Gateway Services User Guide
Oracle FLEXCUBE Investor Servicing
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1. Preface

1.1   Introduction

This manual is designed to help you quickly get acquainted with the Integration Gateway of Oracle FLEXCUBE Investor Servicing.

It provides an overview to the module, and provides information on using the Integration Gateway module of Oracle FLEXCUBE Investor Servicing.

You can further obtain information specific to a particular field by placing the cursor on the relevant field and striking <F1> on the keyboard.

1.2   Audience

This manual is intended for the following User/User Roles:

Role	Function
IT department members responsible for integration	Input functions for maintenance related to the gateway
IT managers	Authorization functions

1.3   Documentation Accessibility

For information about Oracle's commitment to accessibility, visit the Oracle Accessibility Program website at http://www.oracle.com/pls/topic/lookup?ctx=acc&id=docacc.

1.4   Acronyms and Abbreviations

Abbreviation	Description
Oracle FLEX-CUBE IS	Oracle FLEXCUBE Investor Servicing

1.5   Organization

The manual is organized in the following manner:

Chapter	Description
Chapter 1	*About this Manual* gives information on the intended audience. It also lists the various chapters covered in this User Manual.
Chapter 2	*Gateway Functions - An Overview* explains the features of this module.
Chapter 3	*Message Formats* explains the different message formats.

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1.6 <u>Glossary of Icons</u>

This User Manual may refer to all or some of the following icons:

Icons	Function
❌	Exit
➕	Add row
➖	Delete row
⿻	Option List

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2. Gateway Functions - An Overview

2.1 Introduction

Integration of different applications and solutions is a key area in today's systems. A variety of specialized applications deployed on disparate platforms and using different infrastructure need to be able to communicate and integrate seamlessly with Oracle FLEXCUBE IS in order to exchange data. The Oracle FLEXCUBE IS Integration Gateway (referred to as 'Gateway' in the rest of the document) will cater to these integration needs.

The integration needs supported by the Gateway can be broadly categorized from the perspective of the Gateway as follows:

- Inbound application integration – used when any external system needs to add, modify or query information within Oracle FLEXCUBE IS

- Outbound application integration – used when any external system needs to be notified of the various events that occur within Oracle FLEXCUBE IS.

2.2 Inbound Application Integration

Oracle FLEXCUBE IS Inbound Application Gateway provides XML based interfaces thus enhancing the need to communicate and integrate with the external systems. The data exchanged between Oracle FLEXCUBE IS and the external systems will be in the form of XML messages. These XML messages are defined in FCIS in the form of XML Schema Documents (XSD) and are referred to as 'FCIS formats'

FCIS Inbound Application Integration Gateway uses the Synchronous and Asynchronous Deployment Pattern for addressing the integration needs.

The Synchronous Deployment Pattern is classified into the following:

- Oracle FLEXCUBE IS EJB Based Synchronous Inbound Application Integration Deployment Pattern

- Oracle FLEXCUBE IS Web Services Based Synchronous Inbound Application Integration Deployment Pattern

- Oracle FLEXCUBE IS HTTP Servlet Based Synchronous Inbound Application Integration Deployment Pattern

Asynchronous Deployment Pattern is:

- Oracle FLEXCUBE IS MDB Based Asynchronous Inbound Application Integration Deployment Patten

2.2.1 EJB Based Synchronous Deployment Pattern

The Enterprise Java Beans (EJB) deployment pattern will be used in integration scenarios where the external system connecting to Oracle FLEXCUBE IS is 'EJB literate', i.e., the external system is capable of interacting with Oracle FLEXCUBE IS based upon the EJB interface. In this deployment pattern, the external system will use the RMI/IIOP protocol to communicate with the Oracle FLEXCUBE IS EJB.

In this deployment pattern the EJB displayed by Oracle FLEXCUBE IS will be a stateless session bean. The actual request will be in the form of an XML message. After the necessary processing is done in Oracle FLEXCUBE IS based on the request, the response is returned to the external system as an XML message. The transaction control for the processing will stay with the Oracle FLEXCUBE IS EJB.

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2.2.2 Web Services Based Synchronous Deployment Pattern

The web services deployment pattern will be used in integration scenarios where the external system connecting to Oracle FLEXCUBE IS wants to connect using standards-based, inter-operable web services.

This deployment pattern is especially applicable to systems which meet the following broad guidelines:

- Systems that are not 'EJB literate', i.e., such systems are not capable of establishing connections with Oracle FLEXCUBE IS based upon the EJB interface; and/or
- Systems that prefer to use a standards-based approach

In this deployment pattern, the external system will use the SOAP (Simple Object Access Protocol) messages to communicate to the Oracle FLEXCUBE IS web services.

The services displayed by Oracle FLEXCUBE IS are of a 'message based' style, i.e., the actual request will be in the form of an XML message, but the request will be a 'payload' within the SOAP message. After the necessary processing is done in Oracle FLEXCUBE IS based on the request, the response is returned to the external system as an XML message which will be a 'payload' within the response SOAP message. The transaction control for the processing will stay with the Oracle FLEXCUBE IS.

2.2.3 HTTP Servlet Based Synchronous Deployment Pattern

The HTTP servlet deployment pattern will be used in integration scenarios where the external system connecting to Oracle FLEXCUBE IS wants to connect to Oracle FLEXCUBE IS using simple HTTP messages.

This is especially applicable to systems such as the following:

- Systems that are not 'EJB literate', i.e., are not capable establishing a connections with Oracle FLEXCUBE IS based upon the EJB interface; and/or
- Systems that prefer to use a simple http message based approach without wanting to use SOAP as the standard

In this deployment pattern, the external system will make an HTTP request to the Oracle FLEXCUBE IS servlet.

For this deployment pattern, Oracle FLEXCUBE IS will display a single servlet. The actual request will be in the form of an XML message. This XML message is embedded into the body of the HTTP request sent to the Oracle FLEXCUBE IS servlet. After the necessary processing is done in Oracle FLEXCUBE IS based on the request, the response is returned to the external system as an XML message which is once again embedded within the body of the response HTTP message. The transaction control for the processing will stay with the Oracle FLEXCUBE IS

2.2.4 MDB Based Asynchronous Deployment Pattern

The MDB deployment pattern is used in integration scenarios where the external system connecting to Oracle FLEXCUBE IS wants to connect to Oracle FLEXCUBE IS using JMS queues.

This is especially applicable to systems such as the following:

- Systems that prefer to use JMS queues based approach without wanting to wait for the reply

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Here external system sends messages in XML format to request queue on which an MDB is listening. When a message arrives on the queue, it is picked up for processing. After the necessary processing is done in Oracle FLEXCUBE IS, based on the request, the response is sent to the response queue as an XML message

2.3 Outbound Application Integration

The Outbound Application Integration is also called the Oracle FLEXCUBE IS Notify Application Integration layer. This application layer sends out notification messages to the external system whenever events occur in Oracle FLEXCUBE IS.

The notification messages generated by FCIS on the occurrence of these events will be XML messages. These XML messages are defined in FCIS in the form of XML Schema Documents (XSD) and are referred to as 'FCIS formats'

2.4 Responsibilities of Integration Gateway

The primary responsibilities of Oracle FLEXCUBE IS Integration Gateway include the following:

- Authentication
- Duplicate recognition
- Validation
- Routing
- Logging of messages

2.5 Deployment of Oracle FLEXCUBE IS Integration Gateway

Message communication - incoming or outgoing from/to an external system in Oracle FLEXCUBE IS will happen only through an Oracle FLEXCUBE IS Integration Gateway. Hence, it becomes the first point of contact or last point of contact with the database in message flow. The Oracle FLEXCUBE IS Integration Gateway can be deployed to support both the distributed and single schema deployments of Oracle FLEXCUBE IS:

- Distributed deployment of FCIS – In this situation the database components of the Gateway are deployed as two or more schemas
  - The messaging schema as part of SMS schema in the SMS and/or HO instance
  - The business schema(s) in the various branch schemas in the branch instance(s)
- Single schema deployment of FCIS – In this situation the database components of the Gateway (messaging and business) are both deployed as part of the single Oracle FLEXCUBE IS schema.

2.6 Deployment Patterns for Application Integration

Business Integration Needs	Nature of Integration	Oracle FLEXCUBE IS Deployment Pattern	Remarks

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Inbound Transactions into Oracle FLEXCUBE IS	Synchronous	FLEXCUBE IS EJB	Recommended
		FLEXCUBE IS HTTP Servlet	This can be used if the external system cannot communicate to Oracle FLEXCUBE IS using EJB.
		FLEXCUBE IS Web Services	This can be used if the external system chooses to communicate only through Web Services.
	Asynchronous	FLEXCUBE IS MDB	This can be used if the external system chooses to communicate only through JMS queues
Inbound Queries into Oracle FLEXCUBE IS	Synchronous	FLEXCUBE IS EJB	Recommended
		FLEXCUBE IS In Servlet	This can be used if the external system cannot communicate to Oracle FLEXCUBE IS using EJB.
		FLEXCUBE IS Web Services	This can be used if the external system chooses to communicate only through Web Services.
	Asynchronous	FLEXCUBE IS MDB	This can be used if the external system chooses to communicate only through JMS queues
Handoffs from Oracle FLEXCUBE IS	Asynchronous	FLEXCUBE IS Notify	Recommended

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3. Message Formats

3.1 Introduction

Data exchanged between Oracle FLEXCUBE IS and the external systems will be in the form of XML messages. These XML messages are defined in FCUBS in the form of XML Schema Documents (XSD) and are referred to as 'FCIS formats'. An XML Schema is uniquely identified by its Namespace and its Root Element (root node).The root node for XSDs of gateway messages will be generated as per the following pattern:

- <OPERATION>_<MESSAGE EXCHANGE PATTERN>_REQ
- <OPERATION>_<MESSAGE EXCHANGE PATTERN>_RES
- Where
- <OPERATION> refers to an Oracle FLEXCUBE IS operation like CREATEUNITHOLDER
- <MESSAGE_EXCHANGE_PATTERN> refers to the request and response message patterns exchanged. The Message Pattern is of the following types
  - FS (Full Screen) -This indicates that the payload will contain all the elements on the corresponding Oracle FLEXCUBE IS screen.
  - IO (Input Only) - This indicates that the payload will contain the only input elements on the corresponding Oracle FLEXCUBE IS screen.
  - PK (Primary Key): This indicates that the payload will contain only the Primary Key elements of the corresponding Oracle FLEXCUBE IS screen.

<MESSAGE_EXCHNAGE_PATTERN> is a combination of message patterns. The <MESSAGE_EXCHNAGE_PATTERN> available in Oracle FLEXCUBE IS is shown below:

- FSFS - Full Screen Request and Full Screen Response
- IOPK - Input Only Request and Primary Key Response
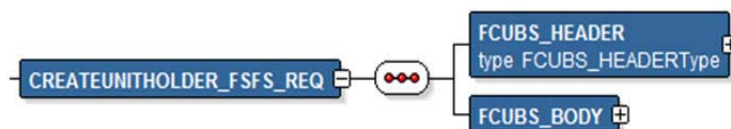- IOFS - Input Only Request and Full Screen Response

Non-Query Formats

For example, consider the Operation 'CREATEUNITHOLDER'. The root node of messages under this operation will be as under:
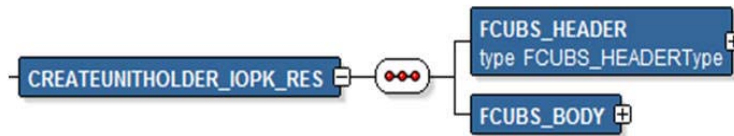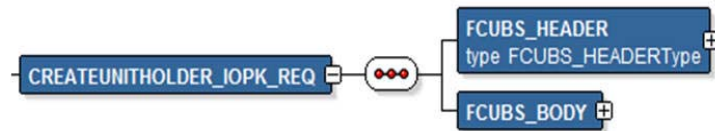
- CREATEUNITHOLDER_FSFS_REQ
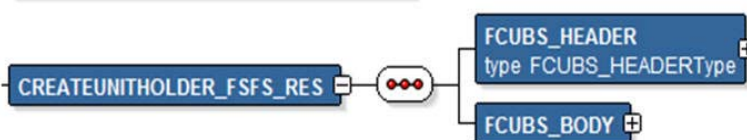
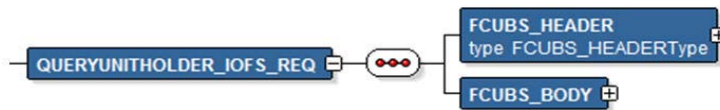- CREATEUNITHOLDER_FSFS_RES

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- CREATEUNITHOLDER_IOPK_REQ
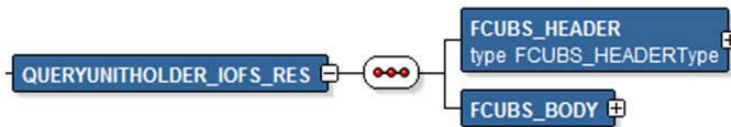

- CREATEUNITHOLDER_IOPK_RES

Query Formats

For instance, consider the Operation 'QUERYUNITHOLDER'. The root node of messages under this operation will be as under:

- QUERYCUNITHOLDER_IOFS_REQ

- QUERYUNITHOLDER_IOFS_RES

This chapter contains the following sections

3.2   Oracle FLEXCUBE IS Envelope

This section contains the following topics:

A standard gateway message in the Oracle FLEXCUBE IS Envelope contains two main components namely:

- FCUBS_HEADER – This is a node that forms the header of the FCUBS Envelope. The tags under the header portion of a message will identify a partner system, a service, an operation, user, branch, etc. These tags are constant across all messages.

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- FCUBS_BODY – This node contains the actual payload of a message. The contents of this node will vary for each message.
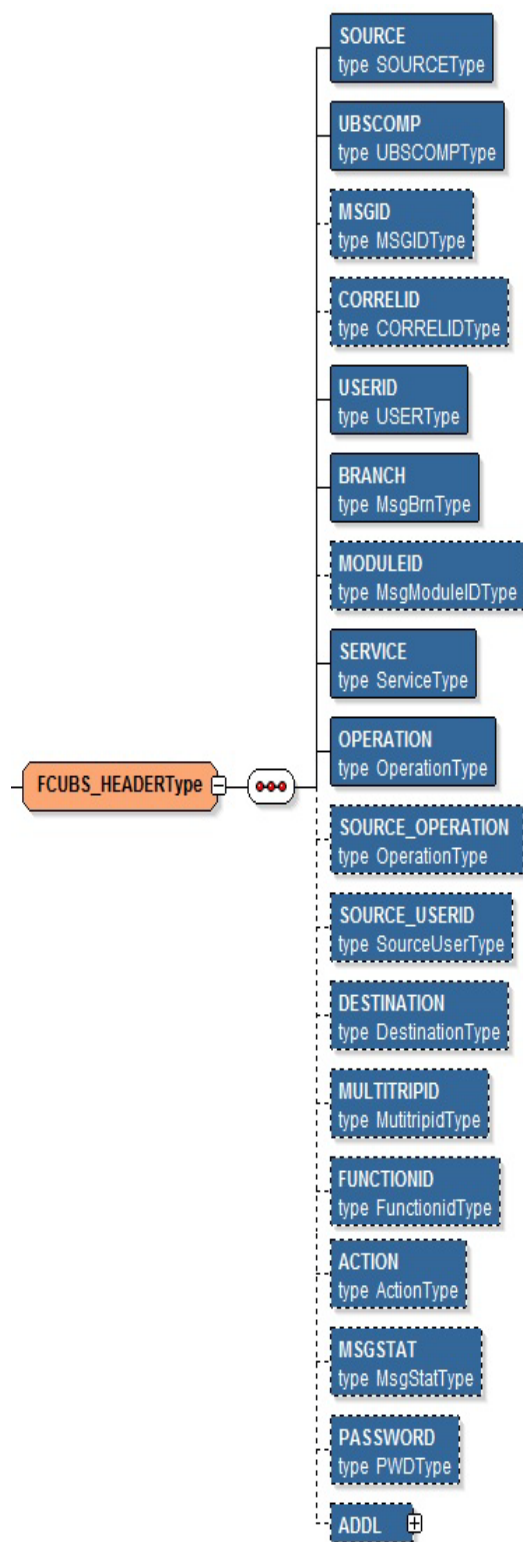
3.2.1 FCUBS HEADER

The tags under FCUBS HEADER have been described below:

SOURCE

This indicates the name of the External system that is the source of the message.

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UBSCOMP

This indicates the Oracle FLEXCUBE IS component of the message - whether FCIS or FCUBS

MSGID

This unique ID identifies each message – incoming or outgoing in Oracle FLEXCUBE IS. Every message will have a distinct message ID.

CORRELID

This is the id using which any system which has sent a request to FCUBS can correlate to the response. In the External system maintenance, the Correlation Pattern can be configured for each external system. It can be maintained that either the 'MSGID' or the 'CORRELID' of the request message is returned back as the 'CORRELID' in the response message. Depending on this maintenance, Oracle FLEXCUBE IS will set either the 'MSGID' or the 'CORRELID' of the request message in the response message.

USERID

For request messages, this ID is used to submit message requests. Oracle FLEXCUBE IS will process this request using this id.

For response messages, the value of this will be 'null'.

BRANCH

This indicates the Oracle FLEXCUBE IS Branch Code where the request message needs to be processed. If the BRANCH is missing in the header, request message will be transmitted and processed in Head Office branch.

MODULEID

This indicates the module ID.

SERVICE

This provides details on the various services of Oracle FLEXCUBE IS. For every incoming message in Oracle FLEXCUBE IS, the service name is mandatory.

OPERATION

This indicates the functional operation.

SOURCE_OPERATION

This indicates the functional operation as registered in Oracle FLEXCUBE IS.

SOURCE_USERID

This is the User ID with which the request message was invoked from the SOURCE.

DESTINATION

For incoming messages, the destination will be Oracle FLEXCUBE IS. For response messages, system will populate the SOURCE of the request message as DESTINATION.

MULTITRIPID

This is a unique id which indicates overrides.

FUNCTIONID

This indicates the Oracle FLEXCUBE IS Function ID

ACTION

This indicates the action type.

MSGSTAT

This indicates whether the transaction is a SUCCESS or FAILURE.

PASSWORD

This indicates the password.

ADDL

This is used to send additional parameters i.e. parameters not available in Oracle FLEXCUBE IS

3.2.2 FCUBS_BODY

The FCUBS_BODY will contain the actual payload to perform the respective transaction. The contents of the payload will vary for each operation.

The following snapshot shows a sample FCUBS_BODY of QUERYUNITHOLDER operation.
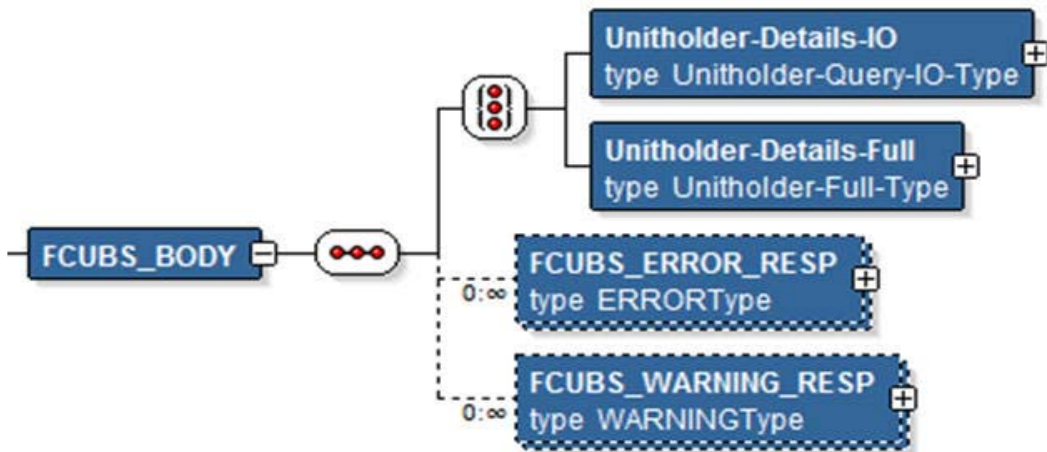
FCUBS_BODY will contain additional nodes for error response and warning response. A diagrammatic representation of the Error response is as shown below:
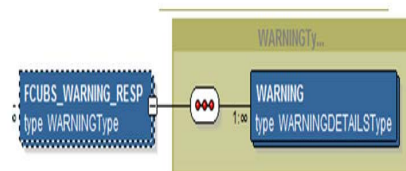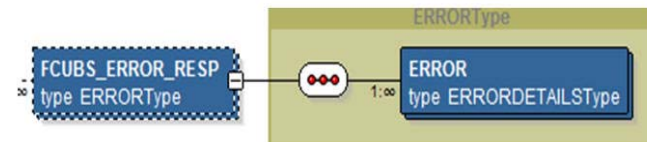
3.2.2.1 FCUBS_ERROR_RESP

The error response message will be sent from Oracle FLEXCUBE IS when errors are raised in a transaction. The error response will have another tag 'ERROR' within it.

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ERROR

The 'ERROR' node will have tags for error code and error description. The 'ERROR' node will be generated for each error raised by FCIS.

3.2.2.2 FCUBS_WARNING_RESP

The warning response message will be sent when overrides are raised in a transaction. The Warning response will have another tag 'WARNING' within it.

WARNING

This node will have tags for warning code and warning description. The 'WARNING' node will be generated for each override raised by FCIS.

3.3 Oracle FLEXCUBE IS NOTIFICATION

The notification messages are generated in a standard format. The notification messages will consist of two main components:

FCUBS_NOTIF_HEADER – This forms the header portion of a notification message. This contains a standard set of tags that can identify a notification. These tags are constant across all notification messages.

FCUBS_NOTIF_IDENTIFIER – This will identify the maintenance records based on the information provided under this node. The contents of this node will vary for each notification.

A diagrammatic representation of FCISS NOTIFICATION is as shown below:
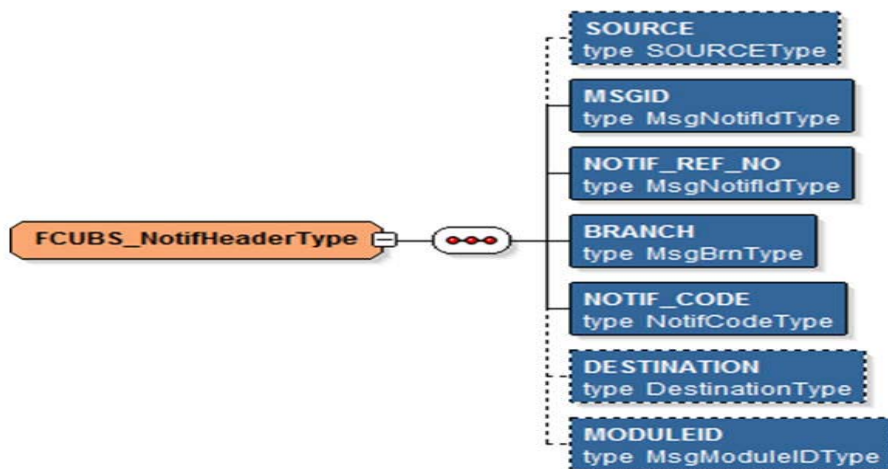
3.3.1 FCIS NOTIFICATION HEADER

The tags under FCIS NOTIFICATION HEADER have been described below:

SOURCE

This indicates the name of the External system or the source of the message.

MSGID

This is the unique reference number generated by Oracle FLEXCUBE IS.

NOTIF_REF_NO.

This unique reference number identifies each notification message generated in Oracle FLEXCUBE IS.

BRANCH

This indicates the branch in which notification has been triggered.

NOTIF_CODE

This indicates the code for the notification that has been triggered.

DESTINATION

For incoming messages, the DESTINATION should be Oracle FLEXCUBE IS. For response messages, system will populate the SOURCE of the request message as DESTINATION.

MODULEID

This indicates the module ID.

Refer 'Service-Documentation' available under 'Gateway' for details about each message.

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