



ORACLE

APACK 14.4.0.2.0 SWITCH INTEGRATION GATEWAY

Part Number: F36581-01



Accelerator Pack – SWITCH

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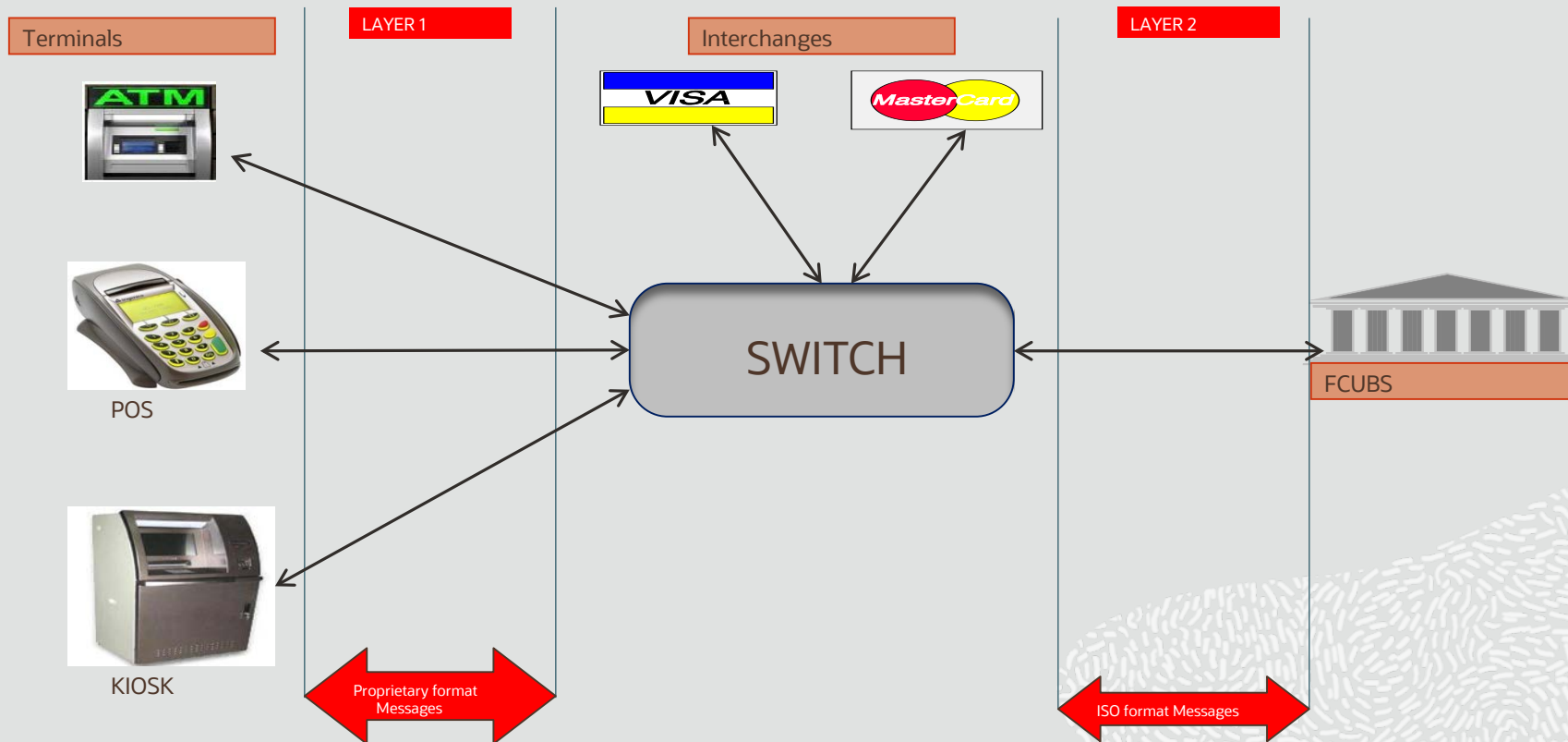
SWITCH Interface Overview

The Switch Interface gateway overview depicts the pattern in which various switch domain interacts with the FLEXCUBE Application in the switch centric network:

- ATMs and POS Terminals are connected and communicates with Switch Software using proprietary Message protocol, the format which is transmitted from ATM to switch interface.
- Switch software is also connected with Interchanges like VISA and MasterCard to facilitate the transactions across the banks devices to allow more terminals access to the cards.
- This forwards the transactions to FLEXCUBE switch interface after converting proprietary protocol into ISO8583 protocol message formats.
- FLEXCUBE UBS Switch Interface process all transactions sent by Switch Software by validating each request against FLEXCUBE UBS Database and posts the transactions into FLEXCUBE System.

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SWITCH Interface Overview



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SWITCH Software

Switch software functions in 2 layers

As shown in the picture, in Layer 1:

- Switch software maintains the terminals viz., ATM/POS interchange information.
- Maintains the card number to account number linkages.
- Verifies the PIN and the card status.
- Receives card transactions from ATM/POS terminals.

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SWITCH Software

As part of Layer2:

- The switch software Forwards the transactions to Host Banking Systems like FLEXCUBE.
- Converts the received proprietary protocol messages from the terminal into ISO8583 protocol.
- Performs “stand-in” authorization incase of Link to application systems is down.
- Refreshes Account balances from Banking Systems .

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Transaction Overview

- Given the parties involves viz., Switch, Interchange and FLEXCUBE the transaction flow is facilitated by ISO 8583 protocol.
- ISO 8583 protocol helps to exchange information between Acquirer and Issuer.
- In this scenario, Acquirer, is the bank that has deployed the terminals [ATM/POS], with switch software and interchanges connections established.
- Issuer, is typically the bank that issues the cards and responds with Approval/Rejection messages to Acquirers.
- The transactions from the Issuer bank perspective could happen in 3 ways and thus it is categorized into ONUS, Remote ONUS and OFF-US.

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Business Overview

Following are the typical business flow that happens in banks using ISO8583 Protocol as vehicle:

- The Plastic cards are issued by the 'Issuer Banks' referred as 'Issuer'.
- The Infrastructure is in place to enable the card transactions.
- Acquiring devices (ATM/POS) installed and connected to Switch software.
- Interchanges (VISA/ MasterCard) connectivity available with Switch software.
- Switch software integrated with Issuing bank software (like FLEXCUBE) using ISO8583 message protocol.
- The Plastic cards will be used at Acquiring point devices installed by Banks referred as 'Acquirer'.

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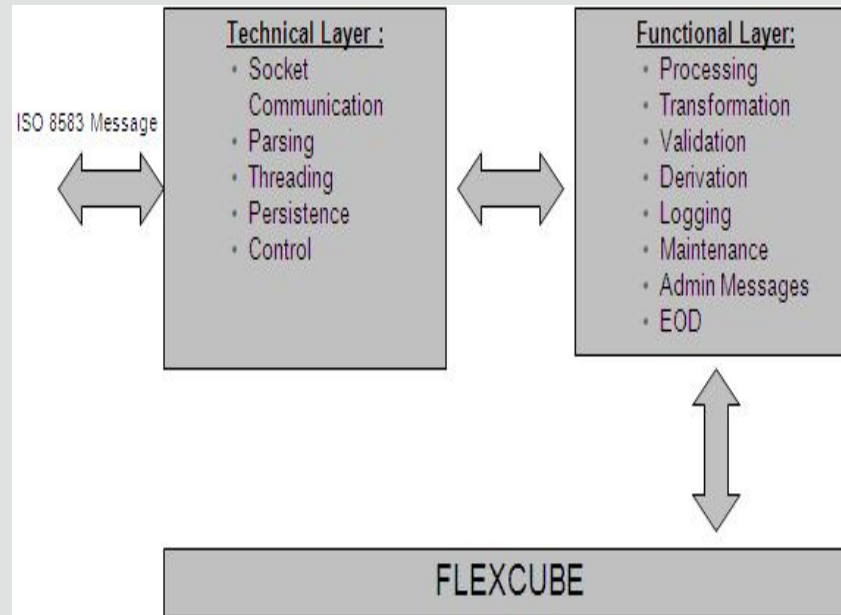
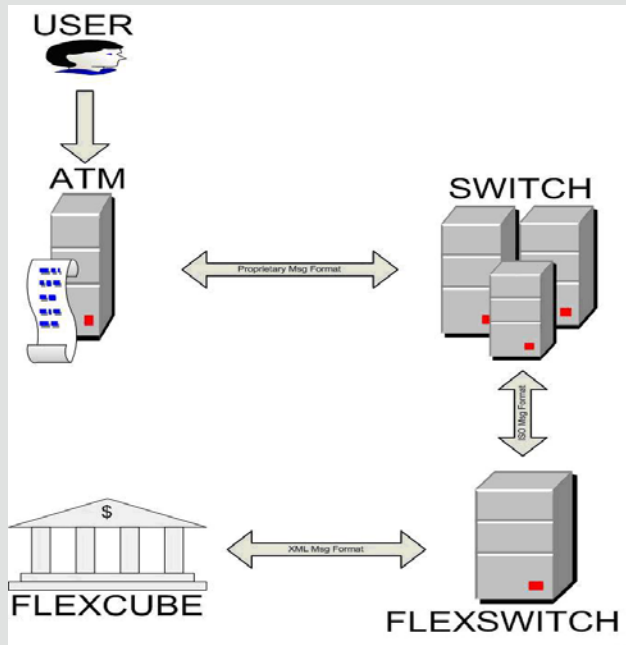
Business Overview

Depending upon the category of the transaction, Switch software will route the transaction either to Issuing bank (FLEXCUBE) i.e. for ONUS or to Interchanges i.e. for remote ON-US and OFF-US:

- Issuing Bank need to respond to the ‘ISO messages’ and provide ISO response to either honor or reject transactions.
- These transactions gets settled with Interchanges or Merchants following next day or later using batch programs.
- In some situations, if the communication link goes down between Switch software and Issuer bank, certain Switch has the facility to authorize those transactions. These transactions are called as ‘Stand-in’ or ‘STIP’ or ‘Offline’ or ‘SAF’ transactions.
- SAF transactions are forwarded to Issuer bank once the link is up or processed as batch file upload at Issuer side. For such stand-in purpose, Switch need to get balance refresh regularly from issuing banks.

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SWIFT Interface Architecture



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SWIFT Interface Architecture

- The Interface architecture diagram depicts the components that constitutes the technical and the functional layer for Flexcube to successfully interface with switch software.
- Technical layer would be responsible for switch connection and message format handling - catered by ISO 1987/1993/2003 protocol interface.
- The ISO8583 messages sent over the socket can have the length indicator either in ASCII/hex packed length format and also functions in 3 versions iz., ISO8583 - 1987, 1993, and 2003 version.
- The technical layer address to RAS Requirements i.e. Reliable, Available, and Scalable.
- Functional layer would be responsible for executing functionalities at Flexcube - i.e. to switch transactions authorisation and posting into Flexcube.

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Technical Approach

Switch Interface process is subdivided into two:

- Communication between SWITCH and Switch Interface - Configuration 1 and Configuration 2
- Communication between Switch Interface and FLEXCUBE

Configuration 1:

- Communication between SWITCH and interface is through sockets.
- SWITCH is client and Interface is server.
- The configurable parameters will be maintained in a property file.
- When interface is started, it reads the 'flexswitch.properties' file and keeps the information in Global shared memory.
- The Socket server will be started as a POJO.
- It creates the maximum number of threads for Reading, Sending, and keeps in the thread pool.[Reader Thread pool, Sender Thread pool].
- This maximum number of threads are configured in 'flexswitch.properties'.

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Technical Approach

Interface accepts the connection from SWITCH. For each connection, one reader thread starts reading the socket. A set of sender threads waits on the Sender Memory Q:

- A thread is taken from Reader Thread pool and start receiving the message from socket (say TC1Read).
- If the Number of bytes parameter is 0 then the ISO message is read as one block. Else, the corresponding length of string stream is read from the socket.
- When a Message comes, TC1Read takes a thread from the Sender Pool (say TC1Send). TC1Send picks up the oldest message and processes further.
- TC1Send picks the message from Sender Memory Q and does file logging.
- TC1Send picks then calls the Converter class.
- TC1Send send the message to Gateway EJB.
- After getting the response from Gateway the response message is passed to converter class to get ISO format and then sent to Socket.
- The same thread writes the response back to the socket and then returns to the pool.

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Technical Approach

Configuration 2 : Communication between SWITCH and Switch Interface

- Communication between SWITCH and interface is through sockets.
- The interface can be configured to call gateway in an asynchronous fashion also.
- In this mode, the TC1Send sends the message to Gateway In MQ.
- Before sending the message in to MQ, TC1Send will set the Client Id in the message ID.
- Client id is a combination of port number of the connection and the system timestamp, and a random number thus making it unique per connection.
- A hash map is created with this Client Id as key and Socket Object of this connection as value.
- Response will be received in the Gateway Out MQ.
- To write the message back to the socket threads from the Receiver, Thread Pool will have to be used. This Receiver Thread Pool will be initialized on start up.

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Technical Approach

Communication between SWITCH and Switch Interface

- Receiving thread (TC1Receive) polls the response from GW out MQ (FIFO method).
- The response message is passed to converter class to get ISO format. It identifies the Client Id of the message from the correlation ID and using the hash map obtains the socket object and writes the response back to this object and then continues to poll the Output MQ.
- Communication between Switch Interface and gateway is using the Gateway EJB/MDB that is exposed to the outside world for communication. GW will operate with its own transaction control. Any failure after receiving a response from GW will be handled as a timeout.

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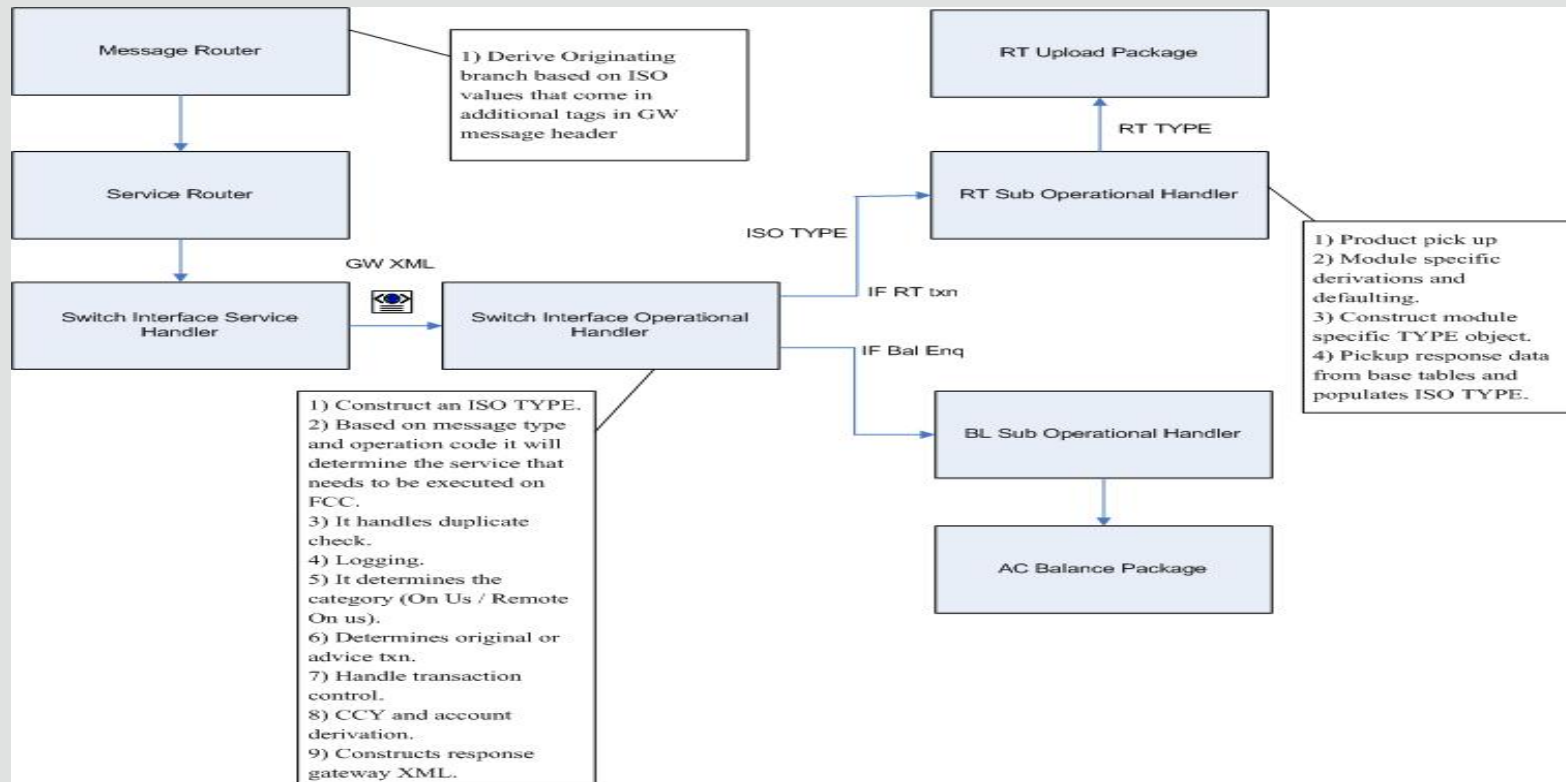
Technical Approach

Switch Interface responsibilities:

- Accept the socket connection/s from SWITCH
- Read the ISO message from socket
- Write the ISO message into a Memory Queue
- Read the ISO message from Queue and convert it into GW XML
- Send the request XML message to Gateway
- Accept the gateway response XML
- Convert gateway response XML to ISO response message
- Send the ISO response back to SWITCH through socket

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Functional Approach



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Functional Approach

- The source will be FLEXSWITCH.
- The originating branch is derived in the messaging schema using the Issuer BIN and Acquirer BIN. These two values are received in the additional parameters tag in the header. The originating branch is used as the BRANCH tag in the header.
- The service, operation received will be FCUBSSwitchService, SwitchTransaction.
- A new gateway service handler for FCUBSSwitchService will be created.
- This new service will have a XSD. The XSD will have all the ISO fields as individual tags.
- There will be an operation handler (switch interface operation handler) that will parse the incoming GW XML and construct an ISO TYPE object . Depending on the ISO version, the fields from the GW XML will be mapped to fields in the ISO TYPE. The ISO version will be defined in Switch Integration Parameter table. Based on message class and operation code, it will determine the service that needs to be executed on FLEXCUBE and calls the corresponding package (explained in the next point). It handles duplicate check (by logging into a table). It determines the category (On Us/ Remote On us).

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Functional Approach

- For each service that will be used by ATM/POS, the corresponding operation handler will be duplicated and tailored to meet the ATM/POS requirements.
- The response message class is determined in the switch interface operation handler. Using the ISO TYPE that it receives it builds the response XML.
- Product maintenance and upload package will be enhanced to meet new requirements.

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Customer Specific Maintenance

- User needs to follow the Following set of Maintenance:
 - Customer Account Creation
 - Card Customer
 - Card Account Maintenance

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Customer Specific Maintenance Customer Account Creation

- Create Customer Account for ATM/IVR and POS Operations.
- The Checkbox ‘ATM’ under ‘Preference’ tab should be Checked along with ATM Account number.

The screenshot displays the 'Customer Accounts Maintenance' application window. The window is divided into several sections:

- Positive Pay:** Includes checkboxes for 'Positive Pay', 'Funding', and 'Mod 9 Validation Required'. It also has fields for 'Stale Days', 'Fund Branch', 'Funding Account', and 'Validation Digit'.
- Provisioning Details:** Includes 'Exposure Category' (ACPROCAT01), 'Risk Free Exposure Amount', and 'Provisioning Currency' (Local).
- Escrow Transfer Details:** Includes 'Escrow Transfer Applicable' checkbox, 'Branch Code', 'Escrow Account', and 'Escrow Percentage'.
- Options:** Includes checkboxes for 'Euro Cheques', 'MT210 Required', 'Lodgment Book', 'Consolidated Certificate Required', 'Back Period Entry Allowed', 'CRS Statement Required', 'MT110 Reconciliation Required', 'Default Waiver', 'Auto Cheque Book Request', and 'Auto Debit Card Request'.
- Account Facilities:** Includes checkboxes for 'Cheque Book', 'Passbook', and 'CAS Account'.
- Sweep Required:** Includes checkboxes for 'Sweep In' and 'Sweep Out'.
- ATM Details:** A highlighted section with a checkbox for 'ATM', 'Branch', 'ATM Account Number' (9990010000540), and 'Daily Amount Limit'.

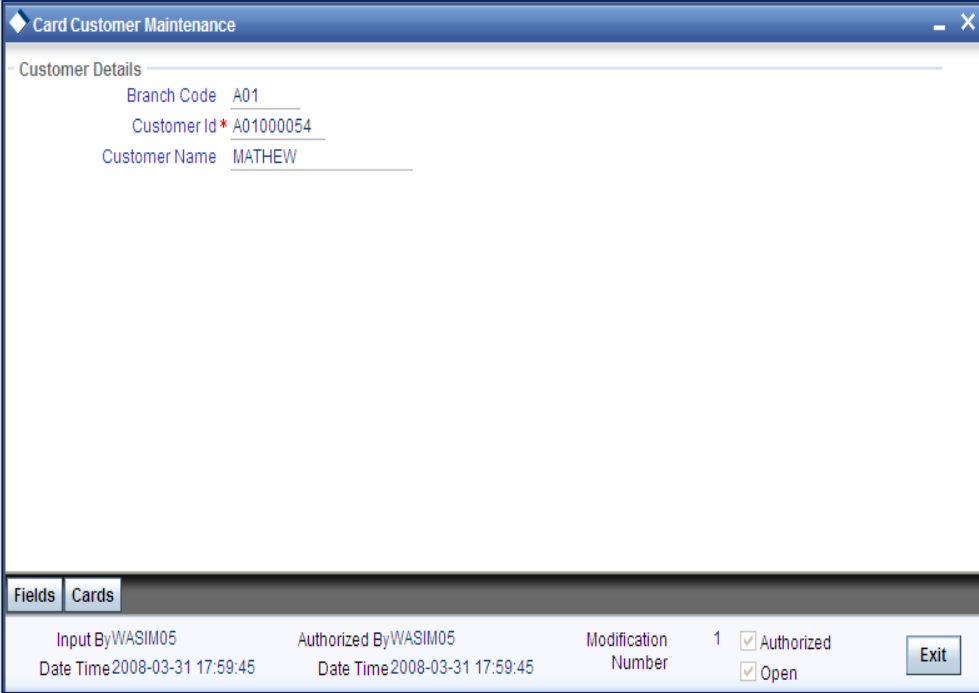
The bottom of the window features a navigation bar with tabs for 'Interest', 'Charges', 'Consolidated Charges', 'BIC', 'Instructions', 'Standing Instructions', 'Linked Entities', 'Reg', 'Account Status', 'Restrictions', 'Currency Limits', 'MIS', 'Statement', 'Limits', 'Joint Holders', 'Fields', 'Deposits Instruction', 'Billing Parameters', 'Account Signatory', 'Interim Transactions Report', 'Notice', 'Cards', and 'Statistics'. Below the navigation bar, there is a status bar with fields for 'Maker', 'Checker', 'Date Time', 'Mod No', 'Record Status', and 'Authorization Status', along with an 'Exit' button.



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Customer Specific Maintenance Card Customer

- Create Card Customer. User needs to create a Card Customer which is identified as a Customer who are Eligible to have cards.



The screenshot shows a software window titled "Card Customer Maintenance". The main area displays "Customer Details" with the following information:

- Branch Code: A01
- Customer Id*: A01000054
- Customer Name: MATHEW

At the bottom of the window, there is a status bar with the following information:

- Input By: WASIM05
- Authorized By: WASIM05
- Date Time: 2008-03-31 17:59:45
- Modification Number: 1
- Checkboxes: Authorized, Open
- Buttons: Fields, Cards, Exit

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Customer Specific Maintenance Card Account Maintenance

Create Card Account for a Customer.
User needs to select the type of Card
for the 'Card Customer' which is
Mapped to a Customer Account.

Card Accounts Detail

Branch Code * A01
Customer Id * A01000054
Customer Account Number * A0100005401
Debit/Credit Indicator Debit
 Credit

Fields Cards

Input By WASIM05 Authorized By WASIM05 Modification Number 1 Authorized
Date Time 2008-03-31 18:00:00 Date Time 2008-03-31 18:00:00 Open Exit

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Bank Specific Maintenance

- Bank Specific Maintenance can be Divided into two parts:
 - General Maintenance
 - Card Specific Maintenance

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Bank Specific Maintenance General Maintenance

- User needs to follow the following set of Maintenance:
 - Country Maintenance
 - Currency Maintenance
 - Inter-Branch Parameter maintenance

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Bank Specific Maintenance Country Maintenance

- User needs to Maintain Country as currency needs to be maintained for Bank which in turn needs to be Linked with the Country.

Country Code Maintenance

Country Code * US Alternate Country Code _____
Country Name UNITED STATES ISO Country Code US
Limit Currency _____ Overall Limit _____

Blacklisted IBAN Check Required
 EU Member Clearing Code in BIC+
 Generate 205

Clearing Network _____

Fields

Input By A31597M01 Authorized By A31597M01 Modification Number 1 Authorized
Date Time 2007-11-27 11:31:06 Date Time 2007-11-27 13:31:57 Open

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Bank Specific Maintenance Currency Maintenance

- User needs to Maintain Currency along with ISO Numeric Code.

Currency Definition

Currency Code: USD
Currency Name: US Dollar
Currency Type: _____
ISO Numeric Currency Code: 292
Country: US
Decimals: 2
Interest Method: Actual/365
Spot Days: 2
Foreign Exchange Netting Days: 1
Settlement Message Days: 2
Alternate Currency Code: 840
Position General Ledger: 800000008
Position Equivalent General Ledger: 900000008
Tolerance Limit: 0
Index Base Currency: _____

Cutoff Time
Days: _____ Hour: 23 Minute: 59
 Generate MT 103+
 CLS Currency
 Index Flag
 Euro Conversion Required
 New Cover format Required
 Validate Tag 50F

Rounding
Rule: Round Near
Unit: .01
Currency Format Mask: 99,999,999,999
Euro Type: Euro Currency
 In Leg Currency
 Out Currency
 Euro Closed

PC Currency Country Mapping Fields
Input By: A30299M01 Authorized By: A30299M02 Modification Number: 2
Date Time: 2007-11-27 18:56:10 Date Time: 2007-11-27 18:57:07
 Authorized
 Open
Exit

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Bank Specific Maintenance Inter-branch Parameter Maintenance

- User needs to Maintain ‘Inter-Branch Parameter’. The inter-branch parameter is maintained for ATM/IVR and POS transactions between Head office and a Branch.

Inter Branch Parameters Maintenance

Branch 1 * 000
Description Bank Futura
Branch 2 * A01
Description Bank Futura -Branch A01

General Ledger

Accounts	Due To Branch 2 *	Description	Due From Branch 2 *	Description	Inter Branch Currency *
A01	267000101	Due to A01 Branch from 000 Branch	173000101	Due from A01 Branch to 000 Branch	Account Currency

General Ledger

Accounts	Due To Branch 1 *	Description	Due From Branch 1 *	Description	Inter Branch Currency *
000	267000102	Due to 000 Branch from A01 Branch	173000102	Due from 000 Branch to A01 Branch	Account Currency

LBL_CTN_GL

Due To Branch 2 *	Description	Due From Branch 2 *	Description
131120101	Dues to A01 -	131120102	Dues From A01 -

LBL_CTN_GL

Due To Branch 1 *	Description	Due From Branch 1 *	Description
131120201	Dues to 000 -	131120202	Dues From 000 -

MIS Group

Due to Branch 2	Description

MIS Group

Due to Branch 1	Description

Fields

Input By 31582A02	Authorized By 31582A01	Modification Number 1	<input checked="" type="checkbox"/> Authorized
Date Time 2008-03-31 12:47:39	Date Time 2008-03-31 12:48:41		<input checked="" type="checkbox"/> Open

Exit

Accelerator Pack – SWITCH

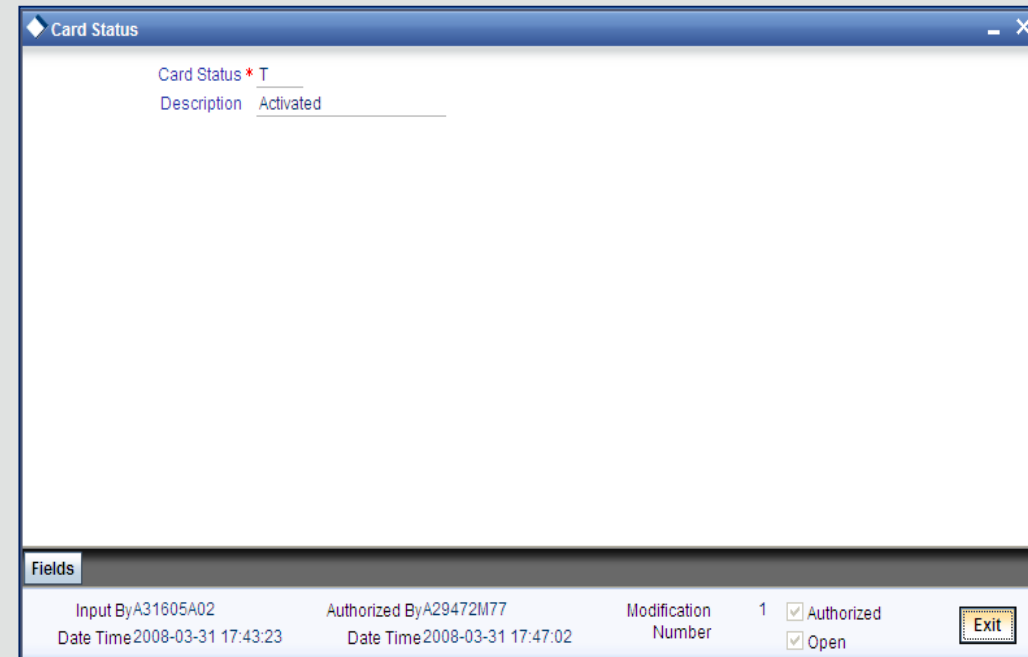
Bank Specific Maintenance Card Maintenance

- User needs to follow the following set of Maintenance:
 - Card Status
 - Card Bin
 - Card Type
 - Card Product
 - Card Master Maintenance

Accelerator Pack – SWITCH

Bank Specific Maintenance Card Status

- User needs to maintain Card Statuses. Status can be 'Issued', 'Activated', 'Blocked' etc.



The screenshot shows a window titled "Card Status" with a blue header bar. The main area contains a form with two fields: "Card Status" with a red asterisk and the value "T", and "Description" with the value "Activated". Below the form is a "Fields" section containing a table of metadata:

Fields	
Input By	A31605A02
Authorized By	A29472M77
Date Time	2008-03-31 17:43:23
Date Time	2008-03-31 17:47:02
Modification Number	1
	<input checked="" type="checkbox"/> Authorized
	<input checked="" type="checkbox"/> Open

An "Exit" button is located in the bottom right corner of the window.

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Bank Specific Maintenance Card BIN Maintenance

- User needs to Maintain Card BIN. Card BIN hold important details like 'ATM count limit', 'POS Amount limit', etc.,

The screenshot shows a 'Card BIN Maintenance' window with the following fields and values:

Field	Value
Card BIN *	EUROCDS
Description	Euro Cards
Bank Institution Id	EBUI1234
Default Renewal Unit	Year
Default Renewal Cycle	3
ATM Limit Unit	Day
ATM Count Limit	10
ATM Amount Limit	40000
Remote ATM Limit Unit	Day
Remote ATM Count Limit	5
Remote ATM Amount Limit	20000
POS Limit Unit	Day
POS Count Limit	10
POS Amount Limit	40000
Remote POS Limit Unit	Day
Remote POS Count Limit	5
Remote POS Amount Limit	20000

Fields:

Field	Value
Input By	A31605A02
Authorized By	A29472M77
Date Time	2008-03-31 17:35:50
Date Time	2008-03-31 17:39:41
Modification Number	1
Authorized	<input checked="" type="checkbox"/>
Open	<input checked="" type="checkbox"/>

Exit

Accelerator Pack – SWITCH

Bank Specific Maintenance Card Type Maintenance

- User needs to Maintain Card Types. Card types denotes the types of cards that the bank can provide its Customers, Card types can be unique from one another. The uniqueness is provided in its characteristics like 'ATM withdrawal amount', 'Number of POS transactions' etc. which are provided in Card BIN, to which the Card type is linked.

The screenshot shows a software window titled "Card Type Maintenance". At the top, there are two fields: "Card Type*" with the value "EUROCARD" and "Description" with the value "EURO CARDS". Below this is a section titled "BIN Details" which contains a list box with two items: "Card BIN*" and "EUROCDS". At the bottom of the window, there is a "Fields" section with the following information: "Input By A31605A02", "Date Time 2008-03-31 17:39:53", "Authorized By A29472M77", "Date Time 2008-03-31 17:40:55", "Modification Number 1", and two checked checkboxes labeled "Authorized" and "Open". An "Exit" button is located in the bottom right corner.

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Bank Specific Maintenance Card Product Maintenance

- User needs to Maintain Card Products.

Debit Card Product Maintenance

Card Product * VISA
Description * Visa debit card
Card Type * VISA
Card BIN _____
Expiry Date 2009-03-31
Debit/Credit Card Debit Card
 Credit Card

GL Account _____
GL Account _____ Transaction code _____

Excess Payment GL _____
Excess Debit GL Acc _____ Debit Transaction Code _____
Excess Credit GL Acc _____ Credit Transaction Code _____
Card Agreement * 1 year Validity External Product Ref No _____ **Debit Transaction Code**

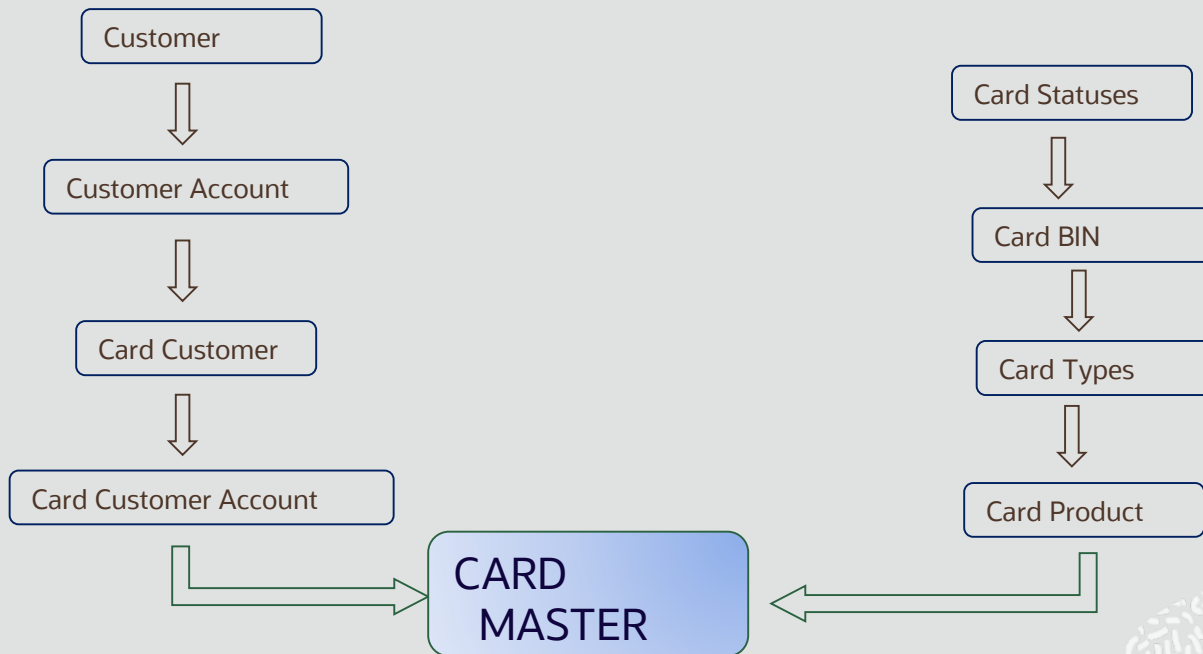
Fields

Maker WASIM05	Date Time:	Mod No 1
Checker WASIM05	2008-03-31 17:59:02	Record Status Open
	Date Time:	Authorization Status Authorized
	2008-03-31 17:59:02	

Exit

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Linkage Between Card specific Maintenance and Customer Maintenance Card Product Maintenance



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Bank Specific Maintenance Card Master Maintenance

- User needs to Maintain Card Master Maintenance. Using this maintenance the Customer Account along with the customer is Linked with the Card and Card Specific maintenance. User needs to Select ‘Card Status’ as ‘Activated’.

The screenshot displays the 'Card Master Maintenance' application window. It is divided into several sections for data entry:

- Card Master:** Includes fields for Branch Code (A01), Request Reference Number (A01VISA080910001), Customer No (A01000054), Account No (A0100005401), Card products (VISA), and Card BIN (EUROCDS).
- Customer:** Fields for Name On Card (MATHEW BELL), Owner ID Number, Additional Holder ID Number, Owner ID Type, Additional Holder ID Type, Hold Bill Indicator, Recovery Account, Additional Holder Date Of Birth, and Additional Holder Relation.
- Card:** Fields for Card Number (555511122229090), Card Sequence Number (001), Card Application Date (2008-03-31), Card Issued Date, Card Renewal Date, Card Expiry Date, Activation Date, Issuer, Plastic Type, Credit Card Limit, Primary Card No, and a checked 'Primary Card' checkbox.
- Status:** Fields for Dispatch Status (No), Pin Mailed Status (No), Last Status Updated (2008-03-31), Last Operation, Card Status (dropdown), Delivery Channel For Card, and Delivery Channel For Pin (Dr/Cr Indicator).
- Renewal:** Fields for Remarks, Renewal Unit (Year), Renewal Cycle (3), and Bill Cycle.
- ATM:** Fields for ATM Limit Unit (Daily), ATM Count Limit (10), ATM Amount Limit (40000), Remote ATM Count Limit (5), and Remote ATM Amount Limit (20000).
- POS:** Fields for POS Limit Unit (Daily), POS Count Limit (10), POS Amount Limit (40000), Remote POS Limit Unit (Daily), and Remote POS Count Limit (5).

At the bottom, a 'Fields' section shows: Maker (WASIM05), Checker (31582A02), Date Time (2008-03-31 18:02:02), Mod No (1), Record Status (Open), and Authorization Status (Authorized). An 'Exit' button is located in the bottom right corner.



Accelerator Pack – SWITCH

Liability Maintenance

- Every customer of bank who enjoys credit facilities should be assigned or linked to a Liability Code category. Several customers can be linked to the same Liability Code. Liability linkage can be in two ways.
- Single Liability linked to multiple customers (i.e. a Customer Group).
- Single Liability linked to only one customer.

Accelerator Pack – SWITCH

User Defined Status

- Path: Limits and Collaterals-> Operations -> Liability Input
- Fast Path: GEDMLIAB

The screenshot displays the 'Liability Maintenance' application window. The window title is 'Liability Maintenance' and it includes a menu bar with options: New, Copy, Close, Unlock, Print, and Enter Query. The main area contains several input fields and labels:

- Liability Number * CLARK
- Liability Name * CLARK
- Main Liability Number
- Branch * 000
- Liability Currency * GBP
- Overall Limit 9,999.00
- Utilized Amount 4,948,011.00
- Category
- Revision Date
- Credit Rating
- Overall Score 0.00
- User Defined Status
- Liability Clean Risk Limit
- Security Clean Risk Limit
- Security Pre Settlement Risk Limit

At the bottom, there are two checkboxes: Unadvised and Netting Required. The status bar at the bottom of the window shows: Score, Credit Rating, Fields, Input By FCUBS1, Authorized By FCUBS1, Modification Number 1, Date Time 2008-03-31 15:35:34, and an Exit button.

Accelerator Pack – SWITCH

Interface Specific Maintenance

Configurable in Interface(flexswitch.properties)

- Port numbers which is exposed to SWITCH (ATM and POS).
- Connecting POS and ATMs in same or different ports.
- Bitmap type (ASCII/Binary) configurable.
- Maximum number of connections from SWITCH.
- Maximum number of threads or reading from socket.
- Maximum number of threads for calling gateway service.
- Logging required for debug and socket message.
- Log file path and file names.
- ISO Version for the purpose of picking up the corresponding config file.
- RMI information for calling FLEXCUBE Gateway.
- Head office branch code.
- User id of interface to communicate to FLEXCUBE.
- Number of bytes that indicate length.

Accelerator Pack – SWITCH

Interface Specific Maintenance

User needs to follow the following set of Maintenance:

- Upload Source Maintenance
- External System Maintenance
- External System Function Maintenance
- Upload Source Preferences maintenances
- User Maintenance
- Retail Teller Product Maintenance
- ARC Maintenance
- ATM/Debit Card FCC Account Mapping
- Network Details
- Terminal Details
- Product Type Maintenance
- Process Code Mapping

Accelerator Pack – SWITCH Interface Specific Maintenance

Upload Source Maintenance

- User needs to Maintain External Source as 'FLEXSWITCH' which is External system for ATM and POS transaction.

The screenshot shows a window titled "Upload Source Maintenance". The main area contains the following information:

- Source Code * FLEXSWITCH
- Description SWITCH Gateway
- Base Data From FLEXCUBE
- System Authorization Required

At the bottom, there is a "Fields" section with the following data:

Input By 31582A02	Authorized By 31582A01	Modification Number 2	<input checked="" type="checkbox"/> Authorized	Exit
Date Time 2008-03-31 14:59:41	Date Time 2008-03-31 15:00:31		<input checked="" type="checkbox"/> Open	

Accelerator Pack – SWITCH Interface Specific Maintenance

External System Maintenance

- User needs to Maintain External System as 'FLEXSWITCH' which is External system for ATM and POS transaction.
- User must provide Queues (Default Response queue , Dead letter Queue , In Queue , Response Queue) in accordance to the Schema Setup.

The screenshot shows the 'External System Maintenance' window. The 'External System' is 'FLEXSWITCH' with description 'SWITCH USER'. The 'Request' is 'Correlation Id'. The 'Queue' section shows 'Default Response Queue' as 'MDB_QUEUE_RESPONS' and 'Dead Letter Queue' as 'MDB_QUEUE_DLQ'. There are checkboxes for 'XSD Validation Required' (unchecked) and 'Register Response Queue Message Id' (checked). Below is a table for 'External System Queues':

In Queue	Response Queue
<input type="checkbox"/> MDB_QUEUE	MDB_QUEUE_RESPONS

At the bottom, there are fields for 'Input By', 'Authorized By', 'Modification Number', and 'Date Time', along with checkboxes for 'Authorized' and 'Open', and an 'Exit' button.

Accelerator Pack – SWITCH Interface Specific Maintenance

External System Function Maintenance

- User needs to Maintain External System Function as 'FLEXSWITCH'.
- User must External System to 'Service Name' named 'FCUBSSwitchService' and 'Function' named 'GWDEXFUN'.

External System Functions

External System * FLEXSWITCH Description SWITCH USER

Function * DEGSWTXN

Action * NEW

Service Name FCUBSSwitchService

Operation Code SwitchTransaction

Fields

Input By A31650A01 Authorized By A31605A01 Modification Number 1 Authorized Open

Date Time 2007-11-27 20:39:19 Date Time 2007-11-27 20:40:03

Accelerator Pack – SWITCH Interface Specific Maintenance

Upload Source Preferences maintenances

- User needs to Maintain Upload Source Preferences as 'FLEXSWITCH'.
- With the help of the upload source preferences maintenances screen map the External system with the module 'Switch'.

Upload Source Preferences Maintenance

Source Code * FLEXSWITCH Module Code * SW

Error Handling On Exception * Reject

On Override * Ignore

Post Upload Status * Authorized

Purge Days(Calendar)

Allow Deferred Processing

Allow EOD with Deferred

Allow Delete

Fields

Input By WASIM05 Authorized By 31582A02 Modification Number 3 Authorized

Date Time 2008-03-31 17:34:15 Date Time 2008-03-31 17:35:10 Open Exit

Accelerator Pack – SWITCH Interface Specific Maintenance

Upload Source Preferences maintenances

- User needs to Maintain Upload Source Preferences as 'FLEXSWITCH'.
- With the help of the upload source preferences maintenances screen map the External system with the module 'Switch'.

Upload Source Preferences Maintenance

Source Code * FLEXSWITCH Module Code * SW

Error Handling

On Override * Ignore On Exception * Reject

Post Upload

Status * Authorized

Purge Days(Calendar)

Allow Deferred Processing

Allow EOD with Deferred

Allow Delete

Fields

Input By WASIM05 Authorized By 31582A02 Modification Number 3 Authorized

Date Time 2008-03-31 17:34:15 Date Time 2008-03-31 17:35:10 Open Exit

Accelerator Pack – SWITCH Interface Specific Maintenance

User Maintenance

- User needs to Maintain User as 'FLEXSWITCH'.
- The User need to have 'Auto Authorize' facility.

The screenshot displays the 'User Maintenance' window with the following details:

- User Details:**
 - User Identification * FLEXSWITCH
 - Name * FLEXSWITCH
 - User Reference
 - Language * ENG
 - Home Branch * 000
 - Customer No
 - Department Code
 - Department Description
 - Tax Identifier
 - LDAP DN
 - Time Level * 9
 - Amount Format
 - Date Format
 - Auto Authorization
 - Validate
- User Status:**
 - Enabled
 - Hold
 - Disabled
 - Locked
 - Staff
 - Branch
- Classification:**
 - Status Changed On
 - Last Signed On
 - Staff Customer Restriction Required
 - ELCM User ID
 - Multi Branch Access
- User Password:**
 - Start Date * 2007-01-01
 - End Date
 - Password
 - Password Changed On 2011-09-30
 - Email
- Invalid Logins:**
 - Count

Navigation tabs: Restricted Password, Roles, Rights, Functions, Tills, Account Classes, General Ledgers, Limits, Branches, Products, Disallowed Functions, Users Holiday, Fields, Group Restriction, Centralized Role.

Footer information:
Maker 32601T15 Date Time: 2011-09-30 12:08:03 Mod No 1
Checker 32601T15 Date Time: 2011-09-30 12:08:04 Record Status Open
Authorization Status Authorized

Exit button

Accelerator Pack – SWITCH Interface Specific Maintenance

Retail Teller Product Maintenance

- User needs to Maintain 'Retail Teller Product'. This must be maintained for maintained for each and every type of transactions such as Cash withdrawal, Cash deposit, POS transaction, Balance enquiry, Mini statement etc.,
- In the 'Preferences' tab of the 'Retail Teller Product Maintenance' it is necessary to check the box 'Switch product', so that the product can be fetched in the 'Switch Product' mapping screen.

The screenshot displays the 'Retail Teller Product Maintenance' window. The main area contains several fields for product configuration:

- Product Code * ACWD
- Product Description * Atm Cash withdrawl
- Report Module RT
- Product Type * OT
- Description Others.
- Slogan Atm Cash Withdrawl
- Product Group * ATM
- Product Group Description ATM related Maintenance
- Start Date * 2008-03-31
- End Date
- Remarks

On the right side, there are additional settings:

- Exchange Rate Variance (%)
- Override Limit * 3
- Stop Limit * 100
- Rate Code * Mid Rate (dropdown menu)
- Rate Type Preferred * CASH

At the bottom, there are tabs for 'Preferences', 'MIS', 'UDF', and 'Branch/Currency Restriction'. The 'Preferences' tab is active, showing:

- Maker 31582A01
- Checker 31582A02
- Date Time: 2008-03-31 14:34:23
- Date Time: 2008-03-31 16:30:46
- Mod No 1
- Record Status Open
- Authorization Status Authorized

An 'Exit' button is located in the bottom right corner.

Accelerator Pack – SWITCH Interface Specific Maintenance

ARC Maintenance

- User needs to Maintain 'ARC'. This must be maintained for each and every type of transactions such as 'Cash withdrawal', 'Cash deposit', 'POS transaction', 'Balance enquiry', 'Mini statement' etc., This maintenance is used to collect charges for a particular set of ATM operations like 'Balance Enquiry' charges etc.
- Description as 'TXN_FEE' and 'TXN_PROCESS_FEE' must be maintained under 'Charge1' and 'Charge2' tab respectively.

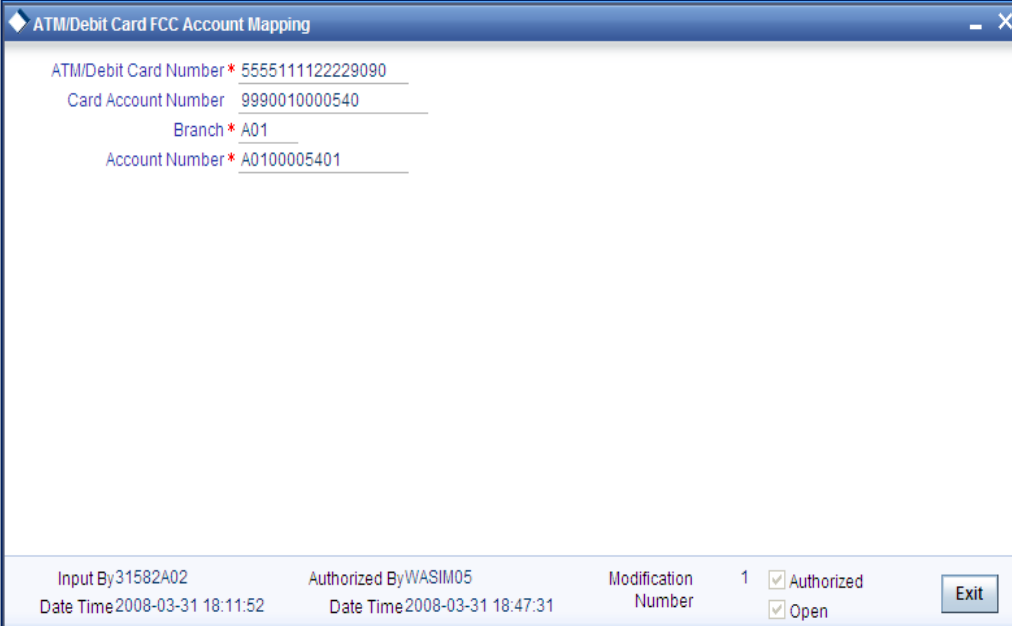
The screenshot displays the 'ARC Maintenance' window with the following sections:

- Branch:** ALL BRANCH
- Account Class/Product:** ACWD
- Description:** Atm Cash withdrawl
- Transaction Type:** ANY TYPE
- Currency:** **
- IB Transaction:** No
- Account Class/Product:** Account Class, Product Type
- Float Days Basis:** Calendar, Working
- Customer Group:** **
- Offset Details:** Branch: **, Account: 171300005, Account Description: ATM Switch
- Transaction Details:** Branch, Account, Account Description
- Transaction Code:** Offset Transaction Code: CHW, Main Transaction Code: CHW
- Exchange Rate Revaluation:** Liquidation Product for Demand Draft, Netting Charges, Main Offset Accounting Entries Required
- Charge 1:** Basis: 1, Charge Account: 313600006, Account Description: ATM Balance Inquiry Charges collected, Transaction Code: CHW, Charge Type: Fiat Rate, Currency: GBP, Rate Code: STANDARD, Slab Type: None
- Charge 2:** Rate, Minimum Charge, Maximum Charge, Rate Type, Amount, Description: TXN_PROCESS_FEE, MIS Head, Interest Basis
- Fields:** Maker WASIM05, Checker WASIM05, Date Time: 2008-03-31 15:16:57, Mod No: 3, Record Status: Open, Authorization Status: Authorized

Accelerator Pack – SWITCH Interface Specific Maintenance

ATM/Debit Card FCC Account Mapping

- User needs to Maintain 'ATM/Debit Card FCC Account Mapping' in order to map 'ATM/Debit Card number', 'Card Account Number' and 'Customer Account Number'.



ATM/Debit Card FCC Account Mapping

ATM/Debit Card Number * 5555111122229090
Card Account Number 9990010000540
Branch * A01
Account Number * A0100005401

Input By 31582A02 Authorized By WASIM05 Modification Number 1 Authorized
Date Time 2008-03-31 18:11:52 Date Time 2008-03-31 18:47:31 Open

Accelerator Pack – SWITCH Interface Specific Maintenance

Network Details

- User needs to Maintain 'Network Details' in order to map 'Issuer' and 'Acquirer' with their BIN. This is required as ATM/POS transaction interacts with Networks with the help of this BIN.

The screenshot displays the 'Network Details' window with the following information:

- Network Id: VISA
- Description: VISA CARD NETWORKS
- Account Number: 171300005
- Account Branch: _____

Below the main details are two tables:

Acquirer Details	
Acquirer BIN *	Acquirer Description
<input type="checkbox"/> 555511	Bin for ON us
<input type="checkbox"/> 115555	Bin of Remote on US

Issuer Details	
Issuer BIN *	Issuer Description
<input type="checkbox"/> 555511	Bin for ON us

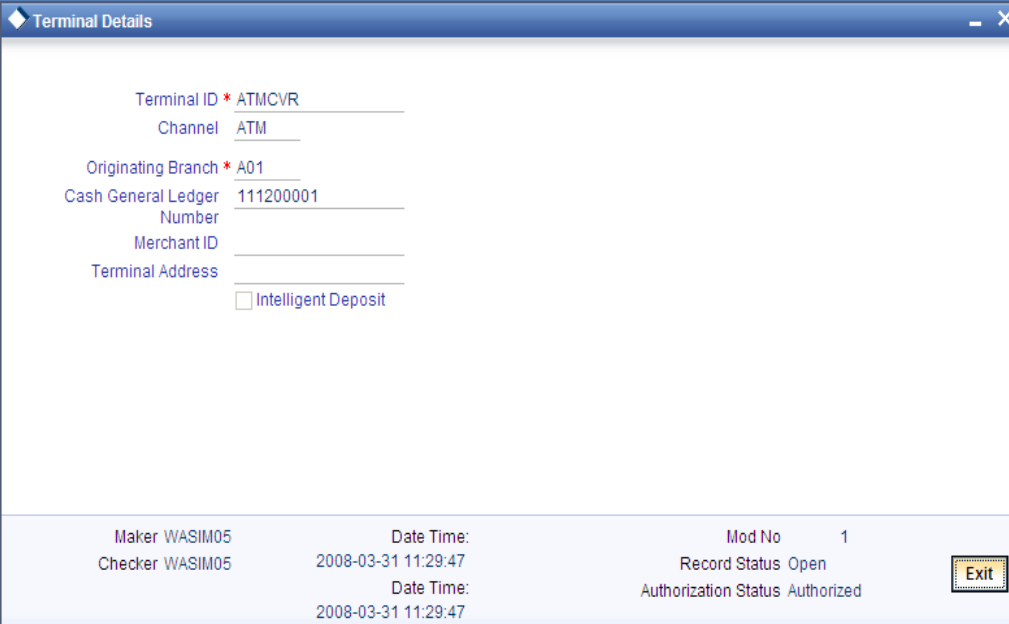
At the bottom of the window, the status bar shows:

- Input By: WASIM05
- Authorized By: WASIM05
- Date Time: 2008-03-31 11:26:21
- Modification Number: 3
- Checked boxes: Authorized, Open
- Exit button

Accelerator Pack – SWITCH Interface Specific Maintenance

Terminal Details

- User needs to Maintain 'Terminal Details'. The term 'Terminal' is used to refer to an external entity from which a Switch Transactions either originates or Terminates. Typically, a Terminal is a ATM Dispenser machine or a POS equipment in a Super Market.
- The checkbox 'Intelligent deposit' is checked if the Terminal can accept Cash Deposit.



The screenshot shows a window titled "Terminal Details" with the following fields and values:

Terminal ID *	ATMCVR
Channel	ATM
Originating Branch *	A01
Cash General Ledger Number	111200001
Merchant ID	
Terminal Address	
<input type="checkbox"/>	Intelligent Deposit

At the bottom of the window, there is a summary section:

Maker WASIM05	Date Time: 2008-03-31 11:29:47	Mod No 1
Checker WASIM05	Date Time: 2008-03-31 11:29:47	Record Status Open
		Authorization Status Authorized

An "Exit" button is located in the bottom right corner of the window.

Accelerator Pack – SWITCH Interface Specific Maintenance

Product Type Maintenance

- Product type maintenance screen is used to map the FLEXCUBE literals with the RT products maintained and the channels.
- The following are the FLEXCUBE Literals:
 - CAW - Cash withdrawal
 - BEQ - Balance enquiry
 - CDP - Cash Deposit
 - FTR - Fund transfer
 - MST - Mini statement

The screenshot shows a window titled "Product Type Maintenance" with the following fields and values:

- FLEXCUBE Literal * CAW
- Category * On Us
- Customer Category * ALL
- Network * VISA
- Acquirer Country * GB
- Channel * ATM
- Product Code * ACWD

The bottom status bar contains the following information:

- Input By: WASIM05
- Authorized By: WASIM05
- Date Time: 2008-03-31 19:06:18
- Modification Number: 3
- Checkboxes: Authorized, Open
- Exit button

Accelerator Pack – SWITCH

Interface Specific Maintenance Process Code Mapping

- The Process code must have to be mapped with the respective channels with the help of the Process code mapping screen.
- The following are the FLEXCUBE Literals:
 - 31 – Balance Enquiry
 - 21 - Cash Deposit
 - 01 - Cash Withdrawal
 - 38 - Mini Statement generation
 - 00 - Normal Purchase(POS)
 - 91 - Cheque Book Request
 - 40 - Funds Transfer
 - 77 - Merchant File Settlement

Accelerator Pack – SWITCH Interface Specific Maintenance

Process Code Mapping

Process Code Mapping

Details

Process Code Type * 01
FLEXCUBE Literal * CAW
External Transaction Code 07
Description CASH WITHDRAWAL

Channel Details

Channel

- ALL
- ATM
- ATM

Maker WASIM05 Date Time: 2008-03-31 14:36:41 Mod No 5
Checker WASIM05 Date Time: 2008-03-31 14:36:42 Record Status Open
Authorization Status Authorized

Authorization Status A - Authorized U - Unauthorized
Record Status C - Closed O - Open

Exit

Accelerator Pack – SWITCH

SWITCH Software

Switch software functions in 2 layers

As shown in the picture, as part of:

Layer1:

- Switch software maintains the terminals viz., ATM/POS interchange information.
- Maintains the card number to account number linkages.
- Verifies the PIN and the card status.
- Receives card transactions from ATM/POS terminals.

Layer2:

- The switch software Forwards the transactions to Host Banking Systems like FLEXCUBE.
- Converts the received proprietary protocol messages from the terminal into ISO8583 protocol.
- Performs “stand-in” authorization incase of Link to application systems is down.
- Refreshes Account balances from Banking Systems .

Accelerator Pack – SWITCH

Transaction supported in SWITCH Transactions supported for ATM/IVR/POS

ATM	IVR	POS
Balance Enquiry	Balance Enquiry	Cash Back
Cheque Book Request	Cheque Book Request	Merchant File Statement
Adhoc Statement Request	Adhoc Statement Request	Merchant settlement
Mini Statement Request	Mini Statement Request	Normal Purchase
Funds Transfer	Funds Transfer	Purchase Adjustment
Cash Withdrawal		
Cash Deposit		



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