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# Table of contents

1. The Engineering Data Management (EDM) module in BaanERP
   1.1 The EDM concept as applied in BaanERP
   1.2 EDM’s functional procedures
   1.3 The modules related to EDM
   1.4 The functionality of EDM’s business objects
   1-1

2. The procedure to create an item using EDM
   2.1 How to create an item using EDM
   2.2 To define document sizes and locations
   2.3 To define engineering item groups
   2-1

3. The procedure to create a Bill of Material using EDM
   3-1

4. The procedures to manage engineering data with engineering change orders (ECO)
   4.1 Semi-Automatic ECO
   4.2 Automatic ECO
   4.3 ECO Approval Process
   4.4 ECO Statuses
   4-1
About this document

Read this document to get an overview of the Engineering Data Management module’s functionality and to learn more about the functional procedures that are related to EDM.

You need no detailed knowledge of the BaanERP software to read this document. However, you are more likely to understand the contents if you are familiar with:

- The overall structure of packages, modules, and sessions within the BaanERP software
- The general business procedures used in everyday business practice
- The basic concepts of enterprise resource planning

For detailed descriptions of the module’s sessions, refer to BaanERP’s comprehensive online Help.

To use this document

Read Chapter 1, The Engineering Data Management (EDM) module in BaanERP, if you want to know more about:

- The EDM module’s functionality
- The relationship of the EDM module with other modules
- The functionality of the EDM module’s business objects

Read the remaining chapters if you want to know more about:

- The sessions in the procedures
- The results of the procedures
- The sessions that are related to the procedures
### Acronyms used in this document

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>BO</td>
<td>Business object</td>
</tr>
<tr>
<td>BOM</td>
<td>Bill of material</td>
</tr>
<tr>
<td>CAD</td>
<td>Computer-Aided Design</td>
</tr>
<tr>
<td>CCP</td>
<td>Central Calendars and Planning</td>
</tr>
<tr>
<td>CF</td>
<td>Baan Configurator</td>
</tr>
<tr>
<td>CST</td>
<td>Production Order Costing</td>
</tr>
<tr>
<td>CP</td>
<td>Baan Enterprise Planning</td>
</tr>
<tr>
<td>CPR</td>
<td>Cost price accounting</td>
</tr>
<tr>
<td>EBOM</td>
<td>Engineering bill of material</td>
</tr>
<tr>
<td>ECO</td>
<td>Engineering Change Order</td>
</tr>
<tr>
<td>EDM</td>
<td>Engineering Data Management</td>
</tr>
<tr>
<td>E-item</td>
<td>Engineering item</td>
</tr>
<tr>
<td>ERP</td>
<td>Enterprise Resource Planning</td>
</tr>
<tr>
<td>GRT</td>
<td>Product Classification</td>
</tr>
<tr>
<td>IBD</td>
<td>Item Base Data</td>
</tr>
<tr>
<td>IPD</td>
<td>Item Production Data</td>
</tr>
<tr>
<td>PCS</td>
<td>Project Control</td>
</tr>
<tr>
<td>PUR</td>
<td>Purchase</td>
</tr>
<tr>
<td>WH</td>
<td>Baan Warehousing</td>
</tr>
<tr>
<td>ROU</td>
<td>Routing</td>
</tr>
<tr>
<td>RPT</td>
<td>Repetitive Manufacturing</td>
</tr>
<tr>
<td>SFC</td>
<td>Shop Floor Control</td>
</tr>
<tr>
<td>XCH</td>
<td>Baan Exchange</td>
</tr>
</tbody>
</table>

### Legend

- **Engineering Items**
  - tiedm0510m000: Mandatory session
  - tiedm0103m000: Optional session
- **Engineering Item Data**
  - ECO control: Mandatory business object
  - Optional business object
- **Package**
- **Module**
- **The module that is described in this module procedure**
1. The Engineering Data Management (EDM) module in BaanERP

- The EDM concept as applied in BaanERP
- EDM’s functional procedures
- The modules related to EDM
- The functionality of business objects in EDM

1.1 The EDM concept as applied in BaanERP

When you manufacture a product, you not only need to keep track of all the component items used to make that product but also all the prototypes and obsolete items that you develop (see Figure 4 in Section 2.1). You must also be able to copy these development items to actual production items. Engineering Data Management (EDM) provides you with tools to carry out the procedures to manage development items. If you develop a change to a component item, you can use EDM to implement that change in every production item in which the component occurs.

You can either individually copy engineering items and their bills of materials to production items and production BOMs, or you can carry out several actions at the same time using engineering change orders (ECOs).

Figure 1 shows how the EDM module is positioned within BaanERP.

![Figure 1, Position of EDM in BaanERP](image)
1.2 EDM’s functional procedures

To create an item in EDM  EDM contains a functional procedure that enables you to create a manufactured or purchased item. To perform this function first create a development item, and take that item through the various stages of development (see Figure 4, E-item revisions). Next, copy the revision that you want to manufacture to a new or existing manufactured or purchased item.

To create a BOM in EDM  You can use EDM to create a production BOM. To perform this function first create an Engineering BOM (EBOM), and then copy the EBOM to a new or existing production BOM. An EBOM can have both E-items and production items as components.

To manage engineering data using ECOs  When you copy E-items to production items or EBOMs to production BOMs, you can individually copy each item or BOM (using the above procedures), or you can simultaneously carry out multiple copying actions. You perform this function with Engineering Change Orders (ECOs), which can be used in an automatic or semi automatic mode.

1.3 The modules related to EDM

Figure 2 shows the modules that are related to EDM.

![Figure 2, The modules related to EDM](image)

Because EDM is used to manage development data, it is not directly related to many other modules. Item or BOM data created in EDM is first exported to the Bills of Material (BOM) and Item Base Data (IBD) modules and then to the Item Production Data (IPD) or Purchase Control (PUR) modules. Items in IBD can also be used to make an EBOM. However, you can import CAD drawings using the Baan Exchange (XCH) module.

An engineering item cannot have a Project segment. However, you can link a Project to an E-item and, after it is copied to a production item, the project is the default value in the Project segment of the copied item.
1.4 The functionality of EDM’s business objects

EDM contains the following business objects:

- Engineering Master Data
- Engineering Items and EBOMs
- Engineering Item relationships
- Copy Engineering Items and EBOMs
- ECO Master Data
- ECO Data
- ECO Control

Figure 3 shows the main flow between the business objects (BOs). The use of each of these BOs is described after the figure.

![Diagram of the relationship between BOS in EDM](image)

*Figure 3, The relationship between BOS in EDM*
Engineering Item Data
Use the engineering Master Data BO to:
- Define drawing sizes and locations
- Define Engineering Item Groups

E-items and EBOMs
Use the E-items and EBOMs to:
- Define, edit, and print Engineering Item (E-item) Revisions.
- Define, edit, and print Engineering Bills of Material (EBOMs)
- Archive E-items and EBOMs

Engineering Item relationships
Use this BO to define and edit links between E-item revisions and production items and to specify the method of updating the link (that is, if the link is updated, frozen, or broken).

Copy E-Items and EBOMs
Use the copy E-items and EBOMs to:
- Copy E-items to production items
- Copy EBOMs to production BOMs
- Generate multilevel EBOMs
- Check the consistency between E-item revisions and production items
- Check the consistency between EBOMs and production BOMs

ECO Master Data
Use ECO Master Data BO to:
- Define ECO procedures and their steps
- Define reasons for using a ECO

ECO Data
Use ECO Data BO:
- Define the actions that an ECO will carry out
- Define the items that the ECO will affect

ECO Control
Use the ECO Control BO to:
- Manage the ECO approval process
- Process the changes specified in ECO
- Generate EBOMs with ECOs
- Finalize copying E-items and EBOMs
This chapter describes:

- The main procedure, especially the way to create an engineering item and copy it to a production item (IBD). If you want to copy several items at once, use an ECO procedure (see Chapter 4).
- The sessions that are related to the main procedure:
  - To create engineering item groups
  - To manage engineering drawings

2.1 How to create an item using EDM

EDM manages items using different revisions of each item, which enables you to develop the design of an item and copy the results to a production item.

The procedure results in a series of development items (E-item revisions), of which one is copied to an actual production (IBD) item.

Figure 4, Engineering Item Revisions

The procedure’s results

The procedure results in a series of development items (E-item revisions), of which one is copied to an actual production (IBD) item.
Figure 5 shows the steps in the procedure.

![Diagram](image)

**Figure 5, The procedure to create an Item in EDM**

The procedure consists of the following steps.

**Step 1  Engineering Items (tiedm0510m000)**

Use this step to create a new E-item. Enter the details in the Engineering Items (tiedm0510m000) details session. You must also assign the E-Item to an E-Item group (see Section 2.3). The new E-item contains basic data (for example, size and weight), but does not contain the following data:

- Effective date
- Expiry date
- Drawings
Step 2  E-item revisions (tiedm1500m000)

Create a revision for the E-item. Revisions are versions of items, each version being replaced by a new version during successive stages in development (see Figure 4). You can create new revisions by copying existing revisions. Revisions do not have to be physical items; they can be a document.

You can attach a graphic file to the revision in this step. The folder (directory) that you use for storing graphic files can be defined in the EDM Parameters (tiedm0100s000) session.

An E-item revision can have one of three statuses:

- Not Released
- Released
- Canceled

A Released revision can be reset to Not Released, but not (directly) Canceled.

Step 3  Modify Revisions?

When you develop new versions of your engineering item, you can define them as new revisions. When you are ready to use a revision as a production item, you must release the revision.

Step 4  E-item / Item Relationship (tiedm1501m000)

Before you can copy your released E-item revision to a production item, you must form a relationship (that is, a link) between the revision and the item. You can either make this relationship with an existing item, or enter a new item. If the item does not already exist, BaanERP will create it in the next step (if you answer Yes when prompted).

This session is optional. You can use Step 5 to automatically create the relationships.

Step 5  Copy E-item to Item (tiedm1201m000)

Use this step to copy the data that defines your E-item revision to a new or existing production item. If the item does not exist, BaanERP will create it.

Step 6  E-item and Item Consistency (tiedm1521m000)

You can use this optional step to check that basic data of the new or revised production item is the same as the original engineering item.

Step 7  Item Base Data (IBD)

The new or existing item that you have created or modified is stored in IBD. You can then use this item in Item Production Data (IPD) for manufactured items or Purchase Control (PUR) for purchase items. For manufactured items, you must also define or copy a bill of material (see Chapter 3). After the item is stored in IBD, you can define other data such as ordering data and warehouse data.
2.2 To define document sizes and locations

An engineering item revision can be either a physical item or a document (Figure 4) that is either a drawing or a set of instructions accompany the E-item. EDM provides two optional steps to manage documents, as you can see in Figure 6.

**Figure 6, Document management**

**Step A  Drawing sizes (tiedm0102m000)**

You can use this step to define drawing sizes (for example, A4). In the Engineering Items (tiedm0510m000) session, you can define to which defined size the drawing conforms.

**Step B  Drawing Locations (tiedm0103m000)**

You can use this step to define drawing locations (for example, Cupboard in Room 101, Top Left A723). In the Engineering Item Revisions (tiedm1500m000) session, you can define in which of the defined locations a drawing is stored.

In the EDM Parameters (tiedm0100s000) session, you can define the folder where EDM graphic files are stored (for example, C:\EDM\gif).

You can also attach a graphic file to an E-Item revision (see Step 2 of Chapter 2, The procedure to create an item using EDM).
2.3 To define engineering item groups

If you have large numbers of engineering items, the easiest way to keep track of them is if you place related E-items in the same group. You must define these groups in the Engineering Item Groups (tiedm0101m000) session (see Step C, in Figure 7, below.

You must define an engineering item group even if you use the same group for all your E-Items.

Figure 7. Item Groups

You can also use the Product Classification (GRT) module to set up your own classification and coding system for item data.
3. **The procedure to create a Bill of Material using EDM**

A bill of material (BOM) is a list of the component parts of an item (Figure 8).

![Bicycle diagram](image)

*Figure 8, Diagramatic bill of material*

Figure 8 only shows a single level. All parts that are not purchased will also have their own bill of material (for example, the wheel is composed of spokes, a rim, a hub, and so on). The components of an engineering bill of material (EBOM) can be either E-items or production items.

There are three major differences between an EBOM and a production BOM:

- An EBOM has no information about which operations use the components
- An EBOM uses revisions to deal with alternative components whereas a production BOM uses sequence numbers
- An EBOM can have nonphysical components (for example, drawings)
The procedure to create a production BOM from engineering data is shown in Figure 9.

**Figure 9, How to create a production BOM from an EBOM**

**Step 1**  
**Engineering BOM (tiedm1510m000)**  
You make an engineering bill of material in the same way as a production bill of material. You must start by defining the end item. See the bills of material (BOM) module procedure for more details.

**Step 2**  
**Engineering BOM (tiedm1110s000)**  
Add the component items to the bill of material. These items can be E-items or production items.
Step 3  Add new component?
Continue to add new items to the EBOM until the product structure is completed.

Step 4  Parent E-items already copied?
The parent items of the EBOM must already be released and copied to production Items. If not, use Step 5 to copy the E-items. Otherwise, go to Step 6.

You do not need to copy all the component E-items, though they must all be released.

Step 5  Copy E-items to Items (tiedm1201m000)
This action is the same as Step 5 in the procedure to create an item using EDM (section 2.1). If you have not carried out the other steps in that procedure for the component items of the EBOM, You should consider carrying out those steps now.

This step is not required for manufactured items whose initial revisions have been released.

Step 6  Generate EBOM Copy Data (tiedm1230m000)
Use this step to set up the data that EDM will use to copy the EBOM to a production BOM. If you just want to set up copy data for a single-level of a BOM at this step, you can use the EBOM Copy Data (tiedm2510m000) session. You can also view the generated copy data in the EBOM Copy Data (tiedm2510m000) session. Note that the EBOM is not actually copied in this step.

Step 7  Finalize Engineering Data (tiedm2510m000)
Use this step to copy the EBOM to a production BOM.
4. The procedures to manage engineering data with engineering change orders (ECO)

Engineering change orders can be used to carry out several tasks at the same time, including:

- Copying engineering items to production (IBD) items
- Copying engineering bills of material (EBOMs) to production bills of material
- Altering the quantities of components in a range of EBOMs (including the addition and deletion of components)

ECOs can be used in one of two modes:

- **Semi-Automatic.** Use this mode to carry out manually-defined changes to the data of several E-Items or EBOMs and copy those changes to production Items or production BOMs. See Section 4.1 for further details.

- **Automatic.** Use this mode to perform one specific modification to several E-Items or several EBOMs.
  - Do not use this mode for initial revisions
  - Select this mode with the **Automatic generation of EBOMs** check box in the ECOs (tiedm3510m000) session
  - See Section 4.2 for further details
4.1 Semi-Automatic ECO

Use this process to carry out manually-defined changes to the data of several E-items and copy those changes to production Items.

Purchased items do not have a bill of material therefore; the steps that pertain to (engineering) BOMs are only applicable to manufactured items.

**Step 1 E-item revisions (tiedm1500m000)**

Use this step to create new revisions and link them to E-items. You will release the revisions in Step 6.
Step 2 EBOMs (tiedm1510m000)
Use this step to link engineering BOMs to the revisions you created in Step 1.

*Note:* This step only applies to manufactured items.

Step 3 ECOs (tiedm3510m000)
In this step, you define the ECO that you use in this procedure. You must also clear or select the check boxes, which determines if you are using the automatic or semiautomatic procedure (in the Engineering Items (tiedm0510s000 session):

**Automatic generation of EBOMs**
- If you want to follow the semi-automatic procedure, you must clear this check box
- If you select the check box, you must follow the automatic ECO procedure (see section 4.2)

After you have defined the ECO, release it.

Step 4 E-items by ECO (tiedm3522m000)
Use this session to link the E-Item revisions you defined in Step 1 to the ECO you defined in Step 3.

Step 5 ECO approval process (tiedm3530m000)
Use this step to approve the ECO. The ECO is approved by following a set of approval steps. These steps are detailed in Section 4.3
When you approve the ECO, BaanERP asks you if you want to release manually entered revisions.
- For initial revisions, select No. Use Step 6 to release the revisions.
- For other revisions, select Yes. BaanERP will automatically release the revisions. You do not need to use the E-item revisions (tiedm1500m000) session, so go to Step 8.

Step 6 E-item revisions (tiedm1500m000)
Use this step to release new revisions.

Step 7 E-Item / Item relationships (tiedm1501m000)
This step is only mandatory for initial revisions. Make links between E-items and items, or copy changed E-item data such as weight or selection code.

Step 8 Process ECO (tiedm3250m000)
Use this step to generate EBOM copy data (for manufactured items) and finalizes engineering data (in other words, to copy the data to production Items).
4.2 Automatic ECO

Use this process to perform one specific modification to several E-Items or several EBOMs. You cannot use this process for new (initial) revisions.

![Automatic ECO Process Diagram]

**Step 1 ECOs (tiedm3510m000)**

Use this step to define which ECO you want to use for the procedure.

You must also clear or select two check boxes (in the details session):

- **Automatic generation of EBOMs**
  - If you want to follow the automatic ECO procedure, you must select this check box
  - If you clear the check box, you must follow the semiautomatic ECO procedure (see section 4.1)
The procedures to manage engineering data with engineering change orders (ECO)

- All lines must apply
  - If this check box is selected, only the E-items listed in Step 3 (to which all change order lines of an ECO apply) will be changed.
  - If this check box is cleared, all E-items listed in Step 3 (to which at least one change order line of an ECO is applicable) will be changed.

**Step 2** ECO Lines (tiedm3520m000)
Use this step to enter the change order lines that specify the changes to be made automatically to E-items and/or EBOMs during this process.

**Step 3** Include/Exclude E-items by ECO (tiedm3121m000)
If you do not want the ECO to apply to all E-items, use this step to define which E-items you want to be excluded. If more than half the items are to be excluded, you can state instead which items you want to be included.

**Step 4** ECOs (tiedm3510m000)
Use this step to release the ECO.

**Step 5** Generate E-items by ECO (tiedm3201m000)
BaanERP’s generation of the items that you defined in the Steps 2 and 3. Which items are generated depends on the All lines must apply check box.

**Step 6** E-items by ECO (tiedm3522m000)
Use this step to link the E-Item revisions you defined in Steps 2 and 3 to the ECO you defined in Step 1.

**Step 7** ECO approval process (tiedm3530m000)
Use this step to approve the ECO. The ECO is approved by following a set of approval steps. These steps are detailed in Section 4.3.

**Step 8** Process ECO (tiedm3250m000)
You can use this step to carry out three sessions concurrently:
- Generate EBOM Copy Data (tiedm3235m000)
- Process EBOM Changes (tiedm3250m000)
- Finalize Engineering Data (tiedm3240m000)

These session implement the actions that you defined in the engineering change order in Step 1. Purchased items do not have a bill of material; therefore, steps pertaining to (engineering) BOMs are only applicable to manufactured items.

If you have created new revisions, select the Release new revisions check box in this step.
4.3 ECO Approval Process

The previous procedures stated that the ECO was approved with the ECO Approval Process (tiedm3530m000) session. Before you can use that session, you must first define the steps that you want to use for approval. You do not need to define separate approval steps for each ECO; once the approval steps are defined, they can be used repeatedly.

![Figure 12, ECO Procedure Process]

**Step A**  
**ECO Procedures (tiedm3101m000)**  
Use this step to define the procedure you want to use to approve the ECO.

**Step B**  
**ECO Procedure Steps (tiedm3102m000)**  
Use this step to define the steps necessary for approval.

**Example:**

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>001</td>
<td>Consultation with drawing office</td>
</tr>
<tr>
<td>002</td>
<td>Check price/quality ratio</td>
</tr>
<tr>
<td>003</td>
<td>Check safety aspects</td>
</tr>
<tr>
<td>004</td>
<td>Check environmental aspects</td>
</tr>
<tr>
<td>005</td>
<td>Check availability of materials</td>
</tr>
</tbody>
</table>
Step C  **Steps by ECO Procedure (tiedm3103m000)**
Use this step to link the steps from Step B to the procedure from Step A.

Step D  **ECO Procedure Steps by ECO (tiedm3511m000)**
Use this step to link the procedure from Step A to the ECO you want to approve.

Step E  **ECO Approval Process (tiedm3530m000)**
Use this step to approve the steps. BaanERP will prompt you to release manually-entered revisions during this step.

### 4.4 ECO Statuses

The ECO has a succession of statuses during the procedure to manage engineering data with Engineering Change Orders (ECO). These statuses may be summarized as follows:

<table>
<thead>
<tr>
<th>Action</th>
<th>ECO Status after action</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECO created</td>
<td>Free</td>
</tr>
<tr>
<td>ECO released</td>
<td>In Process</td>
</tr>
<tr>
<td><em>Automatic</em> procedure: ECO Approved</td>
<td>Approved</td>
</tr>
<tr>
<td><em>Semi-Automatic</em> procedure: EBOM Changes processed</td>
<td>Processed in EDM</td>
</tr>
<tr>
<td>ECO data finalized</td>
<td>Finalized</td>
</tr>
<tr>
<td>ECO Cancelled</td>
<td>Cancelled</td>
</tr>
</tbody>
</table>

More details about the statuses in the BaanERP online Help, which also gives more information about all the items discussed in this document.
The procedures to manage engineering data with engineering change orders (ECO)