

# Lesson 4. ENQUIRY Hooks in Java

T24 Extensibility for Java

## | Enquiry hooks

We can customize ENQUIRY by

- modifying the dynamic selection box – BUILD hook

- modifying the data before display – CONVERSION hook

Extend the **com.temenos.t24.api.hook.system.Enquiry** class

- setRecord()

- setFilterCriteria()

- setValue()

- setIds()

## | Practice 4.1 – Enquiry Build hook

- The Build hook in ENQUIRY, is used to modify the selection criteria
- We can set the Field Name, Operator and the value and add these to the filter criteria

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

# Step 1 – Create the class

**New Java Class**  
Create a new Java class.

Source folder: T24EXTEN/src Browse...

Package: com.newbank Browse...

☐ Enclosing type: Browse...

Name: ACEnquiryDemo

Modifiers: ☒ public ☐ package ☐ private ☐ protected  
☐ abstract ☐ final ☐ static

Superclass: java.lang.Object Browse...

Interfaces: Add... Remove

Which method stubs would you like to create?  
☐ public static void main(String[] args)  
☐ Constructors from superclass  
☒ Inherited abstract methods

Do you want to add comments? (Configure templates and default value [here](#))  
☒ Generate comments

Finish Cancel

**Superclass Selection**

Choose a type: com.temenos.t24.api.system.e

Matching items: Enquiry - com.temenos.t24.api.hook.system

com.temenos.t24.api.hook.system - C:\L3API\Tem...com\temenos\t24\main\t24lib\EB\_EnquiryHook...

OK Cancel

```
package com.newbank;

import com.temenos.t24.api.hook.system.Enquiry;

/**
 * demo for Build routine
 */
public class ACEnquiryDemo extends Enquiry {

}
```

**Override/Implement Methods**

Select methods to override or implement:

- ☒ Enquiry
  - ☒ setFilterCriteria(String, List<FilterCriteria>)
  - ☐ setIds(List<FilterCriteria>)
  - ☐ setRecord(String, String, TStructure, List<FilterCriteria>)
  - ☐ setValue(String, String, TStructure, List<FilterCriteria>)
- ☐ T24Context
- ☐ Object

Select All Deselect All

Insertion point: First member

☒ Generate method comments

The format of the method stubs may be configured on the [Code Templates](#) preference page.

1 of 19 selected.

OK Cancel

# Step 1 – Create the class

```
package com.newbank;

import java.util.List;

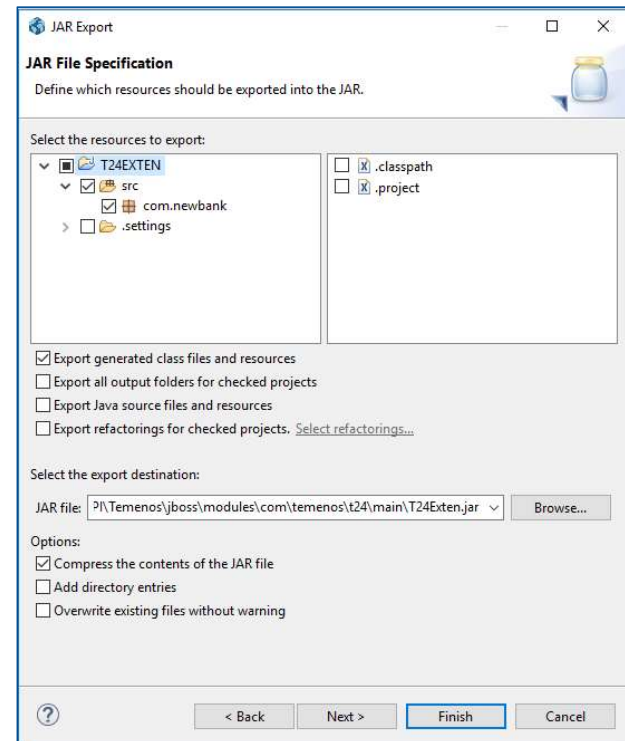
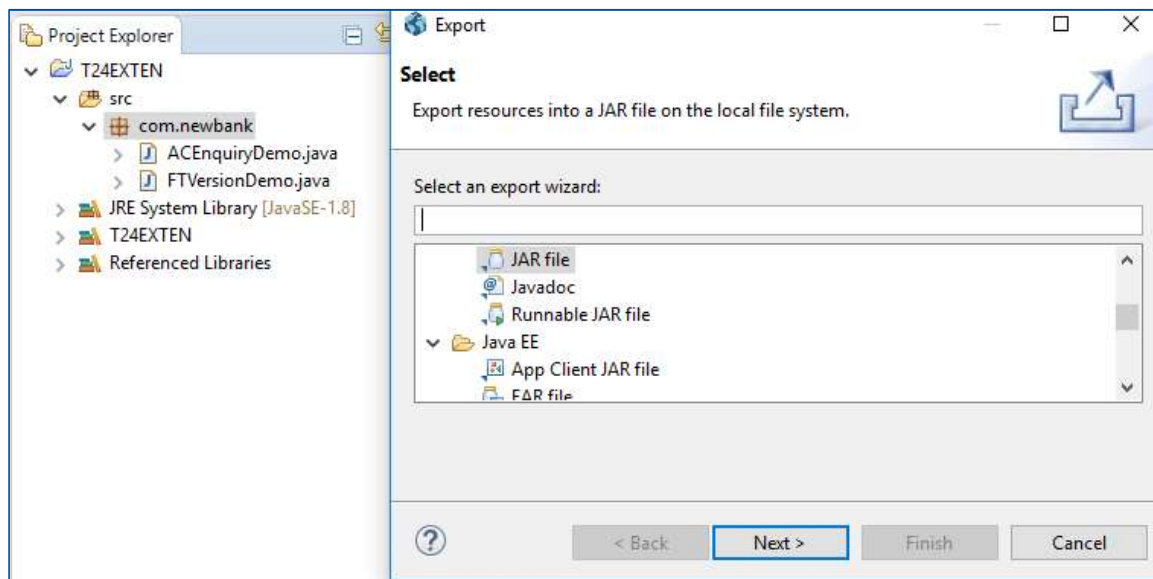
import com.temenos.t24.api.complex.eh.enquiryhook.FilterCriteria;
import com.temenos.t24.api.hook.system.Enquiry;

/**
 * demo for ENQUIRY Build hook
 */
public class ACEnquiryDemo extends Enquiry {

    @Override
    public List<FilterCriteria> setFilterCriteria(String enquiryName, List<FilterCriteria> filterCriteria) {
        FilterCriteria fc = new FilterCriteria();
        String s1 = filterCriteria.get(0).getFieldname();
        String s3 = filterCriteria.get(0).getValue();

        fc.setFieldname("WORKING.BALANCE");
        fc.setOperand("RG");
        if (s1.equals("CATEGORY")) {
            if (Integer.parseInt(s3) > 7000) {
                fc.setValue("50000 100000");
            } else {
                switch (s3) {
                    case "1001":
                        fc.setValue("0 10000");
                        break;
                    case "6001":
                        fc.setValue("10000 50000");
                        break;
                    default:
                }
            }
        }
        filterCriteria.add(fc);
        return filterCriteria;
    }
}
```

## Step 2 – Create JAR and update module.xml



Name	Date modified	Type	Size
t24lib	1/30/2019 7:44 AM	File folder	
module	2/18/2019 6:31 PM	XML Document	71 KB
T24Ext.jar	2/18/2019 10:03 PM	Executable Jar File	3 KB

```
1 <module xmlns="urn:jboss:module:1.0" name="com.temenos.t24">
2   <resources>
3     <!-- Insert resources here -->
4     <resource-root path="./T24Ext.jar" />
5     <resource-root path="./t24lib/AA_ARAccountsData.jar" />
6     <resource-root path="./t24lib/AA_ARC.jar" />
```

# Step 3 – EB.API

```
package com.newbank;

import java.util.List;

import com.temenos.t24.api.complex.eb.enquiryhook.FilterCriteria;
import com.temenos.t24.api.hook.system.Enquiry;

/**
 * demo for ENQUIRY Build hook
 */
public class ACEnquiryDemo extends Enquiry {

    @Override
    public List<FilterCriteria> setFilterCriteria(String enquiryName, List<FilterCriteria> filterCriteria) {
        FilterCriteria fc = new FilterCriteria();
        String s1 = filterCriteria.get(0).getFieldname();
        String s3 = filterCriteria.get(0).getValue();

        fc.setFieldname("WORKING.BALANCE");
        fc.setOperand("RG");
        if (s1.equals("CATEGORY")) {
            if (Integer.parseInt(s3) > 7000) {
                fc.setValue("50000 100000");
            } else {
                switch (s3) {
                    case "1001":
                        fc.setValue("0 10000");
                        break;
                    case "6001":
                        fc.setValue("10000 50000");
                        break;
                    default:
                }
            }
        }
        filterCriteria.add(fc);
        return filterCriteria;
    }
}
```

The screenshot shows the TEMENOS EB.API ACENQ.DEMO configuration window. The interface includes a header with the TEMENOS logo and the title 'EB.API | ACENQ.DEMO'. Below the header, there are tabs for 'EB.API' and 'ACENQ.DEMO'. The main area contains a table with the following fields:

Description	EN Demo for Conversion routine
Protection Level *	<input checked="" type="radio"/> Full <input type="radio"/> Partial <input type="radio"/> None
Source Type *	<input type="radio"/> Basic <input type="radio"/> Java <input type="radio"/> Hook <input checked="" type="radio"/> Method
Java Method	setFilterCriteria
Java Class	ACEnquiryDemo
Java Package	com.newbank

## Step 4 – Create ENQUIRY and attach hook

The screenshot shows the TEMENOS configuration interface for an enquiry. The header bar includes the TEMENOS logo and the text "ENQUIRY,DS I ACENQ". Below the header, the "Enquiry Ds" section is active, showing "ACENQ". The configuration is organized into several sections:

- Sort.1**: A text field containing "WORKING.BALANCE DSND".
- Open Bracket.1**: A radio button labeled "Yes".
- Selection Flds.1**: A text field containing "CATEGORY".
- Sel Label.1**: A text field containing "EN".
- Sel Fld Oper.1**: An empty text field.
- Required Sel.1**: A checkbox.
- Close Bracket.1**: A radio button labeled "Yes".
- Rel Next Field.1**: Two radio buttons labeled "Or" and "And".
- Build Routine.1**: A text field containing "ACENQ.DEMO", which is highlighted with a yellow border.
- Header**: A text field containing "@(1,1)Build routine Demo".



# Launch the ENQUIRY

TEMENOS ENQ ACENQ CATEGORY EQ 1001

Build routine Demo

Account Number	Category	Ccy	Working Balance
74918	1001	USD	10,000.00
76341	1001	EUR	10,000.00
77868	1001	GBP	10,000.00
78007	1001	USD	10,000.00
81884	1001	CAD	10,000.00
83666	1001	USD	10,000.00
76945	1001	USD	9,960.00
78883	1001	GBP	9,420.25
81744	1001	EUR	9,000.00
76748	1001	USD	8,013.26
77445	1001	USD	8,000.00
78581	1001	USD	8,000.00
81752	1001	USD	8,000.00
74567	1001	GBP	7,658.74
74586	1001	GBP	7,658.74
78794	1001	GBP	7,658.74
74578	1001	GBP	7,558.74
78042	1001	USD	7,500.00
78514	1001	USD	7,000.00
77698	1001	GBP	6,000.00
34533	1001	USD	5,300.00
75515	1001	USD	5,040.00
81768	1001	GBP	4,500.00
83224	1001	USD	4,500.00

TEMENOS ENQ ACENQ CATEGORY EQ 6001

Build routine Demo

Account Number	Category	Ccy	Working Balance
82384	6001	USD	50,000.00
78937	6001	USD	46,245.00
82414	6001	USD	45,000.00
78905	6001	USD	44,000.00
78867	6001	USD	20,885.00
74381	6001	USD	18,000.00
76422	6001	USD	17,194.73
78719	6001	USD	15,650.00
74365	6001	USD	15,000.00
17531	6001	EUR	14,753.43
78875	6001	USD	13,000.00
78751	6001	USD	12,000.00
78573	6001	GBP	10,482.55

TEMENOS ENQ ACENQ CATEGORY GT 7001

Build routine Demo

Account Number	Category	Ccy	Working Balance
GBPUSD1902201010001	19022	GBP	100,000.00
USD1661100040001	16611	USD	95,000.00
USD1422000060001	14220	USD	94,298.93
USD1660400060001	16604	USD	78,750.00
EUR1419700010001	14197	EUR	67,377.08
EUR1401000010001	14010	EUR	59,155.44
USD1660400050001	16604	USD	55,150.00

## Practice 4.2 – Enquiry Conversion hook

- Create an ENQUIRY TO LIST the LD records that are in foreign currency. List the ID, CUSTOMER, AMOUNT and Equivalent amount in LCCY.
- Use conversion hook to convert the amount in foreign currency to LCCY
- Expected output

CURRENCY	JPY	Japanese Yen
Mid Reval Rate.1		110.624307

Conversion routine demo					
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

Calculator	Standard
677.9703487769645	
75000 ÷ 110.624307 =	
677.9703487769645	

## | NOFILE Enquiry

- What if there are multiple files involved in creation of an enquiry?
- What if the record ID of another application is not part of the base application?
- This can be achieved using NOFILE enquiries
- Since more than one file might be required to extract data, it is a NOFILE enquiry. We can extract data from any number of T24 applications
- Subroutine is written to extract all required data and form the record
- **ENQUIRY** application is used to display extracted data

## Practice 4.3 – NOFILE Enquiry

- Create an ENQUIRY to display the consolidated balance for a CUSTOMER.
- Hint : Accumulate all the balance from all the accounts available in CUSTOMER.ACCOUNT.
- Expected Output

AUTHORISER Last signed on 15 APR 2019 at 10:28 with 0 attempt(s)  
[Help](#) [Tools](#) [Sign Off](#)

ENQ NOFILE.ENQ1

NOFILE.ENQ1 - Google Chrome

localhost:9089/BrowserWeb/servlet/BrowserServlet

Results 1 - 1 of 1

CUSTOMER	CONSOLIDATED.BALANCE
100100	507,263.22

Favourites

NOFILE.ENQ1 [More Options](#) [Clear Selection](#) [Find](#)

CUSTOMER equals 100100

GB0010001 : NOFILE.ENQ1

# Step 1 – Create the class

Source folder: T24EXT/src Browse...

Package: com.newbank Browse...

☐ Enclosing type: Browse...

Name: NoFileEnquiryDemo

Modifiers: ☒ public ☐ package ☐ private ☐ protected  
☐ abstract ☐ final ☐ static

Superclass: java.lang.Object

Interfaces:

Which method stubs would you like to create?

☐ public static void main(String[] args)  
☐ Constructors from superclass  
☒ Inherited abstract methods

Do you want to add comments? (Configure templates and default value [here](#))  
☒ Generate comments

Superclass Selection

Choose a type: com.temenos.t24.api.hook.system.e

Matching items:

Enquiry - com.temenos.t24.api.hook.system

com.temenos.t24.api.hook.syste...main\t24lib\EB\_EnquiryHook.jar

OK Cancel

InvocationTargetException.class Check.java NoFileEnquiryDemo.java

```
@Override
public List<String> setIds(List<FilterCriteria> filterCriteria) {
    Customer cusrec = new Customer(this);
    DataAccess da = new DataAccess(this);
    String s1 = filterCriteria.get(0).getFieldname();
    String s3 = filterCriteria.get(0).getValue();
    List<String> retId = new ArrayList<String>();
```

## Step 1 – Implement the method setIds

```
public List<String> setIds(List<FilterCriteria> filterCriteria, EnquiryContext enquiryContext) {
    Customer cusRec = new Customer(this);
    DataAccess da = new DataAccess(this);

    String s3 = filterCriteria.get(0)
        | .getValue(); /* will have the customer Id */

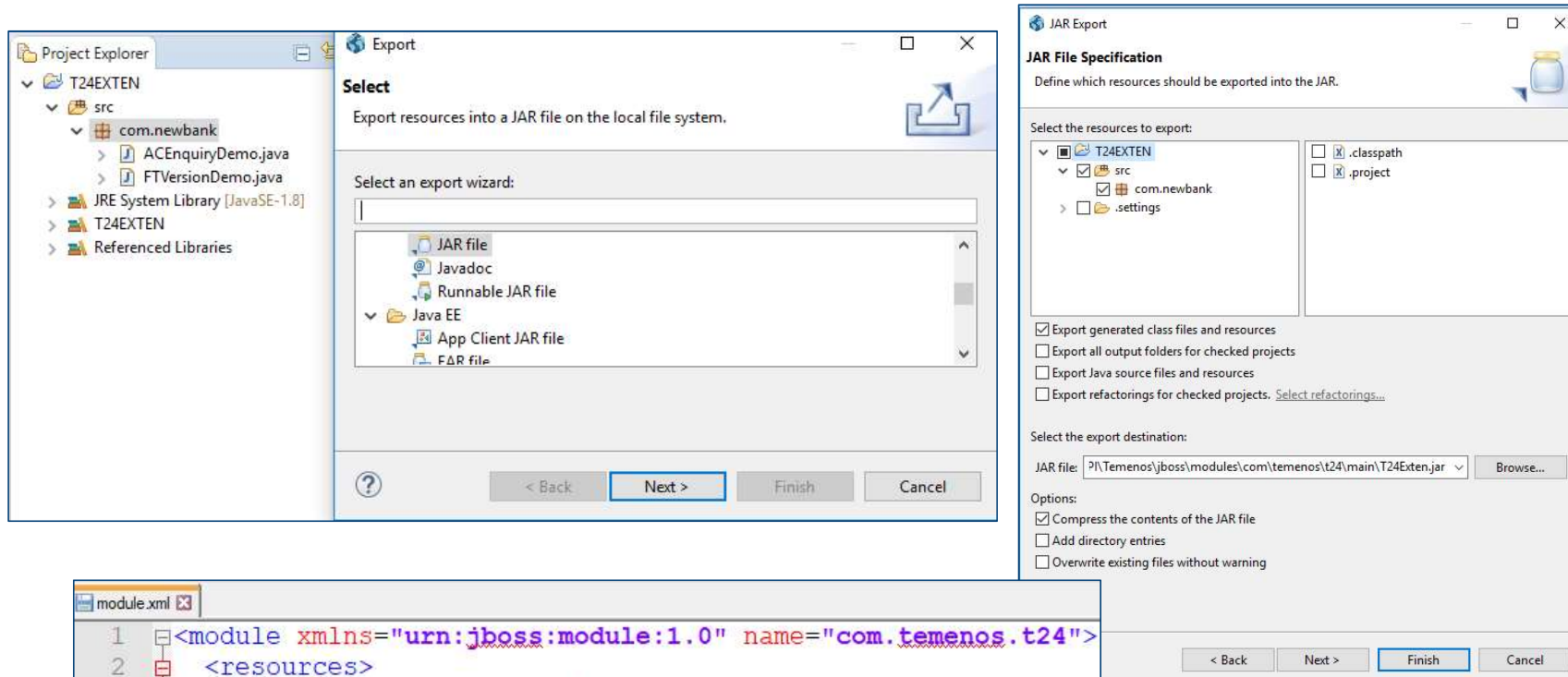
    List<String> retId = new ArrayList<String>();
    Double consolidatedBalance = 0.0;
    AccountRecord accRec = null;
    cusRec.setCustomerId(s3);
    try {
        List<String> accNumbers = cusRec.getAccountNumbers();

        Double workingBalance = 0.0;
        for (String acnum : accNumbers) {

            accRec = new AccountRecord(da.getRecord("ACCOUNT", acnum));
            String amt = accRec.getWorkingBalance().getValue();
            if (amt.isEmpty() || amt.equals(""))
                continue;
            else {
                workingBalance = Double.valueOf(accRec.getWorkingBalance().toString());
                consolidatedBalance += workingBalance;
            }
        }
    } catch (Exception e) {
    }
    retId.add(s3 + "*" + consolidatedBalance.toString());
    return retId;
}
```



## Step 2 – Create JAR and update module.xml



The screenshot shows the Eclipse IDE interface. On the left, the Project Explorer displays the project structure: T24EXTEN, src, com.newbank, ACEnquiryDemo.java, FTVersionDemo.java, JRE System Library [JavaSE-1.8], T24EXTEN, and Referenced Libraries. The main editor area shows the 'Export' wizard. The 'Select' step is active, showing 'Export resources into a JAR file on the local file system.' The 'Select an export wizard:' list includes 'JAR file', 'Javadoc', 'Runnable JAR file', 'Java EE', 'App Client JAR file', and 'EAR file'. The 'Next >' button is highlighted. To the right, the 'JAR File Specification' dialog is open. It shows 'Select the resources to export:' with a tree view of T24EXTEN, src, com.newbank, and .settings. The 'Export generated class files and resources' checkbox is checked. The 'JAR file:' field shows the path 'P:\Temenos\jboss\modules\com\temenos\t24\main\T24Exten.jar'. The 'Options' section has 'Compress the contents of the JAR file' checked. The 'Finish' button is highlighted.

Project Explorer

Export

Select

Export resources into a JAR file on the local file system.

Select an export wizard:

- JAR file
- Javadoc
- Runnable JAR file
- Java EE
- App Client JAR file
- EAR file

JAR File Specification

Define which resources should be exported into the JAR.

Select the resources to export:

- T24EXTEN
  - src
    - com.newbank
    - .settings

☒ Export generated class files and resources

☐ Export all output folders for checked projects

☐ Export Java source files and resources

☐ Export refactorings for checked projects. [Select refactorings...](#)

Select the export destination:

JAR file: P:\Temenos\jboss\modules\com\temenos\t24\main\T24Exten.jar


Options:

- ☒ Compress the contents of the JAR file
- ☐ Add directory entries
- ☐ Overwrite existing files without warning

module.xml

```
1 <module xmlns="urn:jboss:module:1.0" name="com.temenos.t24">
2   <resources>
3     <!-- Insert resources here -->
4     <resource-root path="./T24Exten.jar" />
5     <resource-root path="./t24lib/AA_ARAccountsData.jar" />
6     <resource-root path="./t24lib/AA_ARC.jar" />
```

## Step 3 – EB.API

 **TEMENOS**

EB.API S NOFILE.ENQ

➤

EB.API NOFILE.ENQ

Description	EN FOR NOFILE ENQUIRY
Protection Level	Full
Source Type	Method
Java Method	setIds
Java Class	NoFileEnquiryDemo
Java Package	com.newbank
Curr No	1



## | Creating the **ENQUIRY** Record

- A valid application name should be given in the field FILE.NAME which is checked against **STANDARD.SELECTION**
- A NOFILE enquiry does not have a single associated file
- Create a record in **STANDARD.SELECTION** with **NOFILE** prefix for the ID e.g. NOFILE.CUSBALANCE
- This ID should be given in FILE.NAME in the **ENQUIRY** application

# NOFILE Enquiry - STANDARD.SELECTION

The screenshot shows the TEMENOS interface for the NOFILE Enquiry - STANDARD.SELECTION. The header bar includes the TEMENOS logo and a search bar containing 'SS S NOFILE.DEMO.NEW'. Below the header, the title 'STANDARD.SELECTION' and the user 'NOFILE.DEMO.NEW' are displayed. The main area contains a table of user-defined fields. Annotations highlight specific fields: 'Selection Field' points to 'Usr Type.1' with value 'S'; 'Field created by the routine' points to 'Usr Field Name.2' with value 'CONSOLIDATED.BALANCE' and 'Usr Field No.2.1' with value 'NOFILE.ENQ'; and 'ID of the EB.API' points to the value 'NOFILE.ENQ'.

Field Name	Value
Usr Field Name.1	CUSTOMER
Usr Type.1	S
Usr Display Fmt.1	10L
Usr Single Mult.1	S
Usr Field Name.2	CONSOLIDATED.BALANCE
Usr Type.2	R
Usr Field No.2.1	NOFILE.ENQ
Usr Display Fmt.2	100L
Usr Single Mult.2	S

# NOFILE Enquiry - ENQUIRY

ENQUIRY NOFILE.ENQ

Page Size	4,99
File Name ▶	NOFILE.DEMO
Fixed Selection.1	CONSOLIDATED.BALANCE NE *
Selection Flds.1	CUSTOMER
Required Sel.1	Y
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
Multi Fields	0

# | NoFile Enquiry – Execution





ENQ NOFILE.ENQ


NOFILE.ENQ

Customer \* equals 100100






FIND

# | NOFILE Enquiry – OUTPUT



Results 1 - 1 of 1 

Customer	Consolidated Balance
100100	507,233.29



Customer \*

