

| Enquiry Hooks

Transact Extensibility for Java (English)

2020 Q1



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| Lesson Overview



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In this lesson we will learn how to write ENQUIRY hook using different APIs

| Enquiry Exit Points

- There are two exit points in Enquiry where L3 developers can attach their methods,

Enquiry Field	Java Method	Description
BUILD.ROUTINE	setFilterCriteria	Modifying the dynamic selection box
CONVERSION	setValue or setRecord	Modifying the data before display

- NOFILE Enquiry will use the setIds method
- Super Class : Enquiry
- Package: com.temenos.t24.api.hook.system

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An enquiry is a query to T24

It is a 'SELECT' executed to fetch data from T24

Created using the **ENQUIRY** application

Data can be displayed in user defined format

There are two exit points in Enquiry where L3 developers can attach their methods,

BUILD.ROUTINE – Modifying the dynamic selection box

CONVERSION – Modifying the data before display

| setFilterCriteria()

- This interface enables the implementer to set the selection criteria used by the enquiry engine to select records
- This interface is invoked after the user has entered their choices in the selection screen
- The T24 field specifying this hook is the BUILD.ROUTINE field in ENQUIRY

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This interface is invoked after the user has entered their choices in the selection screen

The T24 field specifying this hook is the BUILD.ROUTINE field in ENQUIRY

| setFilterCriteria() - Parameters

public List<[FilterCriteria](#)> setFilterCriteria(List filterCriteria, [EnquiryContext](#) enquiryContext)

- Parameters:
 - **filterCriteria** - The list of FilterCriteria as entered by the user. In T24 terms, this is ENQ.DATA<2 ... 4>
 - **enquiryContext** – Context Variables for the enquiry interaction
- Returns:
 - **List<FilterCriteria>** - A new list of filter criteria to be applied during record selection

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Parameters:

filterCriteria - The list of FilterCriteria as entered by the user. In T24 terms, this is ENQ.DATA<2 ... 4>

enquiryContext – Context Variables for the enquiry interaction

Returns:

List<FilterCriteria> - A new list of filter criteria to be applied during record selection

| setValue()

- This interface enables the implementer to set the value of an element displayed in the enquiry results programmatically
- This interface is invoked during calculation of each field's value, in the order it is specified in the list of CONVERSION fields in the enquiry definition
- The T24 field specifying this hook is the CONVERSION field in ENQUIRY

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This interface enables the implementer to set the value of an element displayed in the enquiry results programmatically

This interface is invoked during calculation of each field's value, in the order it is specified in the list of CONVERSION fields in the enquiry definition

The value returned by this interface is written to O.DATA.

The T24 field specifying this hook is the CONVERSION field in ENQUIRY

| setValue() - Parameters

public String setValue(String value, String currentId, TStructure currentRecord, List filterCriteria, [EnquiryContext](#) enquiryContext)

- **Parameters:**
 - **value** - The initial value of the field. The new value should be returned. (In T24 terms, this is O.DATA)
 - **currentId** - The ID of the current record being processed. (In T24 terms, this is the 'ID' common variable)
 - **currentRecord** - The full record currently being processed by the enquiry. (In T24 terms, this is R.RECORD)
 - **filterCriteria** - The list of selection criteria entered by the user. (In T24 terms, this is fields<2 ... 4> from ENQ.SELECTION)
 - **enquiryContext** - Context variables for the enquiry interaction.
- **Returns**
 - **String** - The new value to be displayed to the enquiry processing engine, to be displayed to the user or used in further calculations

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Parameters:

value - The initial value of the field. The new value should be returned. (In T24 terms, this is O.DATA)

currentId - The ID of the current record being processed. (In T24 terms, this is the 'ID' common variable)

currentRecord - The full record currently being processed by the enquiry. (In T24 terms, this is R.RECORD)

filterCriteria - The list of selection criteria entered by the user. (In T24 terms, this is fields<2 ... 4> from ENQ.SELECTION)

enquiryContext - Context variables for the enquiry interaction.

Returns

String - The new value to be displayed to the enquiry processing engine, to be displayed to the user or used in further calculations

| setIds()

- This interface enables the implementer to define the list of record Ids that the enquiry will process
- This interface is invoked during the record selection stage of running an enquiry, and replaces the usual record selection based on a select statement on a T24 application
- The T24 field specifying this hook is the SYS.FIELD.NO in STANDARD.SELECTION (the SYS.TYPE must be 'R' in the associated multivalue group)
- This interface is mainly intended to support NOFILE enquiry in T24.

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This interface enables the implementer to define the list of record Ids that the enquiry will process

This interface is invoked during the record selection stage of running an enquiry, and replaces the usual record selection based on a select statement on a T24 application

The T24 field specifying this hook is the SYS.FIELD.NO in STANDARD.SELECTION (the SYS.TYPE must be 'R' in the associated multivalue group)

This interface is mainly intended to support NOFILE enquiry in T24.

| setIds() - Parameters

public List<String> setIds(List filterCriteria, EnquiryContext enquiryContext)

- Parameters:
 - **filterCriteria** - The list of selection criteria entered by the user. (In T24 terms, this is comes from D.FIELDS, D.RANGE.AND.VALUE and D.LOGICAL.OPERANDS)
 - **enquiryContext** - Context variables for the enquiry interaction.
- Returns:
 - **List<String>** - The list of recordIds.

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Parameters:

filterCriteria - The list of selection criteria entered by the user. (In T24 terms, this is comes from D.FIELDS, D.RANGE.AND.VALUE and D.LOGICAL.OPERANDS)

enquiryContext - Context variables for the enquiry interaction.

Returns:

List<String> - The list of recordIds.

| setRecord()

- This interface enables the implementer to set the entire contents of a record prior to it being processed by the enquiry engine
- This interface is invoked during enquiry processing when the field it is attached to is calculated
- The EB.API hook used by this interface is ENQUIRY.CONVERSION.HOOK
- The T24 field specifying this hook is the CONVERSION field in ENQUIRY
- This interface is mainly intended to support NOFILE enquiry in T24

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The EB.API hook used by this interface is ENQUIRY.CONVERSION.HOOK

The T24 field specifying this hook is the CONVERSION field in ENQUIRY

This interface is mainly intended to support NOFILE enquiry in T24

| setRecord() - Parameters

public void setRecord(String value, String currentId, TStructure currentRecord, List filterCriteria, [EnquiryContext](#) enquiryContext)

- Parameters:
 - **value** - The initial value of the field to which the interface is attached. (In T24 terms, this is O.DATA)
 - **currentId** - The ID of the current record being processed. (In T24 terms, this is the 'ID' common variable)
 - **currentRecord** - The full record currently being processed by the enquiry. (In T24 terms, this is R.RECORD). This is an INOUT parameter
 - **filterCriteria** - The list of selection criteria entered by the user. (In T24 terms, this is fields<2 ... 4> from ENQ.SELECTION)
 - **enquiryContext** - Context variables for the enquiry interaction.Returns:nothing
- Returns
 - nothing

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public void setRecord(String value, String currentId, TStructure currentRecord, List filterCriteria, [EnquiryContext](#) enquiryContext)

Parameters:

- value** - The initial value of the field to which the interface is attached. (In T24 terms, this is O.DATA)
- currentId** - The ID of the current record being processed. (In T24 terms, this is the 'ID' common variable)
- currentRecord** - The full record currently being processed by the enquiry. (In T24 terms, this is R.RECORD)
- filterCriteria** - The list of selection criteria entered by the user. (In T24 terms, this is fields<2 ... 4> from ENQ.SELECTION)
- enquiryContext** - Context variables for the enquiry interaction.Returns:nothing

Returns

nothing

| Lesson Summary



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In this lesson we saw how to write ENQUIRY hook using different APIs

| Practice 8.1

- Create an enquiry to display Customer Id, Account Id and the respective working balance after accepting category from the user
Based on category, additional filtering has to be done
 - For category 1001 - Balance should be in the range 0 and 49999
 - For category 6001 - Balance should be in the range 50000 and 100000
 - For category greater than 7000 - Balance should be in the range 100000 and 500000

Create an enquiry to display Customer Id, Account Id and the respective working balance after accepting category from the user Based on category, additional filtering has to be done

For category 1001 - Balance should be in the range 0 and 49999

For category 6001 - Balance should be in the range 50000 and 100000

For category greater than 7000 - Balance should be in the range 100000 and 500000

Solution 8.1

```
public class AccBalanceEnq extends Enquiry {

    @Override
    public List<FilterCriteria> setFilterCriteria(List<FilterCriteria> filterCriteria, EnquiryContext enquiryContext) {

        FilterCriteria newfilterCriteria = new FilterCriteria();// Create New Filter Criteria

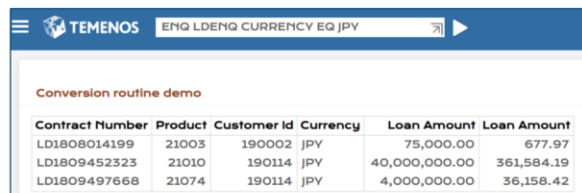
        String category = filterCriteria.get(0).getFieldname(); // Capture Selection Field name
        String categoryValue = filterCriteria.get(0).getValue();// Capture Selection Field Value

        newfilterCriteria.setFieldname("WORKING.BALANCE"); // Set the new Criteria selection field name
        newfilterCriteria.setOperand("RG"); // Operand
        int cat = Integer.parseInt(categoryValue);
        if (category.equals("CATEGORY")) { // Check if the incoming selection field is CATEGORY
            if (cat > 7000) { // If the Category is greater than 7000 then set the Working balance range between
                // 50000 100000
                newfilterCriteria.setValue("50000 100000");
            } else if (categoryValue.equals("1001")) { // If the Category is greater than 7000 then set the Working balance range between
                // 0 10000
                newfilterCriteria.setValue("0 10000");
            } else if (categoryValue.equals("6001")) { // If the Category is greater than 7000 then set the Working balance range between
                // 10000 50000
                newfilterCriteria.setValue("10000 50000");
            }
        }

        filterCriteria.add(newfilterCriteria); // Add the new filterCriteria to the Existing Criteria
        return filterCriteria;
    }
}
```


Practice 8.2

- Create an Enquiry to List @ID, CUSTOMER, AMOUNT from LD Application with the Loan Amount in foreign Currency.
- Display the Loan Amount in Local Currency
- Use Conversion Hook to convert the amount in foreign currency to Local Currency.
- Use the Transact API to get the local amount



The screenshot shows the TEMENOS application interface. At the top, there is a header bar with the TEMENOS logo and a search bar containing the text 'ENQ LDENQ CURRENCY EQ JPY'. Below the header, there is a section titled 'Conversion routine demo' which contains a table with the following data:

Contract Number	Product	Customer Id	Currency	Loan Amount	Loan Amount
LD1808014199	21003	190002	JPY	75,000.00	677.97
LD1809452323	21010	190114	JPY	40,000,000.00	361,584.19
LD1809497668	21074	190114	JPY	4,000,000.00	36,158.42

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Create an Enquiry to List @ID, CUSTOMER, AMOUNT from LD Application with the Loan Amount in foreign Currency.

Display the Loan Amount in Local Currency

Use Conversion Hook to convert the amount in foreign currency to Local Currency

Solution 8.2

```
@Override
public String setValue(String value, String currentId, TStructure currentRecord,
    List<FilterCriteria> filterCriteria, EnquiryContext enquiryContext) {

    DataAccess dataAccess = new DataAccess(this);

    LdLoansAndDepositsRecord LDRec = new LdLoansAndDepositsRecord(currentRecord); // Cast the Current Record to LD Record

    TField currency = LDRec.getCurrency(); // Read the Currency and store in TField

    TStructure currencyRecord = dataAccess.getRecord("BNK", "CURRENCY", "", currency.toString()); // Read the Currency record using Data Access

    CurrencyRecord CRRec = new CurrencyRecord(currencyRecord); // Cast the Currency TStructure to CurrencyRecord Object

    TField currencyRate = CRRec.getCurrencyMarket(0).getMidRevalRate(); // Read the Currency MidReval Rate

    Currency ccy = new Currency(this);
    // Prepare the parameters to call calculateSellAmount API
    TField loanamt = LDRec.getAmount(0);
    TNumber sds = new TNumber(loanamt.toString());
    TNumber dummy = new TNumber(currencyRate.toString());
    TDate dat = new TDate();

    //Call calculateSellAmount API
    ExchangeAmount examt = ccy.calculateSellAmount(LDRec.getCurrency().toString(), "USD", sds, "1", dummy, dat);

    Amount finalamt = examt.getLocalAmount();

    String localAmount = finalamt.getValue().toString();
    return localAmount;
}
```

Practice 8.3

- Create an Enquiry to display the consolidated balance of a Customer.
- Note: Accumulate all the balances from all the accounts available in CUSTOMER.ACCOUNT

The screenshot shows a software interface with a header 'Nofile Demo'. Below it is a table with two columns: 'Customer' and 'Consolidated Balance'. The table contains one row with the value '100100' under 'Customer' and '630,837.59' under 'Consolidated Balance'. Below the table is a section titled 'CUS.CONSolidATED.BALANCE'. At the bottom, there is a search bar with the text 'Customer *', a dropdown menu set to 'equals', and a text input field containing '100100'. The search bar and dropdown are highlighted with an orange border.

Customer	Consolidated Balance
100100	630,837.59

CUS.CONSolidATED.BALANCE

Customer * equals 100100

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Create an Enquiry to display the consolidated balance of a Customer.
Note: Accumulate all the balances from all the accounts available in
CUSTOMER.ACCOUNT

Solution 8.3

```
21  @Override
22  public List<String> setIds(List<FilterCriteria> filterCriteria, EnquiryContext enquiryContext) {
23
24      Customer customer = new Customer(this);
25      DataAccess dataAccess = new DataAccess(this);
26
27      String customerId = filterCriteria.get(0).getValue(); // Read the Customer ID from the Selection Criteria
28
29      List<String> returnIds = new ArrayList<String>();
30
31      Double consolidatedBalance = 0.0;
32      AccountRecord accountRec = null;
33      customer.setCustomerId(customerId); // Set the Customer ID to customer Object
34      try {
35          List<String> accountNumbers = customer.getAccountNumbers(); // Get the Acc Number using Core api
36
37          Double workingBalance = 0.0;
38
39          for (String accNo : accountNumbers) { // Loop through the ACCOUNT Application to read the account
40
41              accountRec = new AccountRecord(dataAccess.getRecord("ACCOUNT", accNo));
42              String amount = accountRec.getWorkingBalance().getValue(); // Read the Working balance
43              if (amount.isEmpty() || amount.equals(""))
44                  continue;
45              else {
46                  workingBalance = Double.valueOf(accountRec.getWorkingBalance().toString()); // Consolidate the balance
47                  consolidatedBalance += workingBalance;
48              }
49          }
50      } catch (Exception e) {
51      }
52      returnIds.add(customerId + "==" + consolidatedBalance.toString()); // form the return string
53      return returnIds;
54  }
```

Solution 8.3 – EB.API

EB.API	NOFILE.ENQ.DEMO
Description	EN NOFILE Enquiry Demo
Protection Level	Full
Source Type	Method
Java Method	setIds
Java Class	NoFileDemo
Java Package	com temenos.training
Curr No	1
Inputter.1	17_INPUTTER_OFS_BROWSERTC
Date time.1	07 MAY 20 17:00
Authoriser	17_INPUTTER_OFS_BROWSERTC
Company	GB0010001
Dept Code	1
	Model Bank
	Implementation

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Create EB.API Record with below details,
Source type = method
Java Method = setIds
Java Class = NoFileDEmo
Java package = com.Temenos.training

Solution 8.3 – STANDARD.SELECTION

STANDARD.SELECTION NOFILE.ENQ.DEMO	
Usr Field Name.1	CUSTOMER
Usr Type.1	S
Usr Display Frmt.1	10L
Usr Single Mult.1	S
Usr Field Name.2	CONSOLIDATED BALANCE
Usr Type.2	R
Usr Field No.2.1	NOFILE.ENQ.DEMO
Usr Display Frmt.2	100L
Usr Single Mult.2	S
Curr No	1
Inputter.1	71537_INPUTTER
Date time.1	07 MAY 20 17:33
Authoriser	71537_INPUTTER_OFS_DS PACKAGE
Company	GB0010001
Dept Code	1

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Create STANDARD.SELECTION Record with,

User Field Name = CONSOLIDATED.BALANCE

User Type = R

User Field No = NOFILE.ENQ.DEMO Which is STANDARD SELECTION ID

Solution 8.3 - Enquiry

CUS.CONSOLIDATED.BALANCE.enquiry

Data Output	Presentation	Data Selection	Drill Down	Configuration
Titles				
Nofile Demo				
Fields				
CUSTOMER	Display...	OP	Selection field: "CUSTOME...	
CONSOLIDATED.BA...	Display...	OP	Reference field number: " ...	

Enquiry Source

Properties Problems Servers Console

Field

General	Conversion	Summary
Presentation	Extract From	Extract from "2" to "2" delimited b...
Translation		
Formatting		
Conversions		

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Create an Enquiry with the application name as NOFILE.ENQ.DEMO which is the ID of STANDARD.SELECTION

Solution 8.3 – Enquiry view from Browser

ENQUIRY CUS.CONSolidATED.BALANCE

Page Size	499
File Name	NOFILE.ENQ.DEMO
Fixed Selection.1	CONSOLIDATED.BALANCE NE *
Selection Flds.1	CUSTOMER
Required Sel.1	Y

Header

Field Name.1	CUSTOMER
Operation.1.1	S CUSTOMER
Column.1	1
Length Mask.1	10L
Single Multi.1	S
Field Name.2	CONSOLIDATED.BALANCE
Operation.2.1	0
Column.2	2
Length Mask.2	19R.2
Conversion.2.1	F *2.2
Page Fields	2

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Enquiry Browser View

Solution 8.3

Nofile Demo

Customer	Consolidated Balance
100100	630,837.59

CUS.CONSOLIDATED.BALANCE

Customer * equals ▼ 100100

Execute Enquiry



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