| Group Lists and Rule Groups | Group List Name | Date Created | Date Last Modified | Date Last Accessed |
|-------------------------------|-------------------|----------------------|----------------------|----------------------|
| CICS Business Event Publisher | PRODUCTION LIST A | 11/17/2002 10:18:... | 12/25/2002 2:54:1... | 02/08/2003 11:12:... |
| Group Lists | PRODUCTION LIST B | 02/08/2003 11:12:... | 02/08/2003 11:12:... | 02/08/2003 11:12:... |
| Rule Groups | TEST LIST A | 02/08/2003 11:13:... | 02/08/2003 11:13:... | 02/08/2003 11:13:... |

All Group Lists displayed. Host computer: 192.168.10.100:51577 02/08/2003 11:26 PM Normal Mode

Workstation Client: DB2 Example

Rule Type Tab

- CICS, DB2 and IMS categories
- For DB2;
 - User should select DB2 Database Changes
 - Then click on Selection Criteria tab



Workstation Client: DB2 Example

Selection Criteria Tab

- Selection Criteria is DB2 specific
- Can target INSERT, UPDATE and/or DELETE statements
- User may enter table name or click on Select a table name from a list

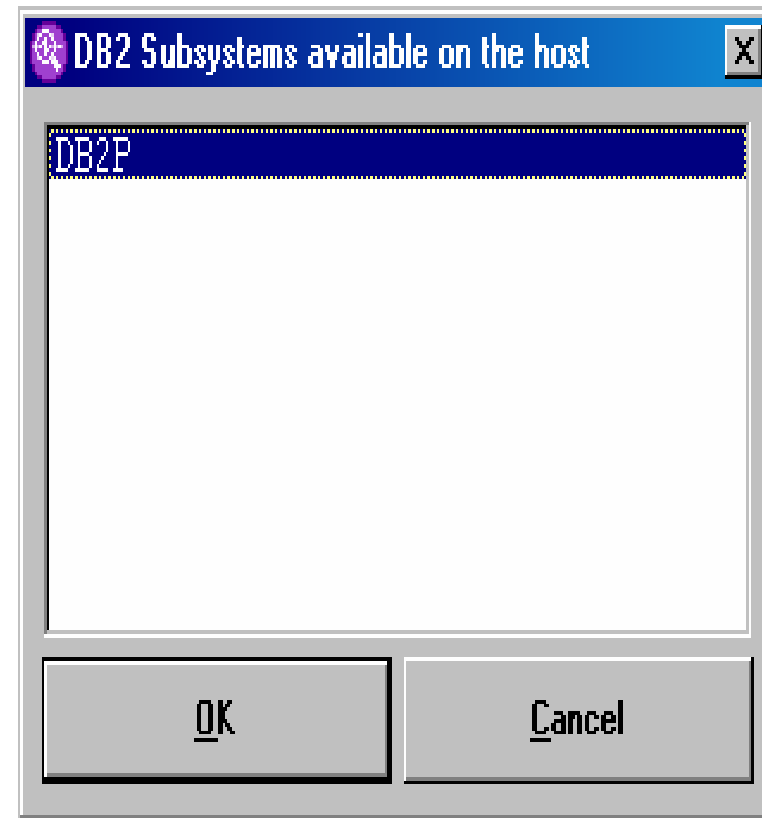
The screenshot shows the 'Selection Criteria' tab in the 'CICS Business Event Publisher for MQSeries' application. The window title is 'The current rule is RULE NAME'. The menu bar includes 'File' and 'Help'. The toolbar contains icons for 'Save', 'Cancel', 'Clear', 'User ID', 'Set Host', and 'Help'. The main area is divided into several sections:

- Table Name:** A text field with a dropdown arrow and a button labeled 'Select a table name from a list'.
- Enter Selection Criteria:** A section with a checkbox for 'Selection Criteria Enabled'. Below it are several criteria groups, each with 'Include' and 'Exclude' checkboxes and a text input field:
 - Select by Correlation ID
 - Select by User ID
 - Select by Plan Name
 - Select by Connection Name
 - Select by Thread Type
 - Select by DB2 Subsystem
 - Select by Data Sharing Group
 - Select by Network ID
 - Select by LU Name
- Intercept These Request Types:** A section with checkboxes for 'Insert', 'Update', and 'Delete'.
- Advanced Selection Criteria:** A button at the bottom of the 'Enter Selection Criteria' section.

Workstation Client: DB2 Example

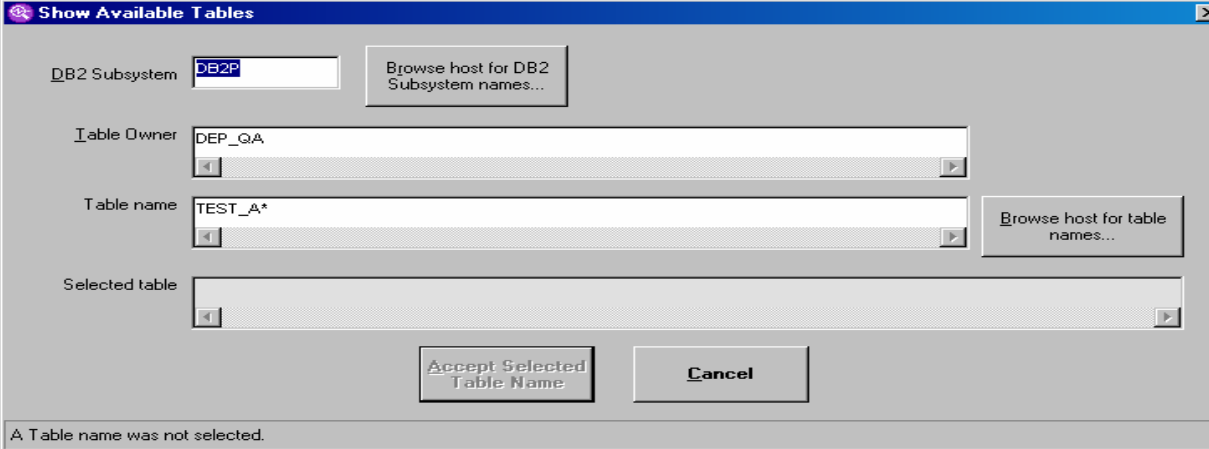
DB2 subsystems available on host

- This presents the available DB2 subsystems which are being monitored by an Event Processor
- Select the desired entry and click OK



Workstation Client: DB2 Example

Show Available Tables (cont.)



DB2 Subsystem: DB2P

Table Owner: DEP_QA

Table name: TEST_A*

Selected table:

Buttons: Accept Selected Table Name, Cancel

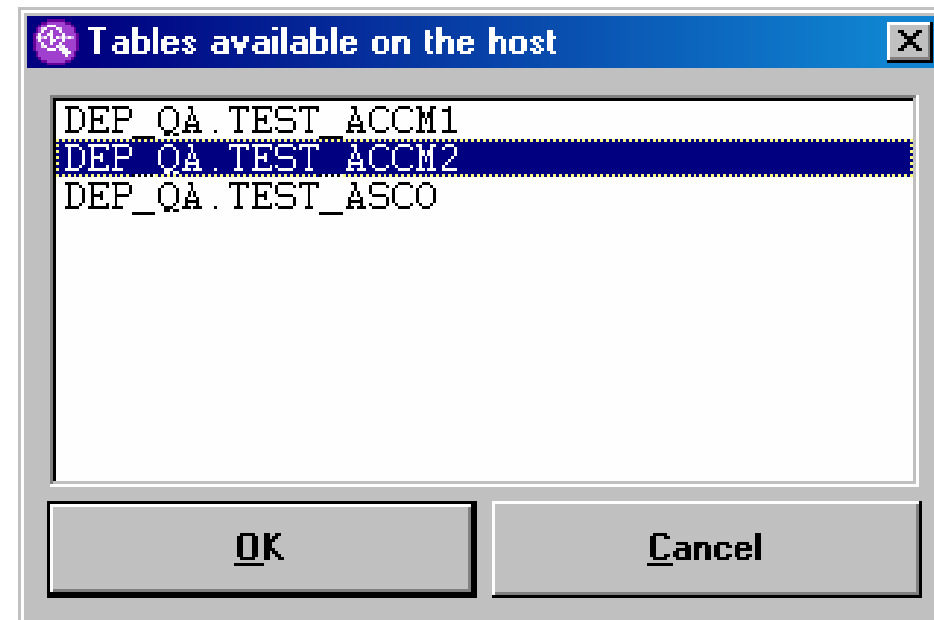
Status: A Table name was not selected.

- Owner ID and table name accepts wildcards
 - ? for single character match
 - * for trailing character match
- Click on Browse host for table names

Workstation Client: DB2 Example

Tables available on the host

- This lists the tables which match the specified pattern
 - Limited to first 200 matches
- Select the desired table name and click OK



Workstation Client: DB2 Example

Show Available Tables (cont.)

The screenshot shows a dialog box titled "Show Available Tables" with the following fields and controls:

- DB2 Subsystem:** A text box containing "DB2P" and a button labeled "Browse host for DB2 Subsystem names...".
- Table Owner:** A dropdown menu showing "DEP_QA".
- Table name:** A dropdown menu showing "TEST_A*" and a button labeled "Browse host for table names...".
- Selected table:** A dropdown menu showing "DEP_QA.TEST_ACCM2".
- Buttons:** "Accept Selected Table Name" and "Cancel".
- Footer:** "Click OK to accept the selected table name or Cancel to ignore it."

- Pattern process can be repeated until desired table is found
- Once the desired table name has been selected, simply click Accept Selected Table Name

Workstation Client: DB2 Example

Selection Criteria Tab (cont.)

- Selecting Selection Criteria Enabled allows specification of DB2 specific qualifiers
 - Include/Exclude is the same as for CICS
 - ? and * are valid wildcards
- Click Advanced Selection Criteria to specify column level checks

The screenshot shows the 'CICS Business Event Publisher for MQSeries' interface. The 'Selection Criteria' tab is selected, and the 'Table Name' is set to 'DEP_QA.TEST_ACCM2'. The 'Enter Selection Criteria' section is expanded, showing that 'Selection Criteria Enabled' is checked. Below this, there are several selection criteria, each with 'Include' and 'Exclude' checkboxes and an input field for the criteria value:

- Select by Correlation ID: Include, Exclude
- Select by User ID: Include, Exclude
- Select by Plan Name: Include, Exclude
- Select by Connection Name: Include, Exclude
- Select by Thread Type: Include, Exclude
- Select by DB2 Subsystem: Include, Exclude
- Select by Data Sharing Group: Include, Exclude
- Select by Network ID: Include, Exclude
- Select by LU Name: Include, Exclude

On the right side, the 'Intercept These Request Types' section has three unchecked checkboxes: Insert, Update, and Delete. At the bottom, there is an 'Advanced Selection Criteria' button.

Workstation Client: DB2 Example

Advanced Selection Criteria

- Looks similar to CICS
- Data maps replaced by columns for selected table
- Click on Download Table Columns to populate the column list

Advanced Selection Criteria for RULE NAME

Table Name: DEP_GA.TEST_ACCM2 Type: DB2 Database Changes

Current Selection Criteria

| And/Or | Column Name | Length | OP | Compare to |
|--------|-------------|--------|----|------------|
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

Move Up Remove and Edit Message Field
Move Down Remove from List

Table Columns

| Column Name | Type | Scale | Nullable | Length |
|-------------|------|-------|----------|--------|
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

Download Table Columns

AND/OR Column Length Operator Compare to Data Type Compare to Add to Criteria

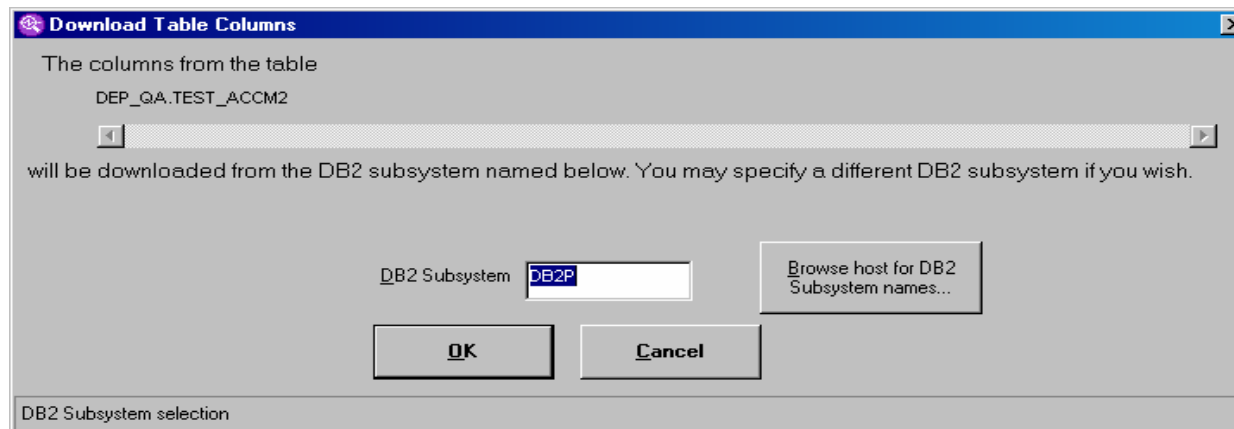
Action: Create Message

Enable Advanced Selection Criteria

Host: 10.5.16.11:35678 CP: US English - 037 (P) Normal Mode

Workstation Client: DB2 Example

Download Table Columns



- This allows the selection of the DB2 from which the column list is to be obtained
- The rule is not DB2 specific unless specified as such in the Selection Criteria
- Click OK to use the indicated DB2 subsystem

Workstation Client: DB2 Example

Advanced Selection Criteria (cont.)

- Selecting a column allows an entry to be built for that column
- Note the additional DB2 specific operators

IsNull

IsNotNull

Only allowed if the column has a Y in the Nullable column

Advanced Selection Criteria for RULE NAME

Table Name: DEP_GA.TEST_ACCM2 Type: DB2 Database Changes

Current Selection Criteria

| And/Or | Column Name | Length | OP | Compare to |
|--------|-------------|--------|----|------------|
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

Table Columns

| Column Name | Type | Scale | Nullable | Length |
|-------------|------|-------|----------|--------|
| COL01 | CHAR | | Y | 5 |
| | | | | |
| | | | | |
| | | | | |

Download Table Columns

AND Column Length Operator Compare to Data Type Compare to Add to Criteria

OR COL01 5 [Operator List] Character [Compare to] [Add to Criteria]

Operator List: EQ, GE, LE, NE, GT, LT, IsNull, IsNotNull

Create Message: [Dropdown]

Enable Advanced Selection Criteria

OK Cancel

Table columns download complete. Host: 10.5.16.11:35678 CP: US English - 037 (P) Normal Mode

Workstation Client: DB2 Example

Advanced Selection Criteria (cont.)

- This definition will create a message when COL01 is NULL or when COL01 is equal to 'DAVID'
- Click OK when finished with Advanced Selection Criteria

Advanced Selection Criteria for RULE NAME

Table Name: DEP_GA.TEST_ACCM2 Type: DB2 Database Changes

Current Selection Criteria

| And/Or | Column Name | Length | OP | Compare to |
|--------|-------------|--------|--------|------------|
| | COL01 | 5 | IsNull | |
| OR | COL01 | 5 | EQ | DAVID |

Table Columns

| Column Name | Type | Scale | Nullable | Length |
|-------------|------|-------|----------|--------|
| COL01 | CHAR | | Y | 5 |

Download Table Columns

AND Column Length Operator Compare to Data Type Compare to Add to Criteria

OR

Action: Create Message

Enable Advanced Selection Criteria

OK Cancel

Table columns download complete. Host: 10.5.16.11:35678 CP: US English - 037 (P) Normal Mode

Workstation Client: DB2 Example

Message Options Tab

- Custom Message Layout dialogs use DB2 columns like the Advanced Selection Criteria does
 - NULLABLE columns have extra 1 byte prefix
 - VARCHAR columns will effect the length of the output message
- DB2 numeric values are converted to 'normal' numeric forms

The screenshot shows a dialog box titled "The current rule is RULE NAME". It has a menu bar with "File" and "Help", and a toolbar with icons for Save, Cancel, Clear, User ID, Set Host, and Help. The dialog is titled "CICS Business Event Publisher for MQSeries" and has four tabs: "Rule Type", "Selection Criteria", "Message Options" (which is selected), and "MQPUT Options".

Under the "Message Options" tab, there is a section titled "Message Layout Options" with the instruction: "Select one of the options below to designate the method to be used to create the message." There are two radio button options:

- Include all of the data associated with the request.
- Build custom message layout from copybook or offsets/lengths.

 Below these options is a button labeled "View/Update Custom Message Layout". At the bottom of this section is a checked checkbox labeled "Include BEP Standard Message Header".

At the bottom of the dialog, there are two sections:

- User Exits:** A text field with the label "Exit program to be used in addition to option(s) chosen above".
- Message Delivery Options:** Three radio button options:
 - Do not accumulate -- send immediately
 - Accumulate until next syncpoint
 - Delay until syncpoint but do not accumulate

Workstation Client: DB2 Example

MQPUT Options Tab

- Both dynamic queue dialogs use DB2 columns like the Advanced Selection Criteria does

The screenshot shows a dialog box titled "The current rule is RULE NAME". The dialog has a menu bar with "File" and "Help", and a toolbar with icons for "Save", "Cancel", "Clear", "User ID", "Set Host", and "Help". The main title is "CICS Business Event Publisher for MQSeries". Below the title are four tabs: "Rule Type", "Selection Criteria", "Message Options", and "MQPUT Options". The "MQPUT Options" tab is selected and contains the following fields and buttons:

- Queue Name:** A group box containing two radio buttons: "Enter a Static Queue Name Here" (unselected) and "Use a Dynamic Queue Name" (selected). To the right of the "Use a Dynamic Queue Name" radio button is a button labeled "Define the Layout for a Dynamic Queue Name...".
- Queue Manager Name:** A group box containing two radio buttons: "Enter a Static Queue Manager Name Here" (unselected) and "Use a Dynamic Queue Manager Name" (selected). To the right of the "Use a Dynamic Queue Manager Name" radio button is a button labeled "Define the Layout for a Dynamic Queue Manager Name...".
- At the bottom of the dialog are two buttons: "Specify Message Descriptor Options (MQMD_*)" and "Specify Put Message Options (MQPMO_*)".

Why would customers use CICS BEP?

To re-use legacy applications and data

To drive new business processes or utilize new technology

e.g.

- **WebSphere MQ/BI**
- **Application Integration**
- **Mobile**

All quickly and safely

All without change to existing application code

For inherent cost savings over application changes

CICS BEP – Possible Uses

- Event notification – new customer added, account = zero
- Activity Audits – who, what, when is accessing the file?
- Error notification – create message when error detected
- Threshold notification – stock running low
- Automation – removal of manual or latency in business process
- Data source for Message Brokers
- Data transfer
- External logging or notification

CICS BEP Customer Information

Target Customers

- CICS, IMS or DB2 customers with MQSeries or are planning to install MQSeries
- CICS, IMS or DB2 Customers who want to extend use of existing applications or data

Documentation

- CICS BEP User Guide
- CICS BEP Getting Started Manual
- Online help as part of the product
- Web address: www.ibm.com/cics/bepub

Installation

- SMP/E Install
- Workstation Client download from mainframe

Minimum Software Requirements

- OS/390 V2.1 or z/OS
- CICS TS 1.3
- DB2 V6.1
- IMS V7.1
- MQSeries V2.1 or 5.2
- Win 2000, NT, XP

Summary

- **CICS BEP provides a new approach to allow legacy applications and data to participate in new environments**
 - Allows legacy apps to drive new business processes quickly and without application changes
 - Allows legacy applications to be easily integrated into new application
 - Low risk strategy
- **Makes it easier for customers to extract more value from existing applications and data**
- **Fills the “hole” between legacy apps and message brokers/integrators**
- **Highly scalable, performance oriented design**
- **Provides real time action and results**
- **‘Point and Click’ GUI for rules and message creation**
- **CICS BEP detects the specific event and creates the message**
- **WebSphereMQ provides the link to new business processes and new technology**