

**Oracle® Process Manufacturing**

API Reference Guide

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Primary Author: Madhavi Agarwal, Harry Anthony, Samyukta Koda, Michael Laverty, Sudha Seshadri

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## Oracle Process Manufacturing API Reference Guide, Release 12

### Part No. E05081-01

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# Preface

## Intended Audience

Welcome to Release 12 of the *Oracle Process Manufacturing API Reference Guide*.

See Related Information Sources on page viii for more Oracle Applications product information.

## TTY Access to Oracle Support Services

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## Structure

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## Related Information Sources

### Integration Repository

The Oracle Integration Repository is a compilation of information about the service endpoints exposed by the Oracle E-Business Suite of applications. It provides a complete catalog of Oracle E-Business Suite's business service interfaces. The tool lets users easily discover and deploy the appropriate business service interface for integration with any system, application, or business partner.

The Oracle Integration Repository is shipped as part of the E-Business Suite. As your instance is patched, the repository is automatically updated with content appropriate for the precise revisions of interfaces in your environment.

## Do Not Use Database Tools to Modify Oracle Applications Data

Oracle **STRONGLY RECOMMENDS** that you never use SQL\*Plus, Oracle Data Browser, database triggers, or any other tool to modify Oracle Applications data unless otherwise instructed.

Oracle provides powerful tools you can use to create, store, change, retrieve, and maintain information in an Oracle database. But if you use Oracle tools such as SQL\*Plus to modify Oracle Applications data, you risk destroying the integrity of your data and you lose the ability to audit changes to your data.

Because Oracle Applications tables are interrelated, any change you make using an Oracle Applications form can update many tables at once. But when you modify Oracle Applications data using anything other than Oracle Applications, you may change a row in one table without making corresponding changes in related tables. If your tables get out of synchronization with each other, you risk retrieving erroneous information

and you risk unpredictable results throughout Oracle Applications.

When you use Oracle Applications to modify your data, Oracle Applications automatically checks that your changes are valid. Oracle Applications also keeps track of who changes information. If you enter information into database tables using database tools, you may store invalid information. You also lose the ability to track who has changed your information because SQL\*Plus and other database tools do not keep a record of changes.



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# Oracle Process Manufacturing APIs: General Information

## Understanding Oracle Process Manufacturing APIs

Oracle Process Manufacturing APIs import field-specific data from an existing system into the Oracle Process Manufacturing application-specific tables. The imported information has the same detail as if you entered it manually using the appropriate Oracle Process Manufacturing application window. Oracle Process Manufacturing APIs are packaged PL/SQL subprograms that you call from other PL/SQL subprograms or anonymous blocks of code. To use these APIs, write a PL/SQL subprogram to pass the appropriate parameters to the APIs. A typical calling subprogram also manages the database connection, and may write to log files during execution.

## Oracle Application Shared Packages

Oracle Process Manufacturing APIs use shared library objects from the Oracle Applications Schema (FND) which also have a set of detailed error messages for debugging purposes. Oracle ensures that the APIs function as designed, but does not support customer generated programs that use the APIs. The Oracle Process Manufacturing APIs call subprograms from the following standard Oracle Applications packages:

Package Name	Package Description
FND_API	Contains the standard Oracle Applications API version checking function. This is used by the API to check for valid API version numbers.

Package Name	Package Description
FND_MESSAGE	Contains the standard Oracle Applications messaging function. This is used by the stored procedure to report status and error handling.
FND_PUB_MSG	Contains the standard Oracle Applications message retrieval function used to interrogate the procedure messages.

These packages are installed as part of the current release. Refer to the *Oracle Applications Developers Guide* for additional details.

## Getting API Information from the Oracle Integration Repository and the Electronic Technical Reference Manual (eTRM)

The Oracle Integration Repository is a compilation of information about the service endpoints exposed by the Oracle E-Business Suite of applications. It provides a complete catalog of the Oracle E-Business Suite business service interfaces, including Application Program Interfaces (APIs). The tool lists the appropriate business service interface for integration with other systems. The Oracle Integration Repository is shipped as part of the Oracle E-Business Suite. As your instance is patched, the repository is automatically updated with content appropriate for the precise revisions of interfaces in your environment.

You can start the repository like any other Oracle E-Business Suite application, provided that you are logged in as a user with sufficient permissions, such as system administrator. From the Navigator menu, select the Integration Repository responsibility, then click the Integration Repository link that appears.

The Integration Repository displays common API information, and the following attributes of any APIs that you select:

- API Package Information
- API Signature Code
- API Parameters
  - Name
  - Mode (IN, OUT or IN OUT)
  - Datatype

- Default Value
- English Language Description

**Note:** The Oracle Integration Repository supports the exporting of API data into a comma-delimited (.CSV) format. Printable Page views are also available.

For complete information on the Oracle Integration Repository refer to the *Oracle Integration Repository User's Guide* or the Oracle Applications Online Help.

**Important:** To view the datatype of a column or the definition of a PL/SQL Record or SQL Table that is referenced in the API using a %TYPE, %ROWTYPE, or INDEX BY Table Type use the SQL\*Plus DESCRIBE command. You can also refer to the *Oracle Applications Electronic Technical Reference Manual* [<http://etrm.oracle.com>] for this information.

## Using the Electronic Technical Reference Manual (eTRM)

The eTRM is an easy to use web-based utility that provides technical reference information about the Oracle Applications data model of Oracle Applications. The eTRM dynamic reports provide information on the tables, views, indexes, and other structured data that make up the Oracle Applications E-Business suite. You must have an Oracle *MetaLink* account [<http://metalink.oracle.com>] to access the eTRM [<http://etrm.oracle.com>].

When using the eTRM to discover detailed API parameter information (for example, %ROWTYPE Record structure), make sure to browse the R12 FND Database Objects. The Oracle Process Manufacturing Quality Management Tables are listed under the GMD heading. For complete information on using the eTRM refer to the eTRM Online Help, or the following *OracleMetaLink* Articles:

- *ETRM DIRECT ACCESS DOCUMENT* (Article 150230.1)
- *ETRM Troubleshooting guide* (Article 278456.1)
- *ETRM QUICK START GUIDE* (Article 150268.1)

## Messages and Errors

When an API runs, it returns one of the following status codes which you can write to a log:

- **S** for Success

- **E** for Error
- **U** for Unexpected Status
- **Q** for could not calculate the total input and output quantities

APIs also generate result messages. Programs calling APIs can then get the messages from the message list, and process them. These messages are displayed by issuing them to the user when calling the API from an interactive process, or writing them to database tables or log files when calling the API from a batch process.

Messages are stored in an encoded format to let API callers determine message names using the standard functions provided by the message dictionary. The structure of the message list is private. Neither API developers nor API callers can access this list except by calling the API message utility routines.

The following utility functions are defined in the FND\_MSG\_PUB package:

- **Initialize** - Initializes the API message list
- **Add** - Creates a message to the API message list
- **Get** - Retrieves a message from the API message list
- **Count\_Msg** - Returns the number of messages in the API message list
- **Delete** - Removes one or more messages from the API message list
- **Reset** - Resets the index used in getting messages
- **Count\_And\_Get** - Returns the number of messages in the API message list. If this number is one, then it also returns the message data

Refer to the *Oracle Applications Developers Guide* for complete documentation of these functions and procedures for usage information.

To add a message to the API message list, use the regular message dictionary procedures FND\_MESSAGE.SET\_NAME and FND\_MESSAGE.SET\_TOKEN to set the message name and tokens on the message dictionary stack. Then call FND\_MSG\_PUB.ADD to fetch the messages off the message dictionary stack and add it to the API message list.

To get a message from the API message list, API callers use the procedure FND\_MSG\_PUB.GET. This procedure operates in the following modes:

- **First** - Gets the first message in the API message list
- **Next** - Gets the next message in the API message list
- **Last** - Gets the last message in the API message list

- **Previous** - Gets the previous message in the API message list
- **Specific** - Gets a specific message from the API message list

## Error Messages

If an API generates an error, then a detailed and translatable error message is returned. You can log and interpret these messages before rerunning the API. Use the Message Dictionary and the Messages Window to query, edit, and define error messages. Refer to the *Oracle Applications Developers Guide* for complete documentation on the Message Dictionary and the Messages Window. Edit your application messages before your routines call them from a form, and before your users request detailed messages from a form. Define your messages according to the Oracle Applications message standards in the *Oracle Applications Developers Guide*.



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# Oracle Process Manufacturing Cost Management APIs

## Oracle Process Manufacturing Cost Management API Packages

The following are the packages containing the OPM Cost management APIs. Confirm that these packages are loaded in your instance so that the interfacing subprograms can compile successfully.

---

Package Name	Package Description
GMF_ALLOCATIONDEFINITION_PUB	Public level package used for creating, updating and deleting allocation definitions.
GMF_ACTUAL_COST_ADJUSTMENT_PUB	Public level package used for creating, updating, and deleting the Actual Cost Adjustment related costs.
GMF_ITEMCOST_PUB	Public level package for OPM Item Cost API.
GMF_LOTCOSTADJUSTMENT_PUB	Public level package used for creating, updating, and deleting Lot Cost Adjustment related costs.
GMF_BURDENDETAILS_PUB	Public level package for creating, updating, deleting, and retrieving overhead details.
GMF_RESOURCECOST_PUB	Public level package for OPM Resource Cost API.

---

## Oracle Process Manufacturing Cost Management API Package Listings

Listed in this section are the subprograms for each Public Cost Management API Package.

**Tip:** To list the parameters of an API, use the SQL\*Plus command DESCRIBE. For example, DESCRIBE GMF\_ALLOCATIONDEFINITION\_PUB lists all of the parameter information for all the APIs in the GMF\_ALLOCATIONDEFINITION\_PUB package.

For English language descriptions of the parameters of each API, refer to the Oracle Applications Integration Repository. For the structure of the database objects used to define an API's %ROWTYPE Record parameters and INDEX BY Table of Records parameters (previously known as PL/SQL Tables) refer to the *Oracle Applications Electronic Technical Reference Manual (eTRM)*.

**Package: GMF\_ALLOCATIONDEFINITION\_PUB**

API Name	Subprogram Name	API Description
Create Allocation Definitions API	CREATE_ALLOCATION_DEFINITION	Creates new allocation definitions in the Allocation Basis table.
Delete Allocation Definitions API	DELETE_ALLOCATION_DEFINITION	Deletes allocation definitions from the Allocation Basis table.
Update Allocation Definitions API	UPDATE_ALLOCATION_DEFINITION	Updates allocation definitions in the Allocation Basis table.

The GMF\_ALLOCATIONDEFINITION\_PUB package defines and uses the following custom PL/SQL Record Type:

```

TYPE Allocation_Definition_Rec_Type IS RECORD
(
    alloc_id                NUMBER
    ,
    alloc_code              gl_alloc_mst.alloc_code%TYPE
    ,
    legal_entity_id        gmf_legal_entities.legal_entity_id%TYPE
    ,
    alloc_method            NUMBER
    ,
    line_no                 NUMBER
    ,
    item_id                 NUMBER
    ,
    item_number             mtl_item_flexfields.item_number%TYPE
    ,
    basis_account_id        gl_alloc_bas.basis_account_id%TYPE,
    basis_account_key       gl_alloc_bas.basis_account_key%TYPE
    ,
    balance_type            NUMBER
    ,
    bas_ytd_ptd             NUMBER
    ,
    basis_type              NUMBER,
    fixed_percent           NUMBER
    ,
    cmpntcls_id             NUMBER
    ,
    cost_cmpntcls_code      cm_cmpt_mst.cost_cmpntcls_code%TYPE
    ,
    analysis_code           cm_alys_mst.cost_analysis_code%TYPE
    ,
    organization_id         gl_alloc_bas.organization_id%TYPE
    ,
    organization_code       mtl_parameters.organization_code%TYPE,
    delete_mark            gl_alloc_bas.delete_mark%TYPE
:= 0
    ,
    user_name               fnd_user.user_name%TYPE
);

```

**Package: GMF\_ACTUAL\_COST\_ADJUSTMENT\_PUB**

API Name	Subprogram Name	API Description
Create Actual Cost Adjustment API	CREATE_ACTUAL_COST_ADJUSTMENT	Validates the input parameters and starts the private actual cost adjustment procedure for creating the actual cost adjustment.
Delete Actual Cost Adjustment API	DELETE_ACTUAL_COST_ADJUSTMENT	Validates the input parameters and starts the private actual cost adjustment procedure for deleting the actual cost adjustment.

<b>API Name</b>	<b>Subprogram Name</b>	<b>API Description</b>
Get Actual Cost Adjustment API	GET_ACTUAL_COST_ADJUSTMENT	Validates the input parameters and starts the private actual cost adjustment procedure to retrieve the actual cost adjustment.
Update Actual Cost Adjustment API	UPDATE_ACTUAL_COST_ADJUSTMENT	Validates the input parameters and starts the private actual cost adjustment procedure to update the actual cost adjustment.

The GMF\_ACTUAL\_COST\_ADJUSTMENT\_PUB package defines and uses the following custom PL/SQL Record Type:

```

TYPE ADJUSTMENT_REC_TYPE IS RECORD
(
  organization_id          CM_ADJS_DTL.ORGANIZATION_ID%TYPE,
  organization_code       MTL_PARAMETERS.ORGANIZATION_CODE%TYPE,
  inventory_item_id       CM_ADJS_DTL.INVENTORY_ITEM_ID%TYPE,
  item_number             MTL_ITEM_FLEXFIELDS.ITEM_NUMBER%TYPE,
  cost_type_id            CM_ADJS_DTL.COST_TYPE_ID%TYPE,
  cost_mthd_code          CM_MTHD_MST.COST_MTHD_CODE%TYPE,
  period_id               CM_ADJS_DTL.PERIOD_ID%TYPE,
  calendar_code           CM_CLDR_HDR.B.CALENDAR_CODE%TYPE,
  period_code             CM_CLDR_DTL.PERIOD_CODE%TYPE,
  cost_cmpntcls_id        CM_ADJS_DTL.COST_CMPNTCLS_ID%TYPE,
  cost_cmpntcls_code      CM_CMPT_MST.COST_CMPNTCLS_CODE%TYPE,
  cost_analysis_code      CM_ADJS_DTL.COST_ANALYSIS_CODE%TYPE,
  cost_adjust_id          CM_ADJS_DTL.COST_ADJUST_ID%TYPE,
  adjust_qty              CM_ADJS_DTL.ADJUST_QTY%TYPE,
  adjust_qty_uom          CM_ADJS_DTL.ADJUST_QTY_UOM%TYPE,
  adjust_cost             CM_ADJS_DTL.ADJUST_COST%TYPE,
  reason_code             CM_ADJS_DTL.REASON_CODE%TYPE,
  adjust_status           CM_ADJS_DTL.ADJUST_STATUS%TYPE,
  creation_date           CM_ADJS_DTL.CREATION_DATE%TYPE,
  last_update_login       CM_ADJS_DTL.LAST_UPDATE_LOGIN%TYPE,
  created_by              CM_ADJS_DTL.CREATED_BY%TYPE,
  last_update_date        CM_ADJS_DTL.LAST_UPDATE_DATE%TYPE,
  last_updated_by         CM_ADJS_DTL.LAST_UPDATED_BY%TYPE,
  text_code               CM_ADJS_DTL.TEXT_CODE%TYPE,
  trans_cnt               CM_ADJS_DTL.TRANS_CNT%TYPE,
  delete_mark             CM_ADJS_DTL.DELETE_MARK%TYPE,
  request_id              CM_ADJS_DTL.REQUEST_ID%TYPE,
  program_application_id  CM_ADJS_DTL.PROGRAM_APPLICATION_ID%TYPE,
  program_id              CM_ADJS_DTL.PROGRAM_ID%TYPE,
  program_update_date     CM_ADJS_DTL.PROGRAM_UPDATE_DATE%TYPE,
  attribute_category      CM_ADJS_DTL.ATTRIBUTE_CATEGORY%TYPE,
  attribute1              CM_ADJS_DTL.ATTRIBUTE1%TYPE,
  attribute2              CM_ADJS_DTL.ATTRIBUTE2%TYPE,
  attribute3              CM_ADJS_DTL.ATTRIBUTE3%TYPE,
  attribute4              CM_ADJS_DTL.ATTRIBUTE4%TYPE,
  attribute5              CM_ADJS_DTL.ATTRIBUTE5%TYPE,
  attribute6              CM_ADJS_DTL.ATTRIBUTE6%TYPE,
  attribute7              CM_ADJS_DTL.ATTRIBUTE7%TYPE,
  attribute8              CM_ADJS_DTL.ATTRIBUTE8%TYPE,
  attribute9              CM_ADJS_DTL.ATTRIBUTE9%TYPE,
  attribute10             CM_ADJS_DTL.ATTRIBUTE10%TYPE,
  attribute11             CM_ADJS_DTL.ATTRIBUTE11%TYPE,
  attribute12             CM_ADJS_DTL.ATTRIBUTE12%TYPE,
  attribute13             CM_ADJS_DTL.ATTRIBUTE13%TYPE,
  attribute14             CM_ADJS_DTL.ATTRIBUTE14%TYPE,
  attribute15             CM_ADJS_DTL.ATTRIBUTE15%TYPE,
  attribute16             CM_ADJS_DTL.ATTRIBUTE16%TYPE,
  attribute17             CM_ADJS_DTL.ATTRIBUTE17%TYPE,
  attribute18             CM_ADJS_DTL.ATTRIBUTE18%TYPE,
  attribute19             CM_ADJS_DTL.ATTRIBUTE19%TYPE,
  attribute20             CM_ADJS_DTL.ATTRIBUTE20%TYPE,
  attribute21             CM_ADJS_DTL.ATTRIBUTE21%TYPE,
  attribute22             CM_ADJS_DTL.ATTRIBUTE22%TYPE,
  attribute23             CM_ADJS_DTL.ATTRIBUTE23%TYPE,
  attribute24             CM_ADJS_DTL.ATTRIBUTE24%TYPE,
  attribute25             CM_ADJS_DTL.ATTRIBUTE25%TYPE,
  attribute26             CM_ADJS_DTL.ATTRIBUTE26%TYPE,
  attribute27             CM_ADJS_DTL.ATTRIBUTE27%TYPE,

```

```

attribute28          CM_ADJS_DTL.ATTRIBUTE28%TYPE,
attribute29          CM_ADJS_DTL.ATTRIBUTE29%TYPE,
attribute30          CM_ADJS_DTL.ATTRIBUTE30%TYPE,
adjustment_ind      CM_ADJS_DTL.ADJUSTMENT_IND%TYPE,
subledger_ind       CM_ADJS_DTL.SUBLEDGER_IND%TYPE,
adjustment_date     CM_ADJS_DTL.ADJUSTMENT_DATE%TYPE,
user_name           FND_USER.USER_NAME%TYPE
);

```

**Package: GMF\_ITEMCOST\_PUB**

API Name	Subprogram Name	API Description
Create Item Cost API	CREATE_ITEM_COST	Creates a new item cost in the Cost Details table.
Delete Item Cost API	DELETE_ITEM_COST	Deletes an item cost from the Cost Details table.
Retrieve Item Cost API	GET_ITEM_COST	Retrieves an item cost from the Cost Details table.
Update Item Cost API	UPDATE_ITEM_COST	Updates an item cost in the Cost Details table.

The GMF\_ITEMCOST\_PUB package defines and uses the following custom PL/SQL Record Types and INDEX BY table Types:

```

TYPE header_rec_type IS RECORD
(
  period_id          cm_cmpt_dtl.period_id%TYPE,
  calendar_code      cm_cldr_hdr_b.calendar_code%TYPE,
  period_code        cm_cldr_dtl.period_code%TYPE,
  cost_type_id       cm_cmpt_dtl.cost_type_id%TYPE,
  cost_mthd_code     cm_mthd_mst.cost_mthd_code%TYPE,
  organization_id    cm_cmpt_dtl.organization_id%TYPE,
  organization_code  mtl_parameters.organization_code%TYPE,
  inventory_item_id  cm_cmpt_dtl.inventory_item_id%TYPE,
  item_number        mtl_item_flexfields.item_number%TYPE,
  user_name          fnd_user.user_name%TYPE
);

```

```

TYPE this_level_dtl_rec_type IS RECORD
(
  cmpntcost_id          NUMBER,
  cost_cmpntcls_id     NUMBER,
  cost_cmpntcls_code   cm_cmpt_mst.cost_cmpntcls_code%TYPE,
  cost_analysis_code   cm_cmpt_dtl.cost_analysis_code%TYPE,
  cmpnt_cost           NUMBER,
  burden_ind           NUMBER,
  total_qty            NUMBER,
  costcalc_orig        NUMBER,
  rmcalf_type          NUMBER,
  delete_mark          NUMBER,
  attribute1           cm_cmpt_dtl.attribute1%TYPE,
  attribute2           cm_cmpt_dtl.attribute2%TYPE,
  attribute3           cm_cmpt_dtl.attribute3%TYPE,
  attribute4           cm_cmpt_dtl.attribute4%TYPE,
  attribute5           cm_cmpt_dtl.attribute5%TYPE,
  attribute6           cm_cmpt_dtl.attribute6%TYPE,
  attribute7           cm_cmpt_dtl.attribute7%TYPE,
  attribute8           cm_cmpt_dtl.attribute8%TYPE,
  attribute9           cm_cmpt_dtl.attribute9%TYPE,
  attribute10          cm_cmpt_dtl.attribute10%TYPE,
  attribute11          cm_cmpt_dtl.attribute11%TYPE,
  attribute12          cm_cmpt_dtl.attribute12%TYPE,
  attribute13          cm_cmpt_dtl.attribute13%TYPE,
  attribute14          cm_cmpt_dtl.attribute14%TYPE,
  attribute15          cm_cmpt_dtl.attribute15%TYPE,
  attribute16          cm_cmpt_dtl.attribute16%TYPE,
  attribute17          cm_cmpt_dtl.attribute17%TYPE,
  attribute18          cm_cmpt_dtl.attribute18%TYPE,
  attribute19          cm_cmpt_dtl.attribute19%TYPE,
  attribute20          cm_cmpt_dtl.attribute20%TYPE,
  attribute21          cm_cmpt_dtl.attribute21%TYPE,
  attribute22          cm_cmpt_dtl.attribute22%TYPE,
  attribute23          cm_cmpt_dtl.attribute23%TYPE,
  attribute24          cm_cmpt_dtl.attribute24%TYPE,
  attribute25          cm_cmpt_dtl.attribute25%TYPE,
  attribute26          cm_cmpt_dtl.attribute26%TYPE,
  attribute27          cm_cmpt_dtl.attribute27%TYPE,
  attribute28          cm_cmpt_dtl.attribute28%TYPE,
  attribute29          cm_cmpt_dtl.attribute29%TYPE,
  attribute30          cm_cmpt_dtl.attribute30%TYPE,
  attribute_category   cm_cmpt_dtl.attribute_category%TYPE
);

TYPE this_level_dtl_tbl_type IS TABLE OF this_level_dtl_rec_type INDEX
BY BINARY_INTEGER;

TYPE lower_level_dtl_rec_type IS RECORD
(
  cmpntcost_id          NUMBER,
  cost_cmpntcls_id     NUMBER,
  cost_cmpntcls_code   cm_cmpt_mst.cost_cmpntcls_code%TYPE,
  cost_analysis_code   cm_cmpt_dtl.cost_analysis_code%TYPE,
  cmpnt_cost           NUMBER,
  delete_mark          NUMBER
);

TYPE lower_level_dtl_tbl_type IS TABLE OF lower_level_dtl_rec_type
INDEX BY BINARY_INTEGER;

```

```

TYPE costcmpnt_ids_rec_type IS RECORD
(
  cost_cmpntcls_id          NUMBER,
  cost_analysis_code       cm_cmpnt_dtl.cost_analysis_code%TYPE,
  cost_level               NUMBER,
  cmpntcost_id            NUMBER
);

TYPE costcmpnt_ids_tbl_type IS TABLE OF costcmpnt_ids_rec_type INDEX
BY BINARY_INTEGER;

```

**Package: GMF\_LOTCOSTADJUSTMENT\_PUB**

API Name	Subprogram Name	API Description
Create Lot Cost Adjustment API	CREATE_LOT_COST_ADJUSTMENT	Creates lot cost adjustments in the Lot Cost Adjustment Basis table.
Delete Lot Cost Adjustment API	DELETE_LOT_COST_ADJUSTMENT	Deletes lot cost adjustments from the Lot Cost Adjustment Basis table.
Get Lot Cost Adjustment API	GET_LOT_COST_ADJUSTMENT	Retrieves the lot cost adjustment details.
Update Lot Cost Adjustment API	UPDATE_LOT_COST_ADJUSTMENT	Updates lot cost adjustments in the Lot Cost Adjustment Basis table.

The GMF\_LOTCOSTADJUSTMENT\_PUB package defines and uses the following custom PL/SQL Record Types and INDEX BY table Types:

```

TYPE Lc_Adjustment_Header_Rec_Type
IS
RECORD
(
adjustment_id
gmf_lot_cost_adjustments.adjustment_id%TYPE
, legal_entity_id          gmf_fiscal_policies.legal_entity_id%TYPE
, cost_type_id             cm_mthd_mst.cost_type_id%TYPE
, cost_mthd_code          cm_mthd_mst.cost_mthd_code%TYPE
, item_id
mtl_item_flexfields.inventory_item_id%TYPE
, item_number             mtl_item_flexfields.item_number%TYPE
, organization_id         mtl_parameters.organization_id%TYPE
, organization_code       mtl_parameters.organization_code%TYPE
, lot_number              mtl_lot_numbers.lot_number%TYPE
, adjustment_date         DATE
, reason_code             cm_reas_cds.reason_code%TYPE
, delete_mark
gmf_lot_cost_adjustments.delete_mark%TYPE
, ATTRIBUTE1              VARCHAR2(240)
, ATTRIBUTE2              VARCHAR2(240)
, ATTRIBUTE3              VARCHAR2(240)
, ATTRIBUTE4              VARCHAR2(240)
, ATTRIBUTE5              VARCHAR2(240)
, ATTRIBUTE6              VARCHAR2(240)
, ATTRIBUTE7              VARCHAR2(240)
, ATTRIBUTE8              VARCHAR2(240)
, ATTRIBUTE9              VARCHAR2(240)
, ATTRIBUTE10             VARCHAR2(240)
, ATTRIBUTE11             VARCHAR2(240)
, ATTRIBUTE12             VARCHAR2(240)
, ATTRIBUTE13             VARCHAR2(240)
, ATTRIBUTE14             VARCHAR2(240)
, ATTRIBUTE15             VARCHAR2(240)
, ATTRIBUTE16             VARCHAR2(240)
, ATTRIBUTE17             VARCHAR2(240)
, ATTRIBUTE18             VARCHAR2(240)
, ATTRIBUTE19             VARCHAR2(240)
, ATTRIBUTE20             VARCHAR2(240)
, ATTRIBUTE21             VARCHAR2(240)
, ATTRIBUTE22             VARCHAR2(240)
, ATTRIBUTE23             VARCHAR2(240)
, ATTRIBUTE24             VARCHAR2(240)
, ATTRIBUTE25             VARCHAR2(240)
, ATTRIBUTE26             VARCHAR2(240)
, ATTRIBUTE27             VARCHAR2(240)
, ATTRIBUTE28             VARCHAR2(240)
, ATTRIBUTE29             VARCHAR2(240)
, ATTRIBUTE30             VARCHAR2(240)
, ATTRIBUTE_CATEGORY      VARCHAR2(30)
, user_name               fnd_user.user_name%TYPE
);

```

```

TYPE lc_adjustment_dtls_Rec_Type
IS
RECORD
(
adjustment_dtl_id
gmf_lot_cost_adjustment_dtls.adjustment_dtl_id%TYPE
, adjustment_id
gmf_lot_cost_adjustment_dtls.adjustment_id%TYPE
, cost_cmpntcls_id          cm_cmpt_mst.cost_cmpntcls_id%TYPE
, cost_cmpntcls_code       cm_cmpt_mst.cost_cmpntcls_code%TYPE
, cost_analysis_code       cm_alys_mst.cost_analysis_code%TYPE
, adjustment_cost
gmf_lot_cost_adjustment_dtls.adjustment_cost%TYPE
, TEXT_CODE                NUMBER(22)
);

```

```

TYPE lc_adjustment_dtls_Tbl_Type
IS
TABLE OF lc_adjustment_dtls_Rec_Type
INDEX BY BINARY_INTEGER;

```

**Package: GMF\_BURDENDETAILS\_PUB**

API Name	Subprogram Name	API Description
Create Overhead Details API	CREATE_BURDEN_DETA ILS	Creates a new overhead detail in the Overhead Details table.
Delete Overhead Details API	DELETE_BURDEN_DETA ILS	Deletes an overhead detail from the Overhead Details table.
Retrieve Overhead Details API	GET_BURDEN_DETAILS	Retrieves an overhead detail from the Overhead Details table.
Update Overhead Details API	UPDATE_BURDEN_DET AILS	Updates the overhead detail in the Overhead Details table.

The GMF\_BURDENDETAILS\_PUB package defines and uses the following custom PL/SQL Record Types and INDEX BY table Types:

```

TYPE Burden_Header_Rec_Type IS RECORD
(
  organization_id      cm_brdn_dtl.organization_id%TYPE
  , organization_code  mtl_parameters.organization_code%TYPE
  , inventory_item_id  mtl_item_flexfields.inventory_item_id%TYPE
  , item_number        mtl_item_flexfields.item_number%TYPE
  , period_id          cm_brdn_dtl.period_id%TYPE
  , calendar_code      cm_brdn_dtl.calendar_code%TYPE
  , period_code        cm_brdn_dtl.period_code%TYPE
  , cost_type_id       cm_brdn_dtl.cost_type_id%TYPE
  , cost_mthd_code     cm_brdn_dtl.cost_mthd_code%TYPE
  , user_name          fnd_user.user_name%TYPE
);

```

```

TYPE Burden_Dtl_Rec_Type IS RECORD
(
  burdenline_id        NUMBER
  , resources           cr_rsrc_mst.resources%TYPE
  , cost_cmpntcls_id   NUMBER
  , cost_cmpntcls_code cm_cmpt_mst.cost_cmpntcls_code%TYPE
  , cost_analysis_code cm_alys_mst.cost_analysis_code%TYPE
  , burden_usage       NUMBER
  , item_qty           NUMBER
  , item_uom           cm_brdn_dtl.item_uom%TYPE
  , burden_qty         NUMBER
  , burden_uom         cm_brdn_dtl.burden_uom%TYPE
  , burden_factor      NUMBER
  , delete_mark        cm_brdn_dtl.delete_mark%TYPE      := 0
);

```

```

TYPE Burden_Dtl_Tbl_Type IS TABLE OF Burden_Dtl_Rec_Type
    INDEX BY BINARY_INTEGER;

TYPE Burdenline_Ids_Rec_Type IS RECORD
(
    resources          cm_rsrc_dtl.resources%TYPE
,
    cost_cmpntcls_id  NUMBER
,
    cost_analysis_code cm_brnd_dtl.cost_analysis_code%TYPE
,
    burdenline_id     NUMBER
);

TYPE Burdenline_Ids_Tbl_Type IS TABLE OF Burdenline_Ids_Rec_Type
    INDEX BY BINARY_INTEGER;

```

**Package: GMF\_RESOURCECOST\_PUB**

API Name	Subprogram Name	API Description
Create Resource Cost API	CREATE_RESOURCE_CO ST	Creates a new resource cost in the Resource Cost Details table.
Delete Resource Cost API	DELETE_RESOURCE_CO ST	Deletes a resource cost from the Resource Cost Details table.
Retrieve Resource Cost API	GET_RESOURCE_COST	Retrieves a resource cost from the Resource Cost Details table.
Update Resource Cost API	UPDATE_RESOURCE_CO ST	Updates a resource cost in the Resource Cost Details table.

The GMF\_RESOURCECOST\_PUB package defines and uses the following custom PL/SQL Record Type:

```

TYPE Resource_Cost_Rec_Type IS RECORD
(
    resources          cm_rsrc_dtl.resources%TYPE,
    legal_entity_id   cm_rsrc_dtl.legal_entity_id%TYPE ,
    organization_id    cm_rsrc_dtl.organization_id%TYPE ,
    organization_code  mtl_parameters.organization_code%TYPE ,
    period_id         cm_rsrc_dtl.period_id%TYPE ,
    calendar_code     cm_rsrc_dtl.calendar_code%TYPE ,
    period_code       cm_rsrc_dtl.period_code%TYPE ,
    cost_type_id      cm_rsrc_dtl.cost_type_id%TYPE ,
    cost_mthd_code    cm_rsrc_dtl.cost_mthd_code%TYPE,
    usage_uom         cm_rsrc_dtl.usage_uom%TYPE,
    nominal_cost      cm_rsrc_dtl.nominal_cost%TYPE,
    delete_mark      cm_rsrc_dtl.delete_mark%TYPE := 0,
    user_name         fnd_user.user_name%TYPE
);

```

---

# Oracle Process Manufacturing Process Planning APIs

## Oracle Process Manufacturing Process Planning API Packages

The following are the packages containing the OPM Process Planning APIs. Confirm that these packages are loaded in your instance so that the interfacing subprograms can compile successfully.

Package Name	Package Description
GMP_RESOURCES_PUB	Public level package used for creating, updating, and deleting generic resources in OPM.
GMP_RESOURCE_DTL_PUB	Public level package used for creating, updating, and deleting plant resources in OPM.
GMP_RSRC_AVL_PKG	Public level package used for resource availability calculations.
GMP_CALENDAR_API	Public level package used for fetching data from the OPM Shop Calendar. These APIs are used by OPM Process Execution.

## Oracle Process Manufacturing Process Planning API Package Listings

Listed in this section are the subprograms for each Public Process Planning API Package.

**Tip:** To list the parameters of an API, use the SQL\*Plus command DESCRIBE. For example, **DESCRIBE GMP\_RESOURCES\_PUB** lists all of the parameter information for all the APIs in the GMP\_RESOURCES\_PUB package.

For English language descriptions of the parameters of each API, refer to the Oracle Applications Integration Repository. For the structure of the database objects used to define an API's %ROWTYPE Record parameters and INDEX BY Table of Records parameters (previously known as PL/SQL Tables) refer to the *Oracle Applications Electronic Technical Reference Manual (eTRM)*.

**Package: GMP\_RESOURCES\_PUB**

API Name	Subprogram Name	API Description
Check Data API	CHECK_DATA	Validates the resource data.
Delete Resource API	DELETE_RESOURCES	Deletes an OPM resource.
Insert Resource API	INSERT_RESOURCES	Creates a generic resource based on the data entered after validating it.
Update Resource API	UPDATE_RESOURCES	Updates the generic resource record with entered values.

The GMP\_RESOURCES\_PUB package defines and uses the following custom PL/SQL Record Types and INDEX BY Table of Records Types:

```

TYPE gmp_resources_tab IS TABLE OF cr_rsrc_mst%ROWTYPE
    INDEX BY BINARY_INTEGER;

TYPE gmp_resources_dtl_tab IS TABLE OF cr_rsrc_dtl%ROWTYPE
    INDEX BY BINARY_INTEGER;

TYPE update_table_rec_type IS RECORD
(
    p_col_to_update VARCHAR2(30)
    ,p_value VARCHAR2(30)
);

TYPE update_tbl_type IS TABLE OF update_table_rec_type INDEX BY
BINARY_INTEGER;

```

**Package: GMP\_RESOURCE\_DTL\_PUB**

---

<b>API Name</b>	<b>Subprogram Name</b>	<b>API Description</b>
Check Data API	CHECK_DATA	Validates the inserted plant resource data.
Check Instance Data API	CHECK_INSTANCE_DATA	Checks the Resource Instance data before insertion.
Delete Resource API	DELETE_RESOURCES	Deletes a resource row from the Plant Resource table.
Insert Detail Rows API	INSERT_DETAIL_ROWS	Inserts a detail row in the Plant Resource table.
Insert Resource Detail API	INSERT_RESOURCES_DETAIL	Creates a new plant resource.
Insert Resource Instance API	INSERT_RESOURCE_INSTANCE	Inserts a resource instance row in the Plant Resource Instance table.
Update Detail Rows API	UPDATE_DETAIL_ROWS	Updates a detail row in the Plant Resource table.
Update Instances API	UPDATE_INSTANCES	Updates the instance data in the Resource Instance table.
Update Instance Row API	UPDATE_INSTANCE_ROW	Updates the instance row in the Resource Instance table.
Update Resource Detail API	UPDATE_RESOURCE_DETAIL	Updates a Plant Resource.

---

The GMP\_RESOURCE\_DTL\_PUB package defines and uses the following custom PL/SQL Record Types and INDEX BY Table of Records Types:

```
TYPE update_table_rec_type IS RECORD
(
  p_col_to_update VARCHAR2(30)
  ,p_value VARCHAR2(30)
);
```

```
TYPE update_tbl_type IS TABLE OF update_table_rec_type
INDEX BY BINARY_INTEGER;
```

```

TYPE resource_instances_rec IS RECORD
(
  RESOURCE_ID          NUMBER,
  INSTANCE_ID          NUMBER,
  INSTANCE_NUMBER     NUMBER,
  VENDOR_ID           NUMBER,
  MODEL_NUMBER        VARCHAR2(30),
  SERIAL_NUMBER       VARCHAR2(30),
  TRACKING_NUMBER     VARCHAR2(30),
  EFF_START_DATE      DATE,
  EFF_END_DATE        DATE,
  LAST_MAINTENANCE_DATE DATE,
  MAINTENANCE_INTERVAL NUMBER,
  INACTIVE_IND        NUMBER,
  CALIBRATION_FREQUENCY NUMBER,
  CALIBRATION_PERIOD  VARCHAR2(4),
  CALIBRATION_ITEM_ID NUMBER,
  LAST_CALIBRATION_DATE DATE,
  NEXT_CALIBRATION_DATE DATE,
  LAST_CERTIFICATION_DATE DATE,
  CERTIFIED_BY        VARCHAR2(32),
  CREATION_DATE       DATE,
  CREATED_BY          NUMBER,
  LAST_UPDATE_DATE    DATE,
  LAST_UPDATED_BY     NUMBER,
  LAST_UPDATE_LOGIN   NUMBER
) ;

TYPE resource_instances_tbl IS TABLE OF resource_instances_rec
INDEX BY BINARY_INTEGER;

```

**Package: GMP\_RSRC\_AVL\_PKG**

API Name	Subprogram Name	API Description
Resource Availability Calculations	RSRC_AVL	Returns the available hours for a resource based on the calendar specified during the period after netting out unavailability from the calendar.
Resource Availability Calculations	RSRC_AVL	Returns the available hours for a resource based on the organization calendar specified during the period after netting out unavailability from the calendar.

The GMP\_RSRC\_AVL\_PKG package defines and uses the following Variables, custom PL/SQL Record Types, Records, and INDEX BY Table of Records Types:

```

gmp_setup          BOOLEAN:=FALSE;
gmp_api_version    NUMBER;
gmp_user_id        NUMBER;
gmp_user_name      VARCHAR2(50);
gmp_login_id       NUMBER;
gmp_timestamp      DATE;

```

```

TYPE out_cal_shift_typ is RECORD
( out_resource_count number,
  out_cal_date date,
  out_shift_num number,
  out_cal_from_date date,
  out_cal_to_date date
);

```

```

out_calendar_record out_cal_shift_typ;

```

```

TYPE cal_tab2 is table of out_cal_shift_typ index by BINARY_INTEGER;
out_cal_rec cal_tab2;
out_rec cal_tab2;

```

**Package: GMP\_CALENDAR\_API**

API Name	Subprogram Name	API Description
Get All Dates API	GET_ALL_DATES	Returns the workdays and days not worked between the specified Start and End dates in the calendar.
Get Contiguous Periods API	GET_CONTIGUOUS_PERIODS	Retrieves contiguous periods of time that add up to the required duration. If the Start date is entered, then the duration is calculated beginning with the start date.
Get Workday Details API	GET_WORKDAY_DETAILS	Returns the workday details.
Get Workdays API	GET_WORK_DAYS	Returns the workdays between the specified Start and End dates in the calendar.
Is Working Day API	IS_WORKING_DAY	Uses Calendar_id and date to determine if the date entered is a workday.
Is Working Daytime API	IS_WORKING_DAYTIME	Uses date and time entered to determine if they are within or outside of the calendar workday.

The GMP\_CALENDAR\_API package defines and uses the following custom PL/SQL Record Types and INDEX BY Table of Records Types:

```
TYPE contig_time_rec IS RECORD
(
  start_date DATE,
  duration   NUMBER,
  end_date   DATE
);

TYPE contig_period_tbl IS TABLE OF contig_time_rec INDEX BY
BINARY_INTEGER;

TYPE date_rec IS RECORD (
  cal_date   DATE,
  is_workday NUMBER );
TYPE date_tbl IS TABLE OF date_rec
  INDEX BY BINARY_INTEGER;

TYPE workday_rec IS RECORD(
  workday   DATE);

TYPE workdays_tbl IS TABLE OF workday_rec
  INDEX BY BINARY_INTEGER;

TYPE shopday_dtl_rec IS RECORD (
  shift_no   NUMBER,
  shift_start NUMBER ,
  shift_duration NUMBER );

TYPE shopday_dtl_tbl IS TABLE OF shopday_dtl_rec
  INDEX BY BINARY_INTEGER;
```

---

# Oracle Process Manufacturing Quality Management APIs

## Oracle Process Manufacturing (OPM) Quality Management API Packages

The following are packages that contain the OPM Quality Management APIs. Confirm that these packages are loaded in your instance so that the interfacing subprograms can compile successfully.

---

Package Name	Package Description
GMD_SPEC_PUB	Public level package used for creating, modifying, or deleting specifications.
GMD_SPEC_VRS_PUB	Public level specification validity rules package supplying APIs to create or delete specifications and associated specification validity rules.
GMD_QC_TESTS_PUB	Public level QC Tests package containing validation procedures and functions for verifying test and results data.
GMD_SAMPLES_PUB	Public level samples package supplying APIs to create or delete samples and associated entities.
GMD_RESULTS_PUB	Public level results package supplying APIs to record results and add tests to a sample.

---

Package Name	Package Description
GMD_OUTBOUND_APIS_PUB	Public level QM package containing APIs to export information to third party products.

## Quality Management API Package Listings

Listed in this section are the subprograms for each Public Quality Management API Package. To list the parameters of an API, use the SQL\*Plus command DESCRIBE. For example, **DESCRIBE GMD\_SPEC\_PUB** lists all of the parameter information for all the APIs in the GMD\_SPEC\_PUB package.

For English language descriptions of the parameters of each API, refer to the Oracle Applications Integration Repository. For the structure of the database objects used to define an API's %ROWTYPE Record parameters and INDEX BY Table of Records parameters (previously called PL/SQL Tables) refer to the *Oracle Applications Electronic Technical Reference Manual (eTRM)*.

### Package: GMD\_SPEC\_PUB

API Name	Subprogram Name	API Description
Create Specification	CREATE_SPEC	Inserts a specification into the GMD_SPECIFICATIONS table. Inserts one or more specification tests into the GMD_SPEC_TESTS table.
Delete Specification	DELETE_SPEC	Deletes a row in the GMD_SPECIFICATIONS table.
Delete Specification Tests	DELETE_SPEC_TESTS	Deletes a row in the GMD_SPEC_TESTS table.

The GMD\_SPEC\_PUB package defines and uses the following INDEX BY Table of Records Types:

```
TYPE SPEC_TESTS_TBL IS TABLE OF GMD_SPEC_TESTS%ROWTYPE
INDEX BY BINARY_INTEGER;
```

```
TYPE INVENTORY_SPEC_VRS_TBL IS TABLE OF GMD_INVENTORY_SPEC_VRS%ROWTYPE
INDEX BY BINARY_INTEGER;
```

**Package: GMD\_SPEC\_VRS\_PUB**

---

<b>API Name</b>	<b>Subprogram Name</b>	<b>API Description</b>
Create Inventory Specification Validity Rules	CREATE_INVENTORY_SPE C_VRS	Inserts one or more rows into the GMD_INVENTORY_SPEC_VRS table.
Create WIP Specification Validity Rules	CREATE_WIP_SPEC_VRS	Inserts one or more rows into the GMD_WIP_SPEC_VRS table.
Create Customer Specification Validity Rules	CREATE_CUSTOMER_SPEC _VRS	Inserts one or more rows into the GMD_CUSTOMER_SPEC_VRS table.
Create Supplier Specification Validity Rules	CREATE_SUPPLIER_SPEC_V RS	Inserts one or more rows into the GMD_SUPPLIER_SPEC_VRS table.
Create Monitoring Specification Validity Rules	CREATE_MONITORING_SP EC_VRS	Inserts a row into the GMD_MONITORING_SPEC_VRS table.
Create Inventory Specification Validity Rules	DELETE_INVENTORY_SPEC _VRS	Deletes one or more rows in the GMD_INVENTORY_SPEC_VRS table.
Create WIP Specification Validity Rules	DELETE_WIP_SPEC_VRS	Deletes one or more rows in the GMD_WIP_SPEC_VRS table.
Create Customer Specification Validity Rules	DELETE_CUSTOMER_SPEC _VRS	Deletes one or more rows in the GMD_CUSTOMER_SPEC_VRS table.
Create Supplier Specification Validity Rules	DELETE_SUPPLIER_SPEC_V RS	Deletes one or more rows in the GMD_SUPPLIER_SPEC_VRS table.

---

API Name	Subprogram Name	API Description
Create Monitoring Specification Validity Rules	DELETE_MONITORING_SP EC_VRS	Deletes one or more rows in the GMD_MONITORING_SPEC_VRS table.

The GMD\_SPEC\_VRS\_PUB package defines and uses the following INDEX BY Table of Records Types:

```
TYPE INVENTORY_SPEC_VRS_TBL IS TABLE OF GMD_INVENTORY_SPEC_VRS%ROWTYPE
INDEX BY BINARY_INTEGER;
```

```
TYPE WIP_SPEC_VRS_TBL IS TABLE OF GMD_WIP_SPEC_VRS%ROWTYPE
INDEX BY BINARY_INTEGER;
```

```
TYPE CUSTOMER_SPEC_VRS_TBL IS TABLE OF GMD_CUSTOMER_SPEC_VRS%ROWTYPE
INDEX BY BINARY_INTEGER;
```

```
TYPE SUPPLIER_SPEC_VRS_TBL IS TABLE OF GMD_SUPPLIER_SPEC_VRS%ROWTYPE
INDEX BY BINARY_INTEGER;
```

```
TYPE MONITORING_SPEC_VRS_TBL IS TABLE OF GMD_MONITORING_SPEC_VRS%ROWTYPE
INDEX BY BINARY_INTEGER;
```

**Package: GMD\_QC\_TESTS\_PUB**

API Name	Subprogram Name	API Description
Create Tests	CREATE_TESTS	Creates a new test, new test values, or new customer tests.
Delete Test Headers	DELETE_TEST_HEADERS	Logically deletes the entity test header from the GMD_QC_TESTS table by setting the DELETE_MARK column to 1.
Delete Test Values	DELETE_TEST_VALUES	Deletes one or more rows in the GMD_QC_TEST_VALUES table.
Delete Customer Tests	DELETE_CUSTOMER_TESTS	Deletes one or more rows in the GMD_CUSTOMER_TESTS table.

The GMD\_QC\_TESTS\_PUB package defines and uses the following INDEX BY Table of Records Types:

```
TYPE QC_TEST_VALUES_TBL IS TABLE OF GMD_QC_TEST_VALUES%ROWTYPE
INDEX BY BINARY_INTEGER;
```

```
TYPE QC_CUST_TESTS_TBL IS TABLE OF GMD_CUSTOMER_TESTS%ROWTYPE
INDEX BY BINARY_INTEGER;
```

**Package: GMD\_SAMPLES\_PUB**

API Name	Subprogram Name	API Description
Create Samples	CREATE_SAMPLES	Inserts master-detail rows into the GMD_SAMPLES, GMD_SAMPLING_EVENT, GMD_SAMPLE_SPEC_DISP, GMD_EVENT_SPEC_DISP, GMD_RESULTS, and GMD_SPEC_RESULTS tables.
Find Matching Specification	FIND_MATCHING_SPEC	This program for validation purposes. It is not intended for standalone use.
Delete Samples	DELETE_SAMPLES	This procedure lets you logically delete one or more rows in the GMD_SAMPLES table by setting the DELETE_MARK column to 1.
Validate Item Controls	VALIDATE_ITEM_CONTROLS	This program for validation purposes. It is not intended for standalone use.
Validate Inventory Sample	VALIDATE_INV_SAMPLE	This program for validation purposes. It is not intended for standalone use.
Validate Customer Sample	VALIDATE_CUST_SAMPLE	This program for validation purposes. It is not intended for standalone use.
Validate WIP Sample	VALIDATE_WIP_SAMPLE	This program for validation purposes. It is not intended for standalone use.

<b>API Name</b>	<b>Subprogram Name</b>	<b>API Description</b>
Validate Sample	VALIDATE_SAMPLE	This program for validation purposes. It is not intended for standalone use.
Validate Location Sample	VALIDATE_LOCATION_SAMPLE	This program for validation purposes. It is not intended for standalone use.
Validate Resource Sample	VALIDATE_RESOURCE_SAMPLE	This program for validation purposes. It is not intended for standalone use.
Validate Stability Sample	VALIDATE_STABILITY_SAMPLE	This program for validation purposes. It is not intended for standalone use.

***Package: GMD\_RESULTS\_PUB***

<b>API Name</b>	<b>Subprogram Name</b>	<b>API Description</b>
Validate Input	VALIDATE_INPUT	This program for validation purposes. It is not intended for standalone use.
Get Result Information	GET_RESULT_INFORMATION	This program for validation purposes. It is not intended for standalone use.
Record Results	RECORD_RESULTS	Modifies a row in GMD_RESULTS. Analyzes input to determine if Result is considered in specification or out of specification and updates the IN_SPEC_IND column of the GMD_SPEC_RESULTS table accordingly.

API Name	Subprogram Name	API Description
Add Tests to Sample	ADD_TESTS_TO_SAMPLE	Adds tests to an existing sample. Creates rows in the GMD_RESULTS and GMD_SPEC_RESULTS tables.

The GMD\_RESULTS\_PUB package defines and uses the following custom Record Type:

```

TYPE RESULTS_REC IS RECORD
( UPDATE_INSTANCE_ID  GMD_RESULTS.UPDATE_INSTANCE_ID%TYPE,
  RESULT_ID           GMD_RESULTS.RESULT_ID%TYPE,
  SAMPLE_ID           GMD_RESULTS.SAMPLE_ID%TYPE,
  SAMPLE_NO           GMD_SAMPLES.SAMPLE_NO%TYPE,
  ORGANIZATION_ID     GMD_SAMPLES.ORGANIZATION_ID%TYPE,
  LAB_ORGANIZATION_ID GMD_RESULTS.LAB_ORGANIZATION_ID%TYPE,
  TEST_CODE            GMD_QC_TESTS.TEST_CODE%TYPE,
  TEST_ID              GMD_RESULTS.TEST_ID%TYPE,
  TEST_REPLICATE_CNT  GMD_RESULTS.TEST_REPLICATE_CNT%TYPE,
  RESULT_VALUE         VARCHAR2(80),
  RESULT_DATE          GMD_RESULTS.RESULT_DATE%TYPE,
  TEST_KIT_INV_ITEM_ID GMD_RESULTS.TEST_KIT_INV_ITEM_ID%TYPE,
  TEST_KIT_LOT_NUMBER GMD_RESULTS.TEST_KIT_LOT_NUMBER%TYPE,
  TESTER               GMD_RESULTS.TESTER%TYPE,
  TESTER_ID            GMD_RESULTS.TESTER_ID%TYPE,
  TEST_PROVIDER_CODE   GMD_RESULTS.TEST_PROVIDER_CODE%TYPE,
  TEST_PROVIDER_ID     GMD_RESULTS.TEST_PROVIDER_ID%TYPE,
  SEQ                  GMD_RESULTS.SEQ%TYPE,
  IN_SPEC              GMD_SPEC_RESULTS.IN_SPEC_IND%TYPE,
  ASSAY_RETEST         GMD_RESULTS.ASSAY_RETEST%TYPE,
  EVAL_IND             GMD_SPEC_RESULTS.EVALUATION_IND%TYPE,
  ACTION_CODE          GMD_SPEC_RESULTS.ACTION_CODE%TYPE,
  AD_HOC_PRINT_ON_COA_IND GMD_RESULTS.AD_HOC_PRINT_ON_COA_IND%TYPE,
  PLANNED_RESOURCE     GMD_RESULTS.PLANNED_RESOURCE%TYPE,
  PLANNED_RESOURCE_INSTANCE GMD_RESULTS.PLANNED_RESOURCE_INSTANCE%TYPE,
  ACTUAL_RESOURCE      GMD_RESULTS.ACTUAL_RESOURCE%TYPE,
  ACTUAL_RESOURCE_INSTANCE GMD_RESULTS.ACTUAL_RESOURCE_INSTANCE%TYPE,
  PLANNED_RESULT_DATE  GMD_RESULTS.PLANNED_RESULT_DATE%TYPE,
  TEST_BY_DATE         GMD_RESULTS.TEST_BY_DATE%TYPE,
  TEST_QTY             GMD_RESULTS.TEST_QTY%TYPE,
  TEST_QTY_UOM         GMD_RESULTS.TEST_QTY_UOM%TYPE,
  RESERVE_SAMPLE_ID    GMD_RESULTS.RESERVE_SAMPLE_ID%TYPE,
  CONSUMED_QTY         GMD_RESULTS.CONSUMED_QTY%TYPE
);

```

**Package: GMD\_OUTBOUND\_APIS\_PUB**

API Name	Subprogram Name	API Description
Fetch Results	FETCH_RESULTS	Retrieves sample groups from the GMD_RESULTS table.

<b>API Name</b>	<b>Subprogram Name</b>	<b>API Description</b>
Fetch Composite Results	FETCH_COMPOSITE_RESULTS	Retrieves composite results from the GMD_COMPOSITE_RESULTS, GMD_COMPOSITE_SPEC_DISP, and GMD_COMPOSITE_RESULT_ASSOC tables.
Fetch Samples	FETCH_SAMPLES	Retrieves sample groups from the GMD_SAMPLES and GMD_SAMPLE_SPEC_DISP tables.
Fetch Test Methods	FETCH_TEST_METHODS	Retrieves test method data from the GMD_TEST_METHODS table.
Fetch Tests	FETCH_TESTS	Retrieves tests from the GMD_TEST_QC_TESTS, GMD_QC_TEST_VALUES, and GMD_CUSTOMER_TESTS tables.
Fetch Specification Validity Rules	FETCH_SPEC_VRS	Retrieves specifications, specification tests, and validity rules from the GMD_SPECIFICATIONS, GMD_SPEC_TESTS, GMD_WIP_SPEC_VRS, GMD_CUSTOMER_SPEC_VRS, GMD_INVENTORY_SPEC_VRS, and GMD_SUPPLIER_SPEC_VRS tables.

---

## Oracle E-Records APIs

### Oracle E-Records API Packages

The following are the packages containing the Oracle E-Records APIs. Confirm that these packages are loaded in your instance so that the interfacing subprograms can compile successfully.

Package Name	Package Description
EDR_ERES_EVENT_PUB	Public level APIs to raise an e-signature event or related events in deferred mode.
EDR_EVENT_RELATIONSHIP_PUB	Public level APIs establish relationship between e-record events.
EDR_EVIDENCESTORE_PUB	Public level APIs for the Evidence Store; retrieves the e-record details.
EDR_TRANS_ACKN_PUB	Public level API used to send appropriate acknowledgement to the evidence store for an e-record based on the status of the business transaction.
EDR_STANDARD_PUB	Public level API that contains all general Oracle E-Records utilities.
EDR_FILES_PUB	Public level API that provides a generic file upload management system for uploading files into the Oracle E-Business Suite.

## Oracle E-Records API Package Listings

Listed in this section are the subprograms for each Public Oracle E-Records API Package. To list the parameters of an API, use the SQL\*Plus command DESCRIBE. For example, **DESCRIBE EDR\_EVENT\_RELATIONSHIP\_PUB** lists the entire contents of the EDR\_EVENT\_RELATIONSHIP\_PUB package specification

For English language descriptions of the parameters of each API, refer to the Oracle Applications Integration Repository. For the structure of the database objects used to define an API's %ROWTYPE Record parameters and INDEX BY Table of Records parameters (previously known as PL/SQL Tables) refer to the *Oracle Applications Electronic Technical Reference Manual (eTRM)*.

### **Package: EDR\_ERES\_EVENT\_PUB**

<b>API Name</b>	<b>Subprogram Name</b>	<b>API Description</b>
Get e-record ID	GET_ERECORD_ID	Obtains the e-record ID for an event name and event key combination from a table of ERES events.
Get event details	GET_EVENT_DETAILS	Obtains the event name and event key from the evidence store for an e-record ID.
Raise e-signature events	RAISE_ERES_EVENT	Raises normal as well as related events.
Raise related e-signature events	RAISE_INTER_EVENT	Raises a number of e-signature related events at one time.
Validate e-record	VALIDATE_ERECORD	Determines if the e-record with a specific ID exists in the evidence store. The return value indicates the result.
Validate Payload	VALIDATE_PAYLOAD	Determines if the payload of parameters being passed to raise an ERES event is valid.
Validate Payload Forms	VALIDATE_PAYLOAD_FO RMS	Determines if the payload of parameters being passed to raise an ERES event is valid. This API is used from forms.

The EDR\_ERES\_EVENT\_PUB package defines and uses the following Custom Record Types and INDEX BY Table of Records Types:

TYPE ERECORD\_ID\_TBL\_TYPE IS TABLE OF NUMBER INDEX BY BINARY\_INTEGER;

TYPE ERES\_EVENT\_REC\_TYPE IS RECORD

( EVENT_NAME	VARCHAR2(80)	
,		
EVENT_KEY	VARCHAR2(240)	
,		
ERECORD_ID	NUMBER	
,		
EVENT_STATUS	VARCHAR2(20)	DEFAULT NULL
,		
EVENT_XML	CLOB	DEFAULT NULL
,		
PARAM_NAME_1	VARCHAR2(30)	DEFAULT NULL
,		
PARAM_VALUE_1	VARCHAR2(2000)	DEFAULT NULL
,		
PARAM_NAME_2	VARCHAR2(30)	DEFAULT NULL
,		
PARAM_VALUE_2	VARCHAR2(2000)	DEFAULT NULL
,		
PARAM_NAME_3	VARCHAR2(30)	DEFAULT NULL
,		
PARAM_VALUE_3	VARCHAR2(2000)	DEFAULT NULL
,		
PARAM_NAME_4	VARCHAR2(30)	DEFAULT NULL
,		
PARAM_VALUE_4	VARCHAR2(2000)	DEFAULT NULL
,		
PARAM_NAME_5	VARCHAR2(30)	DEFAULT NULL
,		
PARAM_VALUE_5	VARCHAR2(2000)	DEFAULT NULL
,		
PARAM_NAME_6	VARCHAR2(30)	DEFAULT NULL
,		
PARAM_VALUE_6	VARCHAR2(2000)	DEFAULT NULL
,		
PARAM_NAME_7	VARCHAR2(30)	DEFAULT NULL
,		
PARAM_VALUE_7	VARCHAR2(2000)	DEFAULT NULL
,		
PARAM_NAME_8	VARCHAR2(30)	DEFAULT NULL
,		
PARAM_VALUE_8	VARCHAR2(2000)	DEFAULT NULL
,		
PARAM_NAME_9	VARCHAR2(30)	DEFAULT NULL
,		
PARAM_VALUE_9	VARCHAR2(2000)	DEFAULT NULL
,		
PARAM_NAME_10	VARCHAR2(30)	DEFAULT NULL
,		
PARAM_VALUE_10	VARCHAR2(2000)	DEFAULT NULL
,		
PARAM_NAME_11	VARCHAR2(30)	DEFAULT NULL
,		
PARAM_VALUE_11	VARCHAR2(2000)	DEFAULT NULL
,		
PARAM_NAME_12	VARCHAR2(30)	DEFAULT NULL
,		
PARAM_VALUE_12	VARCHAR2(2000)	DEFAULT NULL
,		

```

PARAM_NAME_13          VARCHAR2 (30)      DEFAULT NULL
'
  PARAM_VALUE_13       VARCHAR2 (2000)   DEFAULT NULL
'
  PARAM_NAME_14        VARCHAR2 (30)      DEFAULT NULL
'
  PARAM_VALUE_14       VARCHAR2 (2000)   DEFAULT NULL
'
  PARAM_NAME_15        VARCHAR2 (30)      DEFAULT NULL
'
  PARAM_VALUE_15       VARCHAR2 (2000)   DEFAULT NULL
'
  PARAM_NAME_16        VARCHAR2 (30)      DEFAULT NULL
'
  PARAM_VALUE_16       VARCHAR2 (2000)   DEFAULT NULL
'
  PARAM_NAME_17        VARCHAR2 (30)      DEFAULT NULL
'
  PARAM_VALUE_17       VARCHAR2 (2000)   DEFAULT NULL
'
  PARAM_NAME_18        VARCHAR2 (30)      DEFAULT NULL
'
  PARAM_VALUE_18       VARCHAR2 (2000)   DEFAULT NULL
'
  PARAM_NAME_19        VARCHAR2 (30)      DEFAULT NULL
'
  PARAM_VALUE_19       VARCHAR2 (2000)   DEFAULT NULL
'
  PARAM_NAME_20        VARCHAR2 (30)      DEFAULT NULL
'
  PARAM_VALUE_20       VARCHAR2 (2000)   DEFAULT NULL
);

```

```

TYPE ERES_EVENT_TBL_TYPE IS TABLE OF ERES_EVENT_REC_TYPE INDEX BY
BINARY_INTEGER;

```

**Package: EDR\_EVENT\_RELATIONSHIP\_PUB**

API Name	Subprogram Name	API Description
Establish relationships between e-records	CREATE_RELATIONSHIP	Creates a row in the EDR_EVENT_RELATIONSHIP table. Establishes a related event relationship between two events in evidence store.
Validate Relationship	VALIDATE_RELATIONSHIP	Creates a row in the EDR_EVENT_RELATIONSHIP table. Validates if a parent-child relationship can be created between the specified parent and child events.

The EDR\_EVENT\_RELATIONSHIP\_PUB package defines and uses the following

Custom Record Types and INDEX BY Table of Records Types:

```
Type INTER_EVENT_REC_TYPE IS RECORD
( parent_event_name  VARCHAR2(80)  ,
  parent_event_key   VARCHAR2(240) ,
  parent_erecord_id  NUMBER        ,
  child_event_name   VARCHAR2(80)  ,
  child_event_key    VARCHAR2(240) ,
  child_erecord_id   NUMBER
);
```

```
TYPE INTER_EVENT_TBL_TYPE IS TABLE OF INTER_EVENT_REC_TYPE INDEX BY
BINARY_INTEGER;
```

**Package: EDR\_EVIDENCESTORE\_PUB**

API Name	Subprogram Name	API Description
Open document	OPEN_DOCUMENT	Opens a document for signature and stores the information. The document opened using this API remains active until the document ID is closed using another API or the document is cancelled. The DOCUMENT_ID returned by this API is the required key for calling other relevant APIs.
Close document	CLOSE_DOCUMENT	Closes an open document after the relevant information is posted. The closed document cannot be modified further.
Update document	UPDATE_DOCUMENT	Updates a document for signature and stores the information.
Change document status	CHANGE_DOCUMENTSTATUS	Changes the document status to the status passed as a parameter. There is no validation performed on the status value.

<b>API Name</b>	<b>Subprogram Name</b>	<b>API Description</b>
Post document parameters	POST_DOCUMENTPARAMETERS	Associates any name-value pair attributes to the document.
Retrieve signature details	GET_SIGNATUREDETAILS	Returns signature details such as signature timestamp and signature parameters involving signature comments etc.
Retrieve e-record details	GET_DOCUMENTDETAILS	Returns e-record details such as e-record XML, parameters associated with e-records and approver information based on e-record ID input.
Request Signature	REQUEST_SIGNATURE	Requests a signature for a document. It creates a new signature row in the signature table for the document and user.
Capture Signature	CAPTURE_SIGNATURE	Captures the signature for a single event and generates the corresponding document ID and signature ID.
Post signature	POST_SIGNATURE	Posts signature details for a specific document.
Post signature parameters	POST_SIGNATUREPARAMETERS	Associates any name-value pair attributes to the specified signature.
Cancel document	CANCEL_DOCUMENT	Updates the document status to CANCEL. All rows from relevant tables are deleted for a given document ID. This API cannot be called after the document is closed.

The EDR\_EVIDENCESTORE\_PUB package defines and uses the following INDEX BY Table of Records Types:

TYPE Params\_tbl\_type IS TABLE of edr\_psig.params\_rec INDEX by Binary\_INTEGER;

TYPE Signature\_tbl\_type IS TABLE of edr\_psig.Signature INDEX by Binary\_INTEGER;

**Package: EDR\_TRANS\_ACKN\_PUB**

API Name	Subprogram Name	API Description
E-record acknowledgement	SEND_ACKN	Sends appropriate acknowledgement for an e-record based on the status of the business transaction.

**Package: EDR\_STANDARD\_PUB**

API Name	Subprogram Name	API Description
Determine if the e-record is required	IS_EREC_REQUIRED	Checks if an e-record is required for an event.
Determine if the e-signature is required	IS_ESIG_REQUIRED	Checks if a signature is required for an event.
Get AME rule level configuration values	GET_AMERULE_VARIABLEVALUES	Returns the table of configuration variables for an AME Transaction and Rule.
Get AME rule level configuration values	GET_AMERULE_VARVALUES	Returns the table of configuration variables for an AME Transaction and Rule.
Get current e-signature status	GET_PSIGSTATUS	Obtains signature status (Pending, Complete, or Error) for a given event.
Get query ID on events	GET_QUERYID_ONEVENTS	Obtains a query ID for a list of events passed to the API in the parameter p_eventQuery_recTbl.
Get erecord ID	GET_ERECORD_ID	Retrieves the latest e-record ID.

<b>API Name</b>	<b>Subprogram Name</b>	<b>API Description</b>
Get Notification Routing Information	GET_NOTIF_ROUTING_INFO	Retrieves the overriding recipient for a routed notification in a workflow. The routing comments are also returned.
Get query ID on parameters	GET_QUERYID_ONPARAMS	Retrieves a query ID for events based on arrays of event parameters (NAME, KEY).
Is audit value old	IS_AUDITVALUE_OLD	Checks if the audited table column was modified during a transaction.
Get Descriptive Flexfield One Prompt	GET_DESCFLEX_ONEPROMPT	Obtains a single descriptive flexfield prompt for designated column.
Get Descriptive Flexfield All Prompts	GET_DESCFLEX_ALLPROMPTS	Retrieves the prompts of all the items in the descriptive flexfield.
Get Lookup Meaning	GET_LOOKUP_MEANING	Retrieves the lookup code meaning using FND_LOOKUPS view for a specific lookup type and code.
Display time only	DISPLAY_TIME_ONLY	Converts an input date value of type DATE to a corresponding string display value.
Display date only	DISPLAY_DATE_ONLY	Converts an input date value of type DATE to a corresponding string display value.
Display date	DISPLAY_DATE	Converts an input date value of type DATE to a corresponding string display value.

The EDR\_STANDARD\_PUB package defines and uses the following custom Record Types and INDEX BY Table of Records Types:

```

Type eventDetails is record(
    event_name varchar2(240),
    event_key  varchar2(240),
    key_type   varchar2(40)
);
Type eventQuery is table of eventDetails index by binary_integer;

Type RuleInputvalues is record(
    input_name  varchar2(240),
    input_value varchar2(240)
);
Type ameRuleinputvalues is table of ruleInputvalues index by
binary_integer;

```

**Package: EDR\_FILES\_PUB**

API Name	Subprogram Name	API Description
File Upload	UPLOAD_FILE	Uploads a given file into the iSign repository.



---

## OPM Process Execution APIs

### OPM Process Execution API Packages

The following is the package containing the OPM Process Execution. This file contains the headers for the Process Execution (GME) APIs in Oracle Process Manufacturing (OPM). Confirm that this package is loaded in your instance so that the interfacing subprograms can compile successfully.

Package Name	Package Description
GME_API_PUB	Contains the headers for the Process Execution APIs.

### Process Execution API Package Listings

Listed in this section are the subprograms for the Public Process Execution API Package.

**Tip:** To list the parameters of an API, use the SQL\*Plus command DESCRIBE. For example, **DESCRIBE GMD\_SPEC\_PUB** lists all of the parameter information for all the APIs in the GMD\_SPEC\_PUB package.

For English language descriptions of the parameters of each API, refer to the Oracle Applications Integration Repository. For the structure of the database objects used to define an API's %ROWTYPE Record parameters and INDEX BY Table of Records parameters (previously known as PL/SQL Tables) refer to the *Oracle Applications Electronic Technical Reference Manual (eTRM)*.

**Package: GME\_API\_PUB**

---

<b>API Name</b>	<b>Subprogram Name</b>	<b>API Description</b>
Autodetail Batch	AUTO_DETAIL_BATCH	Creates detail level reservations for each ingredient line in the production batch using the picking rules defined.
Auto Detail Line	AUTO_DETAIL_LINE	Creates detail level reservations for a specific ingredient line using the picking rules defined.
Cancel Batch	CANCEL_BATCH	Cancels a Firm Planned Order (FPO) or batch and all associated phantom batches.
Close Batch	CLOSE_BATCH	Closes a batch.
Close Step	CLOSE_STEP	Closes a step.
Complete Batch	COMPLETE_BATCH	Completes a batch.
Complete Step	COMPLETE_STEP	Completes a step.
Convert Detail Reservation	CONVERT_DTL_RESERVATION	Converts detail level reservation into transaction.
Convert FPO to Batches	CONVERT_FPO	Converts FPO to one or many batches.
Create Batch	CREATE_BATCH	Creates a FPO or a batch and checks inventory shortages.
Create Batch Reservations	CREATE_BATCH_RESERVATIONS	Creates high level reservations for all the ingredients of a given batch.
Create Line Reservations	CREATE_LINE_RESERVATIONS	Creates high level reservations for the given ingredient line.

---

<b>API Name</b>	<b>Subprogram Name</b>	<b>API Description</b>
Create Material Transaction	CREATE_MATERIAL_TXN	Creates a material transaction.
Create Pending Product Lot	CREATE_PENDING_PRODUCT_LOT	Creates a pending product lot for a specified product or byproduct line.
Create Phantom	CREATE_PHANTOM	Creates a batch and checks for inventory shortages.
Delete Batch Step Activity	DELETE_BATCHSTEP_ACTIVITY	Deletes an activity from a step.
Delete Batch Step Resource	DELETE_BATCHSTEP_RESOURCE	Deletes a resource of an activity.
Delete Material Line	DELETE_MATERIAL_LINE	Deletes a material line in a batch.
Delete Material Transaction	DELETE_MATERIAL_TXN	Deletes a material transaction.
Delete Process Parameter	DELETE_PROCESS_PARAMETER	Deletes a process parameter for a given resource.
End Complete Actual Resource Transaction	END_CMPLT_ACTUAL_RSRC_TXN	Ends a completed resource transaction that was started using the Start Completed Resource Transaction API.
Incremental Backflushing	INCREMENTAL_BACKFLUSH	Incrementally records production yield as it occurs and has ingredient consumption backflushed.
Insert Batch Step Activity	INSERT_BATCHSTEP_ACTIVITY	Inserts an activity for a step.
Insert Batchstep	INSERT_STEP	Inserts a new step into a batch.

<b>API Name</b>	<b>Subprogram Name</b>	<b>API Description</b>
Insert Batchstep Resource	INSERT_BATCHSTEP_RESOURCE	Inserts a resource in a batchstep activity.
Insert Incremental Resource Transaction	INSERT_INCR_ACTUAL_RSRC_TXN	Records incremental resource usage by inserting a completed resource transaction.
Insert Material Line	INSERT_MATERIAL_LINE	Inserts new material line in a batch.
Insert Process Parameter	INSERT_PROCESS_PARAMETER	Inserts a process parameter for a resource.
Insert Timed Resource Transaction	INSERT_TIMED_ACTUAL_RSRC_TXN	Records incremental resource usage by inserting a completed resource transaction. Usage is calculated from transaction dates supplied in the transaction.
Release Batch	RELEASE_BATCH	Releases a batch.
Release Step	RELEASE_STEP	Releases a step.
Reopen Batch	REOPEN_BATCH	Reopens a batch and all associated phantom batches and all steps optionally.
Reopen Step	REOPEN_STEP	Reopens a step.
Reroute Batch	REROUTE_BATCH	Reroutes a batch or FPO to a different recipe with the same formula.
Reschedule Batch	RESCHEDULE_BATCH	Reschedules a batch or FPO to different date.
Reschedule Step	RESCHEDULE_STEP	Reschedules a step.

<b>API Name</b>	<b>Subprogram Name</b>	<b>API Description</b>
Revert to WIP Batch	REVERT_BATCH	Changes the batch back to WIP. Only a batch with status of Complete can be reverted to WIP.
Revert to WIP Steps	REVERT_STEP	Changes the batch step status to WIP. Only batch steps with a status of complete can be reverted to WIP.
Save Batch	SAVE_BATCH	Saves all the transactions of a batch.
Scale Batch	SCALE_BATCH	Scales batches up or down, including phantom batches.
Start Completed Resource Transaction	START_CMPLT_ACTUAL_RSRC_TXN	Starts a completed resource transaction for a resource.
Terminate Batch	TERMINATE_BATCH	Terminates a batch. Cancels all the pending steps, terminates all the WIP steps.
Theoretical Yield Batch	THEORETICAL_YIELD_BATCH	Calculates theoretical yield for a batch or FPO, and updates the quantities for the product lines.
Unrelease Batch	UNRELEASE_BATCH	Unreleases a batch.
Unrelease Step	UNRELEASE_STEP	Unreleases a step.
Update Actual Resource Usage	UPDATE_ACTUAL_RSRC_USAGE	Inserts a completed resource transaction for a resource. This procedure replaces all the completed resource transactions with the supplied resource usage.
Update Batchstep Activity	UPDATE_BATCHSTEP_ACTIVITY	Updates an activity for a step.

<b>API Name</b>	<b>Subprogram Name</b>	<b>API Description</b>
Update Batchstep Resource	UPDATE_BATCHSTEP_RESOURCE	Updates a resource in a step activity.
Update Material Line	UPDATE_MATERIAL_LINE	Updates the existing material line in a batch.
Update Material Transaction	UPDATE_MATERIAL_TXN	Updates a material transaction.
Update Pending Product Lot	UPDATE_PENDING_PRODUCT_LOT	Updates a pending product lot.
Update Process Parameter	UPDATE_PROCESS_PARAMETER	Updates a process parameter for a resource.

Refer to the *Oracle Process Manufacturing Process Execution User's Guide* for detailed information on all batch processes.

---

# OPM Product Development APIs

## OPM Product Development API Packages

The following are the packages containing the OPM Product Development APIs. Confirm that these packages are loaded in your instance so that the interfacing subprograms can compile successfully.

### *Formula APIs*

Package Name	Package Description
GMD_FORMULA_PUB	Public Formula Header package that a user-defined function calls. This business API creates, modifies or deletes formula header information. It also creates the detail and effectivity when a formula header is created.
GMD_FORMULA_DETAIL_PUB	Public Formula Detail package that the wrapper or user defined function calls. It creates, modifies, or deletes a formula detail.

### *Recipe APIs*

Package Name	Package Description
GMD_RECIPE_HEADER	Creates or modifies the recipe header information.

<b>Package Name</b>	<b>Package Description</b>
GMD_RECIPE_DETAIL	Creates or modifies the recipe detail information.
GMD_RECIPE_FETCH_PUB	Retrieves recipe details.
GMD_FETCH_VALIDITY_RULES	Retrieves recipe validity rule details.
GMD_ROUTINGS_PUB	Creates, modifies, or deletes the routing step information.
GMD_ROUTING_STEPS_PUB	Creates or modifies routing steps associated to the routing header.
GMD_OPERATIONS_PUB	Creates operation header and detail information. It also modifies and deletes operation header information.
GMD_OPERATION_ACTIVITIES_PUB	Creates, modifies, or deletes the operation detail information.
GMD_OPERATION_RESOURCES_PUB	Creates, modifies, or deletes the operation resource information.
GMD_ACTIVITIES_PUB	Creates, modifies, or deletes activity information.
GMD_STATUS_PUB	Modifies the status for routings, operations, recipes, and validity rules.

---

***Item Substitution APIs***

<b>Package Name</b>	<b>Package Description</b>
GMD_SUBSTITUTION_PUB	Creates, modifies, and deletes an item substitution list.

### ***Least Cost Formulation APIs***

---

<b>Package Name</b>	<b>Package Description</b>
GMD_LCF_UTIL.	This function is called when external cost is chosen in the Technical Parameters window to get the cost function.

---

### ***Item Technical Data APIs***

---

<b>Package Name</b>	<b>Package Description</b>
GMD_ITEM_TECHNICAL_DATA_PUB	This API has packages that are called for insertion, updation, deletion and to fetch the Technical Parameter values for items.

---

## **OPM Product Development API Package Listings**

Listed in this section are the subprograms for each Public [Product Name] API Package.

**Tip:** To list the parameters of an API, use the SQL\*Plus command DESCRIBE. For example, **DESCRIBE GMD\_SPEC\_PUB** lists all of the parameter information for all the APIs in the GMD\_SPEC\_PUB package.

For English language descriptions of the parameters of each API, refer to the Oracle Applications Integration Repository. For the structure of the database objects used to define an API's %ROWTYPE Record parameters and INDEX BY Table of Records parameters (previously known as PL/SQL Tables) refer to the *Oracle Applications Electronic Technical Reference Manual (eTRM)*

### **Product Development API Package Listings**

#### ***GMD\_FORMULA\_PUB***

---

<b>API Name</b>	<b>Subprogram Name</b>	<b>API Description</b>
Delete Formula Header	DELETE_FORMULAHEADER	Deletes formula header information.

---

API Name	Subprogram Name	API Description
Insert Formula Header	INSERT_FORMULA	Inserts formula header information.
Update Formula Header	UPDATE_FORMULAHEADER	Updates formula header information.

The GMD\_FORMULA\_PUB package defines and uses the following INDEX BY table Types

```
TYPE formula_update_hdr_tbl_type IS TABLE OF
GMD_FORMULA_COMMON_PUB.formula_update_rec_type
INDEX BY BINARY_INTEGER;
```

```
TYPE formula_insert_hdr_tbl_type IS TABLE OF
GMD_FORMULA_COMMON_PUB.formula_insert_rec_type
INDEX BY BINARY_INTEGER;
```

#### **GMD\_FORMULA\_DETAIL\_PUB**

API Name	Subprogram Name	API Description
Delete Formula Details	DELETE_FORMULADETAIL	Deletes formula details.
Insert Formula Details	INSERT_FORMULADETAIL	Inserts formula details.
Update Formula Details	UPDATE_FORMULADETAIL	Updates formula details.

The GMD\_FORMULA\_DETAIL\_PUB package defines and uses the following INDEX BY table Types

```
TYPE formula_update_dtl_tbl_type IS TABLE OF
GMD_FORMULA_COMMON_PUB.formula_update_rec_type
INDEX BY BINARY_INTEGER;
```

```
TYPE formula_insert_dtl_tbl_type IS TABLE OF
GMD_FORMULA_COMMON_PUB.formula_insert_rec_type
INDEX BY BINARY_INTEGER;
```

## **GMD\_RECIPE\_HEADER**

<b>API Name</b>	<b>Subprogram Name</b>	<b>API Description</b>
Create Recipe Header	CREATE_RECIPE_HEADER	Inserts recipe header information.
Update Recipe Header	UPDATE_RECIPE_HEADER	Updates recipe header information.
Delete Recipe Header	DELETE_RECIPE_HEADER	Deletes recipe header information.

The GMD\_RECIPE\_HEADER package defines and uses the following custom Record Types and INDEX BY table Types:

```
TYPE FLEX IS RECORD (  
    ATTRIBUTE_CATEGORY      VARCHAR2 (30) ,  
    ATTRIBUTE1              VARCHAR2 (240) ,  
    ATTRIBUTE2              VARCHAR2 (240) ,  
    ATTRIBUTE3              VARCHAR2 (240) ,  
    ATTRIBUTE4              VARCHAR2 (240) ,  
    ATTRIBUTE5              VARCHAR2 (240) ,  
    ATTRIBUTE6              VARCHAR2 (240) ,  
    ATTRIBUTE7              VARCHAR2 (240) ,  
    ATTRIBUTE8              VARCHAR2 (240) ,  
    ATTRIBUTE9              VARCHAR2 (240) ,  
    ATTRIBUTE10             VARCHAR2 (240) ,  
    ATTRIBUTE11             VARCHAR2 (240) ,  
    ATTRIBUTE12             VARCHAR2 (240) ,  
    ATTRIBUTE13             VARCHAR2 (240) ,  
    ATTRIBUTE14             VARCHAR2 (240) ,  
    ATTRIBUTE15             VARCHAR2 (240) ,  
    ATTRIBUTE16             VARCHAR2 (240) ,  
    ATTRIBUTE17             VARCHAR2 (240) ,  
    ATTRIBUTE18             VARCHAR2 (240) ,  
    ATTRIBUTE19             VARCHAR2 (240) ,  
    ATTRIBUTE20             VARCHAR2 (240) ,  
    ATTRIBUTE21             VARCHAR2 (240) ,  
    ATTRIBUTE22             VARCHAR2 (240) ,  
    ATTRIBUTE23             VARCHAR2 (240) ,  
    ATTRIBUTE24             VARCHAR2 (240) ,  
    ATTRIBUTE25             VARCHAR2 (240) ,  
    ATTRIBUTE26             VARCHAR2 (240) ,  
    ATTRIBUTE27             VARCHAR2 (240) ,  
    ATTRIBUTE28             VARCHAR2 (240) ,  
    ATTRIBUTE29             VARCHAR2 (240) ,  
    ATTRIBUTE30             VARCHAR2 (240)  
);
```

```

TYPE UPDATE_FLEX IS RECORD (
    ATTRIBUTE_CATEGORY    VARCHAR2 (30)      ,
    ATTRIBUTE1            VARCHAR2 (240)     ,
    ATTRIBUTE2            VARCHAR2 (240)     ,
    ATTRIBUTE3            VARCHAR2 (240)     ,
    ATTRIBUTE4            VARCHAR2 (240)     ,
    ATTRIBUTE5            VARCHAR2 (240)     ,
    ATTRIBUTE6            VARCHAR2 (240)     ,
    ATTRIBUTE7            VARCHAR2 (240)     ,
    ATTRIBUTE8            VARCHAR2 (240)     ,
    ATTRIBUTE9            VARCHAR2 (240)     ,
    ATTRIBUTE10           VARCHAR2 (240)     ,
    ATTRIBUTE11           VARCHAR2 (240)     ,
    ATTRIBUTE12           VARCHAR2 (240)     ,
    ATTRIBUTE13           VARCHAR2 (240)     ,
    ATTRIBUTE14           VARCHAR2 (240)     ,
    ATTRIBUTE15           VARCHAR2 (240)     ,
    ATTRIBUTE16           VARCHAR2 (240)     ,
    ATTRIBUTE17           VARCHAR2 (240)     ,
    ATTRIBUTE18           VARCHAR2 (240)     ,
    ATTRIBUTE19           VARCHAR2 (240)     ,
    ATTRIBUTE20           VARCHAR2 (240)     ,
    ATTRIBUTE21           VARCHAR2 (240)     ,
    ATTRIBUTE22           VARCHAR2 (240)     ,
    ATTRIBUTE23           VARCHAR2 (240)     ,
    ATTRIBUTE24           VARCHAR2 (240)     ,
    ATTRIBUTE25           VARCHAR2 (240)     ,
    ATTRIBUTE26           VARCHAR2 (240)     ,
    ATTRIBUTE27           VARCHAR2 (240)     ,
    ATTRIBUTE28           VARCHAR2 (240)     ,
    ATTRIBUTE29           VARCHAR2 (240)     ,
    ATTRIBUTE30           VARCHAR2 (240)     ,
);

```

```

TYPE RECIPE_HDR IS RECORD (
    RECIPE_ID                NUMBER(15)
  , RECIPE_DESCRIPTION       VARCHAR2(70)
  , RECIPE_NO                VARCHAR2(32)
  , RECIPE_VERSION           NUMBER(5)
  , USER_ID                  FND_USER.user_id%TYPE
  , USER_NAME                FND_USER.user_name%TYPE
  , OWNER_ORGN_CODE          VARCHAR2(4)
  , CREATION_ORGN_CODE       VARCHAR2(4)
  , OWNER_ORGANIZATION_ID    NUMBER
  , CREATION_ORGANIZATION_ID NUMBER
  , FORMULA_ID               FM_FORM_MST.formula_id%TYPE
  , FORMULA_NO               FM_FORM_MST.formula_no%TYPE
  , FORMULA_VERS             FM_FORM_MST.formula_vers%TYPE
  , ROUTING_ID               NUMBER
  , ROUTING_NO               FM_ROUT_HDR.routing_no%TYPE
  , ROUTING_VERS             FM_ROUT_HDR.routing_vers%TYPE
  , PROJECT_ID               NUMBER(15)
  , RECIPE_STATUS            VARCHAR2(30)      := '100'
  , PLANNED_PROCESS_LOSS     NUMBER           := 0
  , TEXT_CODE                NUMBER(10)
  , DELETE_MARK              NUMBER(5)        := 0
  , CONTIGUOUS_IND           NUMBER
  , ENHANCED_PI_IND          VARCHAR2(1)
  , RECIPE_TYPE              NUMBER
  , CREATION_DATE            DATE
  , CREATED_BY               NUMBER(15)
  , LAST_UPDATED_BY          NUMBER(15)
  , LAST_UPDATE_DATE         DATE
  , LAST_UPDATE_LOGIN        NUMBER(15)
  , OWNER_ID                 NUMBER(15)
  , OWNER_LAB_TYPE           VARCHAR2(4)
  , CALCULATE_STEP_QUANTITY NUMBER(5)
);

TYPE CHARGE_REC IS RECORD (
    RoutingStep_id NUMBER,
    Max_Capacity   NUMBER,
    charge          INTEGER
);

TYPE PROCESS_LOSS_REC IS RECORD (
    qty          NUMBER := 0 ,
    Recipe_id    NUMBER ,
    Formula_id   NUMBER ,
    Routing_id   NUMBER
);

TYPE recipe_tbl IS TABLE OF RECIPE_HDR
INDEX BY BINARY_INTEGER;

TYPE recipe_flex IS TABLE OF FLEX
INDEX BY BINARY_INTEGER;

TYPE recipe_update_flex IS TABLE OF UPDATE_FLEX
INDEX BY BINARY_INTEGER;

TYPE charge_tbl IS TABLE OF CHARGE_REC
INDEX BY BINARY_INTEGER;

```

**GMD\_RECIPE\_DETAIL**

<b>API Name</b>	<b>Subprogram Name</b>	<b>API Description</b>
Create Recipe Customers	CREATE_RECIPE_CUSTOMERS	Creates recipe customers.
Create Recipe Material	CREATE_RECIPE_MTL	Creates an entry in the Recipe Material table.
Create Recipe Process Loss	CREATE_RECIPE_PROCESS_LOSS	Creates recipe process loss.
Create Recipe Validity Rule	CREATE_RECIPE_VR	Creates recipe validity rules.
Recipe Organization Resources	RECIPE_ORGN_RESOURCES	Inserts or updates recipe organization resources.
Recipe Organization Operations	RECIPE_ORGN_OPERATIONS	Inserts or updates recipe organization operations.
Recipe Routing Steps	RECIPE_ROUTING_STEPS	Inserts or updates recipe routing steps.
Update Recipe Customers	UPDATE_RECIPE_CUSTOMERS	Updates recipe customers.
Update Recipe Process Loss	UPDATE_RECIPE_PROCESS_LOSS	Updates recipe process Loss.
Update Recipe Validity Rule	UPDATE_RECIPE_VR	Updates the Recipe Validity Rules table.

The GMD\_RECIPE\_DETAIL package defines and uses the following custom Record Types and INDEX BY table Types:

```

TYPE FLEX IS RECORD (
    ATTRIBUTE_CATEGORY    VARCHAR2 (30) ,
    ATTRIBUTE1            VARCHAR2 (240) DEFAULT NULL,
    ATTRIBUTE2            VARCHAR2 (240) ,
    ATTRIBUTE3            VARCHAR2 (240) ,
    ATTRIBUTE4            VARCHAR2 (240) ,
    ATTRIBUTE5            VARCHAR2 (240) ,
    ATTRIBUTE6            VARCHAR2 (240) ,
    ATTRIBUTE7            VARCHAR2 (240) ,
    ATTRIBUTE8            VARCHAR2 (240) ,
    ATTRIBUTE9            VARCHAR2 (240) ,
    ATTRIBUTE10           VARCHAR2 (240) ,
    ATTRIBUTE11           VARCHAR2 (240) ,
    ATTRIBUTE12           VARCHAR2 (240) ,
    ATTRIBUTE13           VARCHAR2 (240) ,
    ATTRIBUTE14           VARCHAR2 (240) ,
    ATTRIBUTE15           VARCHAR2 (240) ,
    ATTRIBUTE16           VARCHAR2 (240) ,
    ATTRIBUTE17           VARCHAR2 (240) ,
    ATTRIBUTE18           VARCHAR2 (240) ,
    ATTRIBUTE19           VARCHAR2 (240) ,
    ATTRIBUTE20           VARCHAR2 (240) ,
    ATTRIBUTE21           VARCHAR2 (240) ,
    ATTRIBUTE22           VARCHAR2 (240) ,
    ATTRIBUTE23           VARCHAR2 (240) ,
    ATTRIBUTE24           VARCHAR2 (240) ,
    ATTRIBUTE25           VARCHAR2 (240) ,
    ATTRIBUTE26           VARCHAR2 (240) ,
    ATTRIBUTE27           VARCHAR2 (240) ,
    ATTRIBUTE28           VARCHAR2 (240) ,
    ATTRIBUTE29           VARCHAR2 (240) ,
    ATTRIBUTE30           VARCHAR2 (240)
);

```

```

TYPE UPDATE_FLEX IS RECORD (
    ATTRIBUTE_CATEGORY    VARCHAR2 (30)      ,
    ATTRIBUTE1            VARCHAR2 (240)     ,
    ATTRIBUTE2            VARCHAR2 (240)     ,
    ATTRIBUTE3            VARCHAR2 (240)     ,
    ATTRIBUTE4            VARCHAR2 (240)     ,
    ATTRIBUTE5            VARCHAR2 (240)     ,
    ATTRIBUTE6            VARCHAR2 (240)     ,
    ATTRIBUTE7            VARCHAR2 (240)     ,
    ATTRIBUTE8            VARCHAR2 (240)     ,
    ATTRIBUTE9            VARCHAR2 (240)     ,
    ATTRIBUTE10           VARCHAR2 (240)     ,
    ATTRIBUTE11           VARCHAR2 (240)     ,
    ATTRIBUTE12           VARCHAR2 (240)     ,
    ATTRIBUTE13           VARCHAR2 (240)     ,
    ATTRIBUTE14           VARCHAR2 (240)     ,
    ATTRIBUTE15           VARCHAR2 (240)     ,
    ATTRIBUTE16           VARCHAR2 (240)     ,
    ATTRIBUTE17           VARCHAR2 (240)     ,
    ATTRIBUTE18           VARCHAR2 (240)     ,
    ATTRIBUTE19           VARCHAR2 (240)     ,
    ATTRIBUTE20           VARCHAR2 (240)     ,
    ATTRIBUTE21           VARCHAR2 (240)     ,
    ATTRIBUTE22           VARCHAR2 (240)     ,
    ATTRIBUTE23           VARCHAR2 (240)     ,
    ATTRIBUTE24           VARCHAR2 (240)     ,
    ATTRIBUTE25           VARCHAR2 (240)     ,
    ATTRIBUTE26           VARCHAR2 (240)     ,
    ATTRIBUTE27           VARCHAR2 (240)     ,
    ATTRIBUTE28           VARCHAR2 (240)     ,
    ATTRIBUTE29           VARCHAR2 (240)     ,
    ATTRIBUTE30           VARCHAR2 (240)     ,
);

```

```

TYPE RECIPE_DTL IS RECORD (
    RECIPE_ID                NUMBER
    RECIPE_NO                VARCHAR2(32)
    RECIPE_VERSION           NUMBER
    USER_ID                  FND_USER.USER_ID%TYPE
    USER_NAME                 FND_USER.USER_NAME%TYPE
    ORGN_CODE                 VARCHAR2(4)
    ORGANIZATION_ID          NUMBER,
    SITE_ID                   NUMBER,
    ORG_ID                    NUMBER,
    RECIPE_PROCESS_LOSS_ID   NUMBER
    PROCESS_LOSS              NUMBER
    ACTIVITY_FACTOR           NUMBER
    MAX_CAPACITY              NUMBER
    MIN_CAPACITY              NUMBER
    PROCESS_PARAMETER_1      VARCHAR2(16)
    PROCESS_PARAMETER_2      VARCHAR2(16)
    PROCESS_PARAMETER_3      VARCHAR2(16)
    PROCESS_PARAMETER_4      VARCHAR2(16)
    PROCESS_PARAMETER_5      VARCHAR2(16)
    CUSTOMER_ID               NUMBER
    CUSTOMER_NO               VARCHAR2(32)
    ROUTINGSTEP_ID           NUMBER
    OPRN_LINE_ID              NUMBER
    RESOURCES                  VARCHAR2(16)
    PROCESS_UM                 VARCHAR2(25)
    USAGE_UOM                  gmd_recipe_orgn_resources.USAGE_UOM%TYPE
    RESOURCE_USAGE            gmd_recipe_orgn_resources.RESOURCE_USAGE%TYPE,
    PROCESS_QTY                gmd_recipe_orgn_resources.PROCESS_QTY%TYPE
    STEP_QTY                    gmd_recipe_routing_steps.STEP_QTY%TYPE,
    MASS_QTY                    gmd_recipe_routing_steps.MASS_QTY%TYPE,
    MASS_REF_UOM                gmd_recipe_routing_steps.MASS_REF_UOM%TYPE,
    VOLUME_QTY                  gmd_recipe_routing_steps.VOLUME_QTY%TYPE,
    VOLUME_REF_UOM              gmd_recipe_routing_steps.VOLUME_REF_UOM%TYPE,
    MASS_STD_UOM                gmd_recipe_routing_steps.MASS_STD_UOM%TYPE,
    VOLUME_STD_UOM              gmd_recipe_routing_steps.VOLUME_STD_UOM%TYPE,
    TEXT_CODE                   NUMBER
    DELETE_MARK                 NUMBER
    CONTIGUOUS_IND              NUMBER
    CREATION_DATE               DATE
    CREATED_BY                   NUMBER
    LAST_UPDATED_BY              NUMBER
    LAST_UPDATE_DATE             DATE
    LAST_UPDATE_LOGIN            NUMBER
    ITEM_ID                      NUMBER
    OWNER_ID                     NUMBER
);

TYPE RECIPE_VR IS RECORD (
    RECIPE_VALIDITY_RULE_ID   NUMBER
    ,RECIPE_ID                 NUMBER
    ,RECIPE_NO                  VARCHAR2(32)
    ,RECIPE_VERSION            NUMBER

```

```

,USER_ID          FND_USER.USER_ID%TYPE
,USER_NAME       FND_USER.USER_NAME%TYPE
,ORGN_CODE       VARCHAR2(4)
,INVENTORY_ITEM_ID NUMBER
,REVISION        VARCHAR2(3)
,ITEM_NO         VARCHAR2(40)
,RECIPE_USE      VARCHAR2(30)
,PREFERENCE      NUMBER
,START_DATE     DATE
,END_DATE       DATE
,MIN_QTY        NUMBER
,MAX_QTY        NUMBER
,STD_QTY        NUMBER
,DETAIL_UOM     VARCHAR2(25)
,INV_MIN_QTY    NUMBER
,INV_MAX_QTY    NUMBER
,TEXT_CODE      NUMBER
,CREATED_BY     NUMBER
,CREATION_DATE  DATE
,LAST_UPDATED_BY NUMBER
,LAST_UPDATE_DATE DATE
,LAST_UPDATE_LOGIN NUMBER
,DELETE_MARK    NUMBER := 0
,PLANNED_PROCESS_LOSS NUMBER
,VALIDITY_RULE_STATUS VARCHAR2(30)
,ORGANIZATION_ID NUMBER );

```

```

TYPE RECIPE_MATERIAL IS RECORD (
  RECIPE_ID          NUMBER ,
  RECIPE_NO         VARCHAR2(32) ,
  RECIPE_VERSION    NUMBER ,
  USER_ID           FND_USER.USER_ID%TYPE ,
  USER_NAME        FND_USER.USER_NAME%TYPE ,
  FORMULALINE_ID   NUMBER ,
  TEXT_CODE        NUMBER ,
  CREATION_DATE    DATE ,
  CREATED_BY       NUMBER ,
  LAST_UPDATED_BY  NUMBER ,
  LAST_UPDATE_DATE DATE ,
  LAST_UPDATE_LOGIN NUMBER ,
  ROUTINGSTEP_ID   NUMBER
);

```

```

TYPE recipe_detail_tbl IS TABLE OF RECIPE_DTL
INDEX BY BINARY_INTEGER;

```

```

TYPE recipe_flex IS TABLE OF FLEX
INDEX BY BINARY_INTEGER;

```

```

TYPE recipe_update_flex IS TABLE OF UPDATE_FLEX
INDEX BY BINARY_INTEGER;

```

```

TYPE recipe_vr_tbl IS TABLE OF RECIPE_VR
INDEX BY BINARY_INTEGER;

```

```

TYPE recipe_mtl_tbl IS TABLE OF RECIPE_MATERIAL
INDEX BY BINARY_INTEGER;

```

## **GMD\_ROUTINGS\_PUB**

<b>API Name</b>	<b>Subprogram Name</b>	<b>API Description</b>
Undelete Routing	UNDELETE_ROUTING	Undeletes a deleted routing after validation to ensure that the deleted routing exists in the database.
Delete Routing	DELETE_ROUTING	Deletes routings to prevent further updates to routing.
Insert Routing	INSERT_ROUTING	Inserts new routings
Update Routing	UPDATE_ROUTING	Updates routings.

The GMD\_ROUTINGS\_PUB package defines and uses the following custom PL/SQL Record Types and INDEX BY table Types

```
TYPE gmd_routings_step_tab IS TABLE OF fm_rout_dtl%ROWTYPE
    INDEX BY BINARY_INTEGER;

TYPE gmd_routings_step_dep_tab IS TABLE OF fm_rout_dep%ROWTYPE
    INDEX BY BINARY_INTEGER;

TYPE update_table_rec_type IS RECORD
(
    p_col_to_update VARCHAR2(240)
    ,p_value VARCHAR2(240)
);

TYPE update_tbl_type IS TABLE OF update_table_rec_type INDEX BY
BINARY_INTEGER;
```

## **GMD\_ROUTING\_STEPS\_PUB**

<b>API Name</b>	<b>Subprogram Name</b>	<b>API Description</b>
Delete Routing Steps procedure	DELETE_ROUTING_STEP	Deletes routing steps in the Routing Details table.
Delete Step Dependency procedure	DELETE_STEP_DEPENDENCIES	Deletes routing step dependencies in the Step Dependency table.

<b>API Name</b>	<b>Subprogram Name</b>	<b>API Description</b>
Insert Routing Steps procedure	INSERT_ROUTING_STEPS	Inserts routing steps in the Routing Details table.
Insert Step Dependency procedure	INSERT_STEP_DEPENDENCIES	Inserts step dependencies in the Step Dependency table.
Update Routing Steps procedure	UPDATE_ROUTING_STEPS	Updates routing steps in the Routing Details table.
Update Step Dependency procedure	UPDATE_STEP_DEPENDENCIES	Updates step dependencies in the Step Dependency table.

#### ***GMD\_OPERATIONS\_PUB***

<b>API Name</b>	<b>Subprogram Name</b>	<b>API Description</b>
Delete Operation	DELETE_OPERATION	Deletes an operation in the Operations table.
Insert Operation	INSERT_OPERATION	Inserts a new operation.
Update Operation	UPDATE_OPERATION	Updates an operation in the Operations table.

The GMD\_OPERATIONS\_PUB package defines and uses the following custom PL/SQL Record Types and INDEX BY table Types:

```
TYPE gmd_oprn_activities_tbl_type IS TABLE OF
gmd_operation_activities%ROWTYPE
INDEX BY BINARY_INTEGER;
```

```
TYPE update_table_rec_type IS RECORD
(
p_col_to_update VARCHAR2(30)
, p_value VARCHAR2(30)
);
```

```
TYPE update_tbl_type IS TABLE OF update_table_rec_type INDEX BY
BINARY_INTEGER;
```

### ***GMD\_OPERATION\_RESOURCES\_PUB***

---

<b>API Name</b>	<b>Subprogram Name</b>	<b>API Description</b>
Create Operation Resources	INSERT_OPERATION_RESOURCES	Inserts a new operation resource.
Modify Operation Resources	UPDATE_OPERATION_RESOURCES	Updates an operation resource.
Delete Operation Resources	DELETE_OPERATION_RESOURCES	Deletes an operation resource.

---

The GMD\_OPERATION\_RESOURCES\_PUB package defines and uses the following custom PL/SQL Record Types and INDEX BY table Types:

```

TYPE resources_rec_type IS RECORD
(
  OPRN_LINE_ID
gmd_operation_resources.oprn_line_id%TYPE
  ,RESOURCES
gmd_operation_resources.resources%TYPE
  ,RESOURCE_USAGE
gmd_operation_resources.resource_usage%TYPE
  ,RESOURCE_COUNT
gmd_operation_resources.resource_count%TYPE  DEFAULT 1
  ,RESOURCE_USAGE_UOM
gmd_operation_resources.usage_um%TYPE
  ,PROCESS_QTY
gmd_operation_resources.process_qty%TYPE
  ,RESOURCE_PROCESS_UOM
gmd_operation_resources.process_uom%TYPE
  ,PRIM_RSRC_IND
gmd_operation_resources.prim_rsrc_ind%TYPE
  ,SCALE_TYPE
gmd_operation_resources.scale_type%TYPE  DEFAULT 1
  ,COST_ANALYSIS_CODE
gmd_operation_resources.cost_analysis_code%TYPE
  ,COST_CMPNTCLS_ID
gmd_operation_resources.cost_cmpntcls_id%TYPE
  ,OFFSET_INTERVAL
gmd_operation_resources.offset_interval%TYPE  DEFAULT 0
  ,MIN_CAPACITY
gmd_operation_resources.min_capacity%TYPE
  ,MAX_CAPACITY
gmd_operation_resources.max_capacity%TYPE
  ,RESOURCE_CAPACITY_UOM
gmd_operation_resources.capacity_uom%TYPE
  ,ATTRIBUTE_CATEGORY
gmd_operation_resources.attribute_category%TYPE
  ,ATTRIBUTE1
gmd_operation_resources.attribute1%TYPE
  ,ATTRIBUTE2
gmd_operation_resources.attribute2%TYPE
  ,ATTRIBUTE3
gmd_operation_resources.attribute3%TYPE
  ,ATTRIBUTE4
gmd_operation_resources.attribute4%TYPE
  ,ATTRIBUTE5
gmd_operation_resources.attribute5%TYPE
  ,ATTRIBUTE6
gmd_operation_resources.attribute6%TYPE
  ,ATTRIBUTE7
gmd_operation_resources.attribute7%TYPE
  ,ATTRIBUTE8
gmd_operation_resources.attribute8%TYPE
  ,ATTRIBUTE9
gmd_operation_resources.attribute9%TYPE
  ,ATTRIBUTE10
gmd_operation_resources.attribute10%TYPE
  ,ATTRIBUTE11
gmd_operation_resources.attribute11%TYPE
  ,ATTRIBUTE12
gmd_operation_resources.attribute12%TYPE
  ,ATTRIBUTE13
gmd_operation_resources.attribute13%TYPE
  ,ATTRIBUTE14
gmd_operation_resources.attribute14%TYPE

```

```

,ATTRIBUTE15
gmd_operation_resources.attribute15%TYPE
,ATTRIBUTE16
gmd_operation_resources.attribute16%TYPE
,ATTRIBUTE17
gmd_operation_resources.attribute17%TYPE
,ATTRIBUTE18
gmd_operation_resources.attribute18%TYPE
,ATTRIBUTE19
gmd_operation_resources.attribute19%TYPE
,ATTRIBUTE20
gmd_operation_resources.attribute20%TYPE
,ATTRIBUTE21
gmd_operation_resources.attribute21%TYPE
,ATTRIBUTE22
gmd_operation_resources.attribute22%TYPE
,ATTRIBUTE23
gmd_operation_resources.attribute23%TYPE
,ATTRIBUTE24
gmd_operation_resources.attribute24%TYPE
,ATTRIBUTE25
gmd_operation_resources.attribute25%TYPE
,ATTRIBUTE26
gmd_operation_resources.attribute26%TYPE
,ATTRIBUTE27
gmd_operation_resources.attribute27%TYPE
,ATTRIBUTE28
gmd_operation_resources.attribute28%TYPE
,ATTRIBUTE29
gmd_operation_resources.attribute29%TYPE
,ATTRIBUTE30
gmd_operation_resources.attribute30%TYPE
,PROCESS_PARAMETER_1
gmd_operation_resources.process_parameter_1%TYPE
,PROCESS_PARAMETER_2
gmd_operation_resources.process_parameter_2%TYPE
,PROCESS_PARAMETER_3
gmd_operation_resources.process_parameter_3%TYPE
,PROCESS_PARAMETER_4
gmd_operation_resources.process_parameter_4%TYPE
,PROCESS_PARAMETER_5
gmd_operation_resources.process_parameter_5%TYPE
,ACTIVITY
gmd_operation_activities.activity%TYPE
);

TYPE gmd_oprn_resources_tbl_type IS TABLE OF resources_rec_type INDEX BY
BINARY_INTEGER;

TYPE update_table_rec_type IS RECORD
(
  p_col_to_update VARCHAR2(30)
, p_value VARCHAR2(30)
);
TYPE update_tbl_type IS TABLE OF update_table_rec_type INDEX BY
BINARY_INTEGER;

```

### **GMD\_ACTIVITIES\_PUB**

<b>API Name</b>	<b>Subprogram Name</b>	<b>API Description</b>
Insert Operation Activity	INSERT_OPERATION_ACTIVITY	Inserts a new operation activity.
Update Operation Activity	UPDATE_OPERATION_ACTIVITY	Updates an operation activity.
Delete Operation Activity	DELETE_OPERATION_ACTIVITY	Deletes an operation activity.

The GMD\_ACTIVITIES\_PUB package defines and uses the following custom PL/SQL Record Types and INDEX BY table Types:

```
TYPE activities_rec_type IS RECORD
(
  ACTIVITY                gmd_activities.activity%type
  ,COST_ANALYSIS_CODE     gmd_activities.cost_analysis_code%type
  ,DELETE_MARK            gmd_activities.delete_mark%type
  DEFAULT 0
  ,TEXT_CODE              gmd_activities.text_code%type
  ,TRANS_CNT              gmd_activities.trans_cnt%type
  ,ACTIVITY_DESC          gmd_activities.activity_desc%type
);

TYPE gmd_activities_tbl_type IS TABLE OF activities_rec_type INDEX BY
BINARY_INTEGER;

TYPE update_table_rec_type IS RECORD
(
  p_col_to_update         VARCHAR2(80)
  , p_value                VARCHAR2(80)
);

TYPE update_tbl_type IS TABLE OF update_table_rec_type INDEX BY
BINARY_INTEGER;
```

### **GMD\_STATUS\_PUB**

<b>API Name</b>	<b>Subprogram Name</b>	<b>API Description</b>
Change Status	MODIFY_STATUS	Modifies the entity status.

**GMD\_SUBSTITUTION\_PUB**

---

<b>API Name</b>	<b>Subprogram Name</b>	<b>API Description</b>
Creating an Item Substitution List	Create_substitution	Creates a substitution header, detail, and formula association.
Creating a Formula Association to the Item Substitution List	Create_formula_association	Creates a formula association.
Updating a Substitution List Header	Update_substitution_header	Updates an item substitution list header.
Updating Substitution List Details	Update_substitution_detail	Updates substitution list line details.
Deleting a Formula Association to an Item Substitution List	Delete_formula_association	Deletes a formula association to an item substitution list.

---

The GMD\_SUBSTITUTION\_PUB package defines and uses the following custom PL/SQL Record Types and INDEX BY table Types:

```

TYPE update_table_rec_type IS RECORD
(
  p_col_to_update      VARCHAR2(240)
, p_value              VARCHAR2(240)
);

TYPE update_tbl_type IS TABLE OF update_table_rec_type INDEX BY
BINARY_INTEGER;

TYPE gmd_substitution_hdr_rec_type IS RECORD
(
  SUBSTITUTION_NAME
gmd_item_substitution_hdr_b.substitution_name%TYPE
, SUBSTITUTION_DESCRIPTION
gmd_item_substitution_hdr_tl.substitution_description%TYPE
, SUBSTITUTION_VERSION
gmd_item_substitution_hdr_b.substitution_version%TYPE
, ORIGINAL_INVENTORY_ITEM_ID
gmd_item_substitution_hdr_b.original_inventory_item_id%TYPE
, ORIGINAL_ITEM_NO      VARCHAR2(1000)
, ORIGINAL_QTY
gmd_item_substitution_hdr_b.original_qty%TYPE
, PREFERENCE            gmd_item_substitution_hdr_b.preference%TYPE
, START_DATE           DATE := trunc(SYSDATE)
, END_DATE              DATE
, OWNER_ORGANIZATION_ID
gmd_item_substitution_hdr_b.owner_organization_id%TYPE
, REPLACEMENT_UOM_TYPE
gmd_item_substitution_hdr_b.replacement_uom_type%TYPE
, ATTRIBUTE_CATEGORY
gmd_item_substitution_hdr_b.attribute_category%TYPE
, ATTRIBUTE1           gmd_item_substitution_hdr_b.attribute1%TYPE
, ATTRIBUTE2           gmd_item_substitution_hdr_b.attribute2%TYPE
, ATTRIBUTE3           gmd_item_substitution_hdr_b.attribute3%TYPE
, ATTRIBUTE4           gmd_item_substitution_hdr_b.attribute4%TYPE
, ATTRIBUTE5           gmd_item_substitution_hdr_b.attribute5%TYPE
, ATTRIBUTE6           gmd_item_substitution_hdr_b.attribute6%TYPE
, ATTRIBUTE7           gmd_item_substitution_hdr_b.attribute7%TYPE
, ATTRIBUTE8           gmd_item_substitution_hdr_b.attribute8%TYPE
, ATTRIBUTE9           gmd_item_substitution_hdr_b.attribute9%TYPE
, ATTRIBUTE10
gmd_item_substitution_hdr_b.attribute10%TYPE
, ATTRIBUTE11
gmd_item_substitution_hdr_b.attribute11%TYPE
, ATTRIBUTE12
gmd_item_substitution_hdr_b.attribute12%TYPE
, ATTRIBUTE13
gmd_item_substitution_hdr_b.attribute13%TYPE
, ATTRIBUTE14
gmd_item_substitution_hdr_b.attribute14%TYPE
, ATTRIBUTE15
gmd_item_substitution_hdr_b.attribute15%TYPE
, ATTRIBUTE16
gmd_item_substitution_hdr_b.attribute16%TYPE
, ATTRIBUTE17
gmd_item_substitution_hdr_b.attribute17%TYPE
, ATTRIBUTE18
gmd_item_substitution_hdr_b.attribute18%TYPE
, ATTRIBUTE19
gmd_item_substitution_hdr_b.attribute19%TYPE
, ATTRIBUTE20

```

```

gmd_item_substitution_hdr_b.attribute20%TYPE
, ATTRIBUTE21
gmd_item_substitution_hdr_b.attribute21%TYPE
, ATTRIBUTE22
gmd_item_substitution_hdr_b.attribute22%TYPE
, ATTRIBUTE23
gmd_item_substitution_hdr_b.attribute23%TYPE
, ATTRIBUTE24
gmd_item_substitution_hdr_b.attribute24%TYPE
, ATTRIBUTE25
gmd_item_substitution_hdr_b.attribute25%TYPE
, ATTRIBUTE26
gmd_item_substitution_hdr_b.attribute26%TYPE
, ATTRIBUTE27
gmd_item_substitution_hdr_b.attribute27%TYPE
, ATTRIBUTE28
gmd_item_substitution_hdr_b.attribute28%TYPE
, ATTRIBUTE29
gmd_item_substitution_hdr_b.attribute29%TYPE
, ATTRIBUTE30
gmd_item_substitution_hdr_b.attribute30%TYPE
, CREATION_DATE
gmd_item_substitution_hdr_b.creation_date%TYPE
, CREATED_BY          gmd_item_substitution_hdr_b.created_by%TYPE
, LAST_UPDATE_DATE
gmd_item_substitution_hdr_b.last_update_date%TYPE
, LAST_UPDATED_BY
gmd_item_substitution_hdr_b.last_updated_by%TYPE
, LAST_UPDATE_LOGIN
gmd_item_substitution_hdr_b.last_update_login%TYPE
);

TYPE gmd_substitution_dtl_rec_type IS RECORD
(
    INVENTORY_ITEM_ID
gmd_item_substitution_dtl.inventory_item_id%TYPE
, ITEM_NO          VARCHAR2(1000)
, UNIT_QTY          gmd_item_substitution_dtl.unit_qty%TYPE
, DETAIL_UOM        gmd_item_substitution_dtl.detail_uom%TYPE
, CREATION_DATE
gmd_item_substitution_dtl.creation_date%TYPE
, CREATED_BY          gmd_item_substitution_dtl.created_by%TYPE
, LAST_UPDATE_DATE
gmd_item_substitution_dtl.last_update_date%TYPE
, LAST_UPDATED_BY
gmd_item_substitution_dtl.last_updated_by%TYPE
, LAST_UPDATE_LOGIN
gmd_item_substitution_dtl.last_update_login%TYPE
);

TYPE gmd_fmsubstitution_rec_type IS RECORD
(
    FORMULA_ID          gmd_formula_substitution.formula_id%TYPE
, FORMULA_NO          fm_form_mst_b.formula_no%TYPE
, FORMULA_VERS        fm_form_mst_b.formula_vers%TYPE
, CREATION_DATE        gmd_formula_substitution.creation_date%TYPE
, CREATED_BY          gmd_formula_substitution.created_by%TYPE
, LAST_UPDATE_DATE
gmd_formula_substitution.last_update_date%TYPE
, LAST_UPDATED_BY
gmd_formula_substitution.last_updated_by%TYPE

```

```

, LAST_UPDATE_LOGIN
gmd_formula_substitution.last_update_login%TYPE
);

TYPE gmd_formula_substitution_tab IS TABLE OF
gmd_fmsubstitution_rec_type
INDEX BY BINARY_INTEGER;

```

### **GMD\_ITEM\_TECHNICAL\_DATA\_PUB**

<b>API Name</b>	<b>Subprogram Name</b>	<b>API Description</b>
Insert item technical data	INSERT_ITEM_TECHNICAL_DAT A	Inserts the item technical data.
Update item technical data	UPDATE_ITEM_TECHNICAL_DAT A	Updates the item technical data.
Delete item technical data	DELETE_ITEM_TECHNICAL_DAT A	Deletes item technical data.
Fetch item technical data	FETCH_ITEM_TECHNICAL_DATA	Gets item technical data.

The GMD\_ITEM\_TECHNICAL\_DATA\_PUB package defines and uses the following custom PL/SQL Record Types and INDEX BY table Types:

```

TYPE technical_data_hdr_rec IS RECORD
(Tech_Data_Id          gmd_technical_data_hdr.Tech_Data_Id%TYPE,
 Organization_Id       gmd_technical_data_hdr.Organization_Id%TYPE,
 Inventory_Item_Id     gmd_technical_data_hdr.Inventory_Item_Id%TYPE,
 Lot_Number            gmd_technical_data_hdr.lot_number%TYPE,
 Lot_Organization_Id  gmd_technical_data_hdr.Lot_Organization_Id%TYPE,
 Formula_Id            gmd_technical_data_hdr.Formula_Id%TYPE,
 Batch_Id              gmd_technical_data_hdr.Batch_Id%TYPE,
 Text_Code             gmd_technical_data_hdr.Text_Code%TYPE );

TYPE technical_data_dtl_rec IS RECORD
(Tech_Parm_Id          gmd_technical_data_dtl.Tech_Parm_Id%TYPE,
 Sort_Seq              gmd_technical_data_dtl.Sort_Seq%TYPE,
 Tech_Data             VARCHAR2(2000),
 Text_Code             gmd_technical_data_dtl.Text_Code%TYPE);

TYPE technical_data_dtl_tab IS TABLE OF technical_data_dtl_rec
INDEX BY BINARY_INTEGER;

```

**GMD\_LCF\_UTIL**

---

<b>API Name</b>	<b>Subprogram Name</b>	<b>API Description</b>
Get cost	GMD_LCF_EXTERNAL_COST	This function is called when external cost is chosen in the Technical Parameters window to get the cost function. When you select the Cost Function as the external cost functionality, then GMD_LCF_UTIL.Get_Cost is used. This package is modified to pick costs from external cost entities.

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