LO985
Classification

- Release 4.6C
- Version: January 2001
- 5004 2143
Group products and services are those that are set forth in the express warranty statements accompanying such products and services, if any. Nothing herein should be construed as constituting an additional warranty.
Product Lifecycle Management (PLM)

Level 2

LO090 3 days
Product Lifecycle Management

Level 3

LO205 3 days
Basic Data for Discrete Manufacturing

LO975 3 days
Document Management System

LO980 3 days
Engineering Change Management

LO985 3 days
Classification

LO990 5 days
Variant Configuration Part 1

LO991 3 days
Variant Configuration Part 2
Course Prerequisites

- LO020 Processes in Procurement
  or
- Lo090 PDM Overview
  or
- Knowledge of an application where classification is used
Course Goals

This course shows you:

- Functions of the Classification System
- Customizing options
- How the Classification System is integrated into other applications
Course Overview

Contents:

- Course goals
- Course objectives
- Course content
- Course overview diagram
- Main business scenario
This course will prepare you to:

- Use the functions of the SAP Classification System to perform specific tasks
- Know which Customizing settings are available for classification
- Gain an overview of how classification is integrated in a range of applications
At the conclusion of this course, you will be able to:

- Create characteristics and classes
- Assign objects to classes and values to objects
- Target a search to find classified objects
- Use advanced, more complex functions in the Classification System, such as object dependencies
- Define settings in Customizing
- Name the most important applications of classification
## Course Content

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### Preface

### Appendix

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Course Overview Diagram

Course Overview
Introduction
Basic Functionality
More Functionality
Class Hierarchy
Functionality for Complex Tasks
Object Dependencies
Customizing
Applications of Class Types

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The pump manufacturer Zack AG wants to classify materials, so that its engineering department can run a targeted search for parts with specific properties. Classification is to be used for purchasing and sales of spare parts, too. In a pilot project, materials for IT are classified.
Contents:

- Introduction to topics covered by the training course
At the conclusion of this unit, you will be able to:

- Explain the central concepts of the Classification System
- Gain an overview of the functions and structure of the Classification System
Course Overview Diagram

Course Overview
  Introduction
  Basic Functionality
  More Functionality
  Class Hierarchy
  Functionality for Complex Tasks
  Object Dependencies
  Customizing
  Applications of Class Types (optional)
Where on Earth ...?

- Finding suitable objects
- Finding similar objects
- Finding that there are no suitable objects

These requirements are difficult or impossible to fulfill without systematic organization of data.

The SAP Classification System is a tool offering functions more far-reaching than matchcodes or systematically assigned numbers, to help you set up the kind of organization you need.

There are 4 main parts to the Classification System.
- Characteristics maintenance
- Class maintenance
- Classification (assignments/value assignment)
- Finding objects
Purpose of the Classification System

- Organize master records and describe them in a structured way, to allow you to find them again later:
  - For manual searches
  - For automatic selection
- Enhance master records by adding additional, customer-specific information
- Describe master records in a structured way for subsequent evaluations
- Define ranges or possible options for configuration

The main purpose of the Classification System is to bring order to a multitude of objects. It is easier to find objects if they are organized and described in a structured way.

Objects can be found by the Classification System either manually (for example, when searching for a specific material as a spare part or a vendor for office supplies) or automatically by the system (for example, when batches are selected in Production Planning, release strategies are selected for Purchasing, or permits are selected for Plant Maintenance).

Further examples of these applications are covered in unit Applications of Class Types.
Classification is a cross-application tool. It has applications in almost all SAP components.

The most common applications are in logistics components MM and PP.
You can search for *Materials via classes* in any situation where you need to enter a material number. Using the Classification System you have set up, you can find the material number you are looking for without leaving the application, and copy it across.

For example, you can search for materials from a purchase order.
In the standard system, different object types are defined for classification. For example, you can classify work centers, documents, vendors, and equipment, as well as materials.

If you set up a classification system for work centers, you can search for a work center in any situation where you need to enter a work center, and copy it across.
You can find objects from your application, or use the global functions for finding objects in the Classification System.

- From your search result, you can go to an application. For example, you can go to inventory management to check stock, or you can display the material.
- You can also use report programs from SAP, or write your own report programs, to process the search result.
This slide illustrates the two process flows for finding objects. You can also use the "global" functions for finding objects.

- Process flow 1 shows how to use the search function from an application.
- Process flow 2 shows how to start an application from the global functions for finding objects.
- Process flow 2 is not supported for all transactions.
## Central Concepts of the Classification System

<table>
<thead>
<tr>
<th>Type</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Object type</td>
<td>The object type is inferred from a classifiable table.</td>
</tr>
<tr>
<td>Object</td>
<td>An object is a classifiable unit.</td>
</tr>
<tr>
<td>Class type</td>
<td>A class type is a top-level unit of control for classes.</td>
</tr>
<tr>
<td>Class</td>
<td>A class groups similar objects together.</td>
</tr>
<tr>
<td>Characteristic</td>
<td>A characteristic describes properties of an object.</td>
</tr>
<tr>
<td>Value</td>
<td>A value is a specific option for a characteristic.</td>
</tr>
</tbody>
</table>

### Examples include:
- **Object types**: Material (MARA), document (DRAW), customer (KNA1)
- **Object**: Material K1434, vendor 10304, customer 20308
- **Class types**: 001 (material classes), 017 (document classes), 011 (customer classes)
- **Class**: Monitors, laser printers, inkjet printers
- **Characteristic**: Length, weight, basic material
- **Value**: 10cm, 15 kg, copper
You can set up a hierarchical structure for classes.

A hierarchy that is set up carefully makes it easier to find a suitable class and therefore the object you are looking for.

In this example, class Products is split up into Computers and Paints. Class Computers is split up into Extras and PCs. Individual materials are only classified in these classes.

You can set up your hierarchy with any number of levels and any number of classes on each level.
When you set up a classification system, first you define characteristics and allowed characteristic values.

Next, you maintain classes and assign the characteristics to the class.

Next, you assign objects (such as materials) to the classes, and use the characteristics to describe the objects.

Then you can use the classification system to find classified objects.
You are now able to:

- Explain the central concepts of the Classification System
- Give an overview of the functions and structure of the Classification System
Contents:

- Characteristics and classes
- Classification and finding objects
At the conclusion of this unit, you will be able to:

- Create a characteristic
- Create a class
- Assign objects to a class and assign values to characteristics
- Find objects in a class
Course Overview Diagram

Course Overview
  Introduction
  Basic Functionality
    More Functionality
      Class Hierarchy
        Functionality for Complex Tasks
          Object Dependencies
            Customizing
              Applications of Class Types (optional)

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An existing classification system for computer parts and accessories is to be extended to include scanners and PC speakers. Existing materials are to be assigned to classes and given values.
At the conclusion of this topic, you will be able to:

- Create simple characteristics
- Define value lists for characteristics
- Create classes with or without characteristics
- Explain why there are different class types
To create a characteristic, you must enter Basic data. Basic data includes the data format of characteristic values. Processing of the other screens is optional.

- In the basic data, language-dependent information is only entered in the logon language. Other languages are maintained on the Descriptions screen.
- On the Values screen, you can enter a list of proposed values, and determine that entries are checked for validity.
Naming Conventions for Characteristics

- You can use letters, figures, underscores, and hyphens
- Characteristic names must begin with a letter
- It is easier to use characteristic names without hyphens in object dependencies
- Characteristics can be renamed
You maintain statuses for characteristics in **Customizing** for the Classification System. The slide shows the statuses that are defined in the standard system.

The characteristic status affects the use of a characteristic in classes:
- Characteristics with status **In preparation** cannot be used in classes.
- Characteristics with status **Released** can be used in classes without restrictions.
- Characteristics with status **Locked** can no longer be used in class maintenance. This status does not affect classes where the characteristic is already used.
If you want to enter numeric values, choose data type NUM.

You can enter a unit of measure for values, and define the length of values. Numeric values can be up to 15 characters long.

Decimal places are subtracted from the total length of the characteristic. The decimal point does not count.

To convert values to powers of ten, you can enter exponents. The standard exponent format converts values to format 1,…E-XX, for example:

- 1000 = 1.000E+03
- 100 = 1.000E+02
- 0.001 = 1.000E-03

You can also enter exponents manually, or use scientific exponent format, for example, milli, micro, or mega.

You can define that a value must always be assigned to a characteristic during classification, by setting the Entry required indicator.

If you want to enter intervals as values for a characteristic, set the Interval vals allowed indicator.
### Basic Data: CHAR Format

<table>
<thead>
<tr>
<th>User entry</th>
<th>Chars</th>
<th>Case sensitive</th>
<th>Template</th>
<th>Value description</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>1</td>
<td>Blue ≠ BLUE</td>
<td>E: Blue</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>G: Blau</td>
<td>F: Bleu</td>
<td></td>
</tr>
<tr>
<td>SOHNI</td>
<td>30</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HD-JD-1375</td>
<td>10</td>
<td>AA-AA-NNNN</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- If you want to enter alphanumeric values, select data type CHAR.
- Alphanumeric values can be up to 30 characters long.
- You can define whether upper-case and lower-case characters are interpreted as different. If they are not, all values are automatically converted to upper case.
- You can define a template for entering values. Templates can comprise alphanumeric characters and figures.
- You can define language-dependent descriptions for values with CHAR format.
- You can define that a value must always be assigned to a characteristic during classification, by setting the *Entry required* indicator.
Entering allowed values for a characteristic is optional. If you do not enter allowed values, you can enter any value that matches the format you define, when you use the characteristic to classify objects.

The **allowed values** or **allowed intervals** you define for a characteristic are binding for classification unless you set the indicator defining that additional values are allowed.

You can enter a default value for a characteristic. This value is displayed when you use the characteristic to classify objects.
When you create a class, you must enter **Basic data**. In the basic data, you enter a description for the class and set a class status. Processing of the other screens is optional.

To make it easier to find the class using a matchcode/search help, you enter search strings on the **Keywords** screen. There is no need to enter the class description from the basic data screen again here.

On the **Characteristics** screen, you assign characteristics to the class.
The class type has central control functions in class maintenance. For example, the class type determines which object types you can classify in a class.

- You maintain class types in Customizing for the Classification System. You can adapt existing class types or create new ones.
- In one class type, an object can only have one value for any one characteristic.
- You cannot change the class type once you have created a class.
The class status determines whether you can:
- Maintain a class
- Assign objects to a class
- Use a class to find objects

You maintain class statuses for each class type in Customizing for the Classification System. You can define additional class statuses in Customizing if required.
You can also adapt existing statuses. The slide shows the statuses that are defined in the standard system.
At the conclusion of this topic, you will be able to:

- Assign one or more objects to a class
- Assign one or more classes to an object
- Assign values to characteristics in the assignment functions
- Target a search for objects by entering the criteria you require
Classification means that you assign objects to classes and use the characteristics of the classes to describe the objects.

Once you have classified objects, you can use your classification system to search for objects.

Settings defined in characteristics maintenance (Entry required and default values) determine how the characteristic behaves when you use it for classification.
You can use either the master data of the object or the central assignment functions of the Classification System to classify an object.

There are 2 assignment functions:
- You can assign an object to one or more classes. On the initial screen of this function, you enter the object. The same assignment function is called when you classify an object in its master data.
- You can assign several objects at once to one class. On the initial screen of this function, you enter the class.
First, you find an initial class, then you can search for objects in this class.
If the class has characteristics, you see the characteristics screen, where you can enter your search criteria.
The search result shows the objects that match your search criteria.
The characteristics of a class allow you to enter your selection criteria for finding objects. You can enter one or more constants or an interval when you use a characteristic to find objects. If you enter several values for one characteristic, the values are logically linked with OR. If you enter values for different characteristics, the values are logically linked with AND. You can display possible entries for values when you enter your selection criteria. You see the allowed values that are defined in the characteristic. You find the objects that are classified with values that either match the constants you entered, or are within the interval you entered.
You use the comparison type to determine how your search criteria are interpreted.

- If you do not enter a comparison type for a characteristic, the program uses the setting *Inclusive* for the search.
You are now able to:

- Create a characteristic
- Create a class
- Assign objects to a class and assign values to characteristics
- Find objects in a class
**Data for Exercises**

**Explanation of Symbols Used in Exercises and Solutions**

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<tr>
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<th>Exercises</th>
<th>Solutions</th>
<th>Objectives</th>
<th>Business Scenario</th>
<th>Hints and Tips</th>
<th>Warning or Caution</th>
</tr>
</thead>
</table>

**Data in the Exercises (already in the system)**

<table>
<thead>
<tr>
<th>Type of Data</th>
<th>Data in the Training System</th>
</tr>
</thead>
<tbody>
<tr>
<td>Characteristics group</td>
<td>T-##</td>
</tr>
<tr>
<td>Class group</td>
<td>T-##</td>
</tr>
<tr>
<td>Materials</td>
<td>Nuts: T-TM1##, T-TM2##, T-TM3##, and T-TM4##</td>
</tr>
<tr>
<td></td>
<td>Screws: T-RS1##, T-RS2##, T-RS3##, and T-RS4##</td>
</tr>
</tbody>
</table>

**Data in the Exercises (created during the course)**

<table>
<thead>
<tr>
<th>Type of Data</th>
<th>Data in the Training System</th>
</tr>
</thead>
<tbody>
<tr>
<td>Characteristics</td>
<td>CR1## Thread length</td>
</tr>
<tr>
<td></td>
<td>CR2## Thread type</td>
</tr>
<tr>
<td>CR3##</td>
<td>Packaging</td>
</tr>
<tr>
<td>-------</td>
<td>-------------------</td>
</tr>
<tr>
<td>CR4##</td>
<td>Release period</td>
</tr>
<tr>
<td>CR5##</td>
<td>Internal description</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Classes</th>
<th>CLM##</th>
<th>Nuts</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CLS##</td>
<td>Screws</td>
</tr>
</tbody>
</table>
Basic Functionality Exercises

Unit: Basic Functionality
Topic: Characteristics and Classes

At the conclusion of these exercises, you will be able to:

- Create characteristics in numeric and alphanumeric format
- Create classes and assign characteristics to them

The engineering/design department in your company wants to use the Classification System to find fasteners, such as screws, nuts, and rivets, according to specific criteria. You are the member of the project team who is responsible for this area, so first you create some test characteristics and classes.

1-1 In the exercises, you will frequently create, change, and display characteristics and classes. For this reason, include the Characteristics and Classes transactions in your list of favorites.

1-2 Create a characteristic to describe the Thread length of screws, using the following data.
1-2-1 Call the characteristic CR1## and choose Create.
1-2-2 In the Basic data, only make the following entries:

   Enter a suitable characteristic description (for example, Screws ##) and assign the characteristic to characteristics group T-##.

   Assign status Released.

   Select data type Numeric format, to describe lengths between 0.1 cm and 20 cm to the nearest millimeter.

1-2-3 Navigate to the Descriptions screen and enter a suitable heading for list display.

   The heading is used in lists that contain the characteristic. Use abbreviations that can be understood, so that lists do not become too wide.
1-2-4 On the *Values* screen, restrict the allowed values to the interval between 0.1 cm and 20 cm.

When you enter an interval for allowed values, you must enter a blank before and after the hyphen.

Check your entries again and save your characteristic.

1-3 Create a characteristic to describe the **Thread type of screws**, using the following data.

1-3-1 Call the characteristic **CR2##** and choose *Create*.

1-3-2 In the *Basic data*, only make the following entries:

- Enter a suitable characteristic description and assign the characteristic to characteristics group **T-##**.
- Assign status **Released**.
- Select data type **Character format**, and define the number of characters as 2.
- This is a very important characteristic, so select **Entry required**.

1-3-3 Navigate to the *Descriptions* screen and enter a suitable heading for list display.

In this characteristic, test the function for entering texts in different languages. Enter a description and headings in German (**Gewindeart von Schrauben**).

1-3-4 On the *Values* screen, allow only the following entries:

- 01 Machine screw
- 02 Metal screw
- 03 Wood screw

1-3-5 Enter value descriptions in German, too:

- 01 Maschinenschraube
- 02 Blechschaube
- 03 Holzschraube

Check your entries again and save your characteristic.

1-4 Create a class for nuts, using the following data.

1-4-1 Enter **001** as the class type, call the class **CLM##**, and choose *Create*.

1-4-2 In the *Basic data*, only make the following entries:

- Enter the description **Nuts ##** for the class, and assign the class to group **T-##**.
- Assign status **Released**.
- Enter the end of next year as the *Valid to* date.
1-4-3 Navigate to the Keywords screen and enter the strings **Metal** and **Small parts**. The Description in the basic data is automatically treated by the system as a keyword, so there is no need to repeat it here.

Save your class.

1-5 Create a class for screws, using the following data.

1-5-1 Enter **001** as the class type, call the class **CLS##**, and choose Create.

1-5-2 In the Basic data, only make the following entries:

- Enter the description **Screws ##** for the class, and assign the class to group **T-##**. Assign status **In preparation**.

1-5-3 Navigate to the Keywords screen and enter one or two suitable strings.

1-5-4 On the Characteristics screen, enter your characteristics for thread length and thread type (**CR1##** and **CR2##**).

Save your class.

1-6 True or false?

1-6-1 When you create a characteristic, you must maintain at least the screens for Basic data, Descriptions, and Allowed values.

1-6-2 The characteristic name is not language-dependent, whereas the characteristic description is language-dependent.

1-6-3 The class type determines which object types you can classify.

1-6-4 You can use the same class name in several different class types to describe different things.

1-6-5 You can use the same characteristic in classes of different class types.
Exercises

Unit: Basic Functionality
Topic: Classification and finding objects

At the conclusion of these exercises, you will be able to:

- Assign materials to classes using both master data maintenance and the functions in the Classification System menu
- Assign values to characteristics
- Find objects

Your system already contains material master records for screws and nuts, and now you want to classify them. You also have the task of testing the various transactions.

2-1 Now use the classes you created in the previous exercises to classify materials, using different transactions and the following data. The material master records with basic data already exist.

2-1-1 Use the transaction for creating a material master record to classify a nut.
Assign material T-TM1## to your class for nuts (CLM##).

Even if a material master record already exists, you must use the create function to extend it.

To find the transaction for creating a material master record, choose:

→ Logistics → Materials Management → Material Master → Material → Create (General) → Immediately

Enter the material number shown above, and choose Classification from the view selection.

2-1-2 For classifying a screw, use transaction Assign object to classes from the menu path Logistics → Central functions → Classification.
Assign material T-RS1## to your class for screws (CLS##).
The class must be released before you start the assignment transaction. Change the class accordingly.

Assign values (any values) to all of the characteristics, and save the classification.

2-1-3 Use transaction Assign Objects/Classes to Class.

Assign materials T-TM2## and T-TM3## to class CLM##, too.

Assign materials T-RS2## and T-RS3## to class CLS##. Assign values (any values) to all of the characteristics.

The list contains several assignments, so it is important to check which material the values you see in the lower part of the screen refer to. This information is shown in the frame text above the values.

You will often use this assignment transaction again. For this reason, include the transaction in your list of favorites.

2-2 Use both classes to find your materials. Try out different starting points and search criteria.

2-2-1 Use transaction Find Objects in Classes to search for nuts in your class CLM##.

Define the layout for the search result so that all other available information is displayed, as well as the material number.

Since you will frequently use this transaction again, add it to your list of favorites.

2-2-2 Use the transaction for displaying material master records. From the initial screen of this transaction, use the possible entries (F4) to go to the classification system, by using the Materials for class search help.

To find the transaction for displaying a material master record, choose:

→ Logistics → Materials Management → Material Master → Material → Display → Display Current

Search in class CLS## and copy a material from the search result to the Display Material transaction.

Then start transaction Find Objects in Classes again from your list of favorites, and try searching a few times with different search criteria.

2-2-3 Define the layout for the search result so that the material number, material description, and all characteristics are displayed.
Save your layout.

What happens when you save the layout? Which of the following statements is true?

a) The layout now applies to all classes and all users.

b) The layout now applies to the current user and the current class.

b) The layout now applies to all users, but only the current class.

2-3 True or false?

2-3-1 When you classify an object in a class that has characteristics, you must always assign values to the characteristics.

2-3-2 You always start the search for objects by choosing Find Objects in Classes in the classification menu.

2-3-3 You can always enter several values as selection criteria for each characteristic.
Basic Functionality Solutions

Unit: Basic Functionality
Topic: Characteristics and Classes

1-1 Select the following menu options, then choose → Favorites → Add:
Logistics → Central Functions → Classification → Master Data → Characteristics
Logistics → Central Functions → Classification → Master Data → Classes

1-2 Favorites →... Characteristics
1-2-1 Characteristic CR1##
1-2-2 Choose Create. You see the Basic data screen.
   Description: Thread length for screws ##
   Characteristics group: T-##
   Status: Released
   Data type: Numeric format
   Number of characters: 3
   Decimal places: 1
   Unit: cm

1-2-3 Go to the Descriptions screen.
   Language: EN
   Heading 1: Screw
   Heading 2: length ##

1-2-4 Go to the Values screen.
   Characteristic value: 0.1 – 20
   Choose Save.

1-3 Favorites →... Characteristics
1-3-1 Characteristic CR2##
1-3-2 Choose Create. You see the Basic data screen.
   Description: Thread type of screws ##
   Characteristics group: T-##
   Status: Released
   Data type: Character format
   Number of characters: 2
   Select Entry required.
1-3-3 Go to the **Descriptions** screen.

<table>
<thead>
<tr>
<th>Language</th>
<th>EN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heading 1</td>
<td>Screw</td>
</tr>
<tr>
<td>Heading 2</td>
<td>type ##</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Language</th>
<th>DE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>Gewindeart ##</td>
</tr>
<tr>
<td>Heading 1</td>
<td>Gewinde-</td>
</tr>
<tr>
<td>Heading 2</td>
<td>art ##</td>
</tr>
</tbody>
</table>

1-3-4 Go to the **Values** screen.

| Characteristic value | 01 |
| Description          | Machine screw |
| Characteristic value | 02 |
| Description          | Metal screw   |
| Characteristic value | 03 |
| Description          | Wood screw    |

1-3-5 Choose → **Extras** → **Change language**. Enter language DE and enter descriptions in German. The characteristic values (01, 02, and 03) remain the same.

| Description | Maschinenschraube |
| Description | Blechschaube    |
| Description | Holzschraube    |

Choose Save.

1-4 **Favorites →... Classes**

1-4-1 Class | CLM##
| Class type | 001 |

1-4-2 Choose **Create**. You see the Basic data.

| Description | Nuts ## |
| Status      | Released |
| Group       | T-## |

In the **Valid to** field, enter December 31 next year.

1-4-3 Choose the **Keywords** tab, enter the strings you require, and save the class.

1-5 **Favorites →... Classes**

1-5-1 Class | CLS##
| Class type | 001 |

1-5-2 Choose **Create**. You see the Basic data.

| Description | Screws ## |
| Status      | In preparation |
| Group       | T-## |
In the *Valid to* field, enter December 31 next year.

1-5-3 Choose the *Keywords* tab and enter one or two suitable strings.

1-5-4 Go to the *Characteristics* screen and enter your characteristics *CR1##* and *CR2##*. Choose *Save*.

1-6

1-6-1 **False.** Only *Basic data* fields must be maintained. All other screens are optional.

1-6-2 **True.**

1-6-3 **True.**

1-6-4 **True.**

1-6-5 **True.**
Solutions

Unit: Basic Functionality
Topic: Classification and finding objects

2-1

2-1-1  \rightarrow Logistics \rightarrow Materials Management \rightarrow Material Master \rightarrow Material \rightarrow Create (General) \rightarrow Immediately

Enter material number T-TM1##. The material already exists, so the industry sector and material type are found automatically, and you confirm them by choosing Enter.

If the view selection appears, select Classification and choose the green checkmark (Continue) or Enter.

Under Assignments, enter class CLM## and choose Enter. Save your assignment.

2-1-2 Release class CLS##. Choose Favorites \rightarrow Classes and set status Released in the Basic data.

Then maintain the assignment as shown.

\rightarrow Logistics \rightarrow Central Functions \rightarrow Classification \rightarrow Classification \rightarrow Assign Object to Classes

Enter material number T-RS1## and class type 001 and choose Enter. Under Assignments, enter class CLS## and choose Enter again.

In the lower part of the screen, you see the characteristics for value assignment. If required, you can make the window larger or use the scrollbar to scroll down and see all characteristics.

Enter a figure as the Thread length of the screw. When you choose Enter, the system checks whether your entry is within the interval allowed. Select a valid value for characteristic Thread type.

Save your assignment.

2-1-3 \rightarrow Logistics \rightarrow Central Functions \rightarrow Classification \rightarrow Classification \rightarrow Assign Objects/Classes to Class

Enter class CLM## and class type 001. When you choose Enter, the existing assignment from the previous task is displayed. Choose New assignments and choose Material in the window you see.

The assignment list is now ready for input. Enter materials T-TM2## and T-TM3## and choose Save.
Do the same again with class **CLS##** and materials **T-RS2##** and **T-RS3##**. Since the class has characteristics, you must assign characteristic values before you save.

To do this, place the cursor on a material number and choose *Values for assignment*. Then enter values.

Do the same again until all assignments have a complete set of values. Choose *Save*.

Add transaction *Assign Objects/Classes to Class* to your list of favorites, by placing the cursor on the transaction in the menu and choosing → **Favorites** → **Add**.

2-2

2-2-1  → **Logistics** → **Central Functions** → **Classification** → **Find** → **Find Objects in Classes**

Enter initial class **CLM##** and class type **001**. After *Enter*, the system tells you that this class has no characteristics. For this reason, you search without selection criteria, by choosing *Find in initial class*.

On the bottom right-hand side of the screen, you see the search result as a list of material numbers. Here, choose the *Change Layout* icon. In the window you now see, on the left is the information that is displayed, and on the right is the information that is hidden. By selecting information and choosing the arrows in the middle of the window, you can display or hide information. Choose *Save Layout*, then *Copy* (green checkmark).

Include the transaction in your list of favorites, by choosing → **Favorites** → **Add**.

2-2-2  → **Logistics** → **Materials Management** → **Material Master** → **Material** → **Display** → **Display Current**

On the initial screen, do not enter a material number, but instead use the possible entries (F4) to choose search help *Materials for class*.

This takes you to transaction *Find Objects in Classes*. Enter class **CLS##** and choose *Enter*. Here, you can enter search criteria and start the search by searching in the initial class.

Select a material in the search result, and choose the green checkmark to copy the material number to the *Display material* transaction.

2-2-3 Define the layout as described in solution 2-2-1.

Of the statements given, only **b)** is true.

To set up the layout for a class for all users: On the *Characteristics* screen of the class, choose: → **Extras** →

*Char. settings for search result*
2-3-1 False. Any assignment can also be saved without assigned values. However, if there are characteristics with the attribute *Entry required*, the system automatically sets the classification status to *Incomplete*.

2-3-2 False. The object search can also be started from an application by using a search help (matchcode).

2-3-3 True.
Contents:

- Characteristics management
- Class management
- Classification and finding objects
At the conclusion of this unit, you will be able to:

- Use further characteristic formats and attributes
- Use all the central functions of the Classification System
- Use the most important classification functions
- Use further options for finding classes and objects
The class for PC speakers is to have further characteristics added to it. The various control options in characteristics and classes are to be used more fully than before. The steps for classification and finding objects are also optimized.
At the conclusion of this topic, you will be able to:

- Create characteristics in different data formats
- Create multiple-value characteristics and value hierarchies
- Use all the data screens and fields in a characteristic as best suited to your requirements
- Use tables or function modules to check characteristic values
In the Basic data, we determine the data type of a characteristic, defining it as a date or currency characteristic, for example.

On the Values tab, we can enter lists of values, or define value checks by R/3 tables or function modules.

The Additional data tab includes options for defining various display options.

To restrict the use of a characteristic to specific class types, we maintain the Restrictions tab.
### Basic Data: TIME, DATE, and CURR Formats

<table>
<thead>
<tr>
<th>Format</th>
<th>Chars</th>
<th>Currency</th>
<th>Negative values</th>
</tr>
</thead>
<tbody>
<tr>
<td>01.01.2001</td>
<td></td>
<td>DATE</td>
<td></td>
</tr>
<tr>
<td>20:45:21</td>
<td></td>
<td>TIME</td>
<td></td>
</tr>
<tr>
<td>10,200.95 DEM</td>
<td>7</td>
<td>German Marks</td>
<td></td>
</tr>
<tr>
<td>5,534.00 GBP</td>
<td>6</td>
<td>Pounds Sterling</td>
<td></td>
</tr>
<tr>
<td>-150.00 USD</td>
<td>5</td>
<td>US Dollars</td>
<td>X</td>
</tr>
</tbody>
</table>

- In addition to data types NUM and CHAR, you can use data types DATE, TIME, and CURR to enter values in date, time, and currency formats.
- You cannot enter formatting data for data types DATE and TIME. The system determines the correct template for displaying dates and times.
- For data type CURR (currency), you must enter a currency. You can also enter a number of characters. The system automatically generates a template from this number. You can allow negative values for currency format.
- You can set the *Entry required* indicator for all of these data types, to determine that you must enter a value for the characteristic when you use it to classify objects.
- You can also allow interval values in classification.
The value assignment attribute determines whether an object can have several values for a characteristic or only one.

You cannot change this attribute once you have saved your characteristic, and you cannot overwrite it for a specific class.
You can use a value hierarchy to structure characteristic values, making it easier to select a value.

- You can only set up a value hierarchy for characteristics with CHAR format.
- You can create any number of hierarchy levels.
Instead of entering individual values for a characteristic, you can enter a check table. In classification functions, the entries in the table are displayed as characteristic values.

- You can only use tables with one key field.
- Entering a check table is not to be confused with a table reference for reference characteristics.
- For example, you enter table T001W (Plants) as a check table. On the value assignment tab, you can display all the plants as possible values for your characteristic, and select one.
You can use function modules to make any check you like on a value. For example, you can use a function module to:
- Store algorithms for checking values in a function module
- Store format checks: for example, at a certain point, the value must have figures from 1-4
- Access any table in the SAP System
- Call APIs (application programming interfaces)

First, you must create the function module in the ABAP Workbench. The program code must be based on the defined interfaces. The interface is described in the SAP Library *CA Characteristics Guide*.

You can create another function module to display the possible values determined by the first function module.
At the conclusion of this topic, you will be able to:

- Use further fields in a class as best suited to your requirements
- Overwrite characteristic attributes for a specific class
This unit deals with some basic data fields that we have not used before.

On the Characteristics tab, characteristic attributes and allowed values for characteristics are overwritten for the specific class.
You can use the *Same classification* check to prevent you from creating objects that are identical from the classification point of view.

The following restrictions apply to the check for identical classifications:
- The classification is only checked when you have assigned values to all characteristics.
- The values of reference characteristics and inherited characteristics are not checked.
- The check only checks objects in one class. It does not check whether objects are classified with the same values in other classes. Identical assignments within a class hierarchy are not checked either.
- If a classification is changed later - by the deletion of a characteristic, for example - there is no subsequent check as to whether this makes classifications of different objects identical. Changes made with Engineering Change Management are not subject to a check, either.
You can use authorization groups to restrict authorizations for class maintenance, classification, and finding objects to specific classes.

In the slide, a user has the authorization to:
- Maintain classes with authorization groups 000 - 100
- Classify objects in classes with authorization groups 000 - 200
- Find objects in classes with authorization groups 000 - 500

This means that the user cannot change class Monitor or use this class to classify objects, but can use the class to find objects.
The values and indicators that you define in characteristics maintenance apply to all classes where you use the characteristic.

However, you may need to change certain attributes or values of a characteristic for a specific class. These changes only apply to the characteristic when it is used in this class.

If you change a characteristic for a class, the \( O \) indicator (overwritten) is set automatically.

When you change the values of a characteristic for a specific class, you automatically make a copy of the values of the characteristic. Any changes you make to the values of the characteristic itself are no longer reflected in the class. However, you can update the values if required.
At the conclusion of this topic, you will be able to:

- Use a suitable status to identify assigned values that are incomplete or need to be checked
- Evaluate, rework, and release assigned values that are incomplete or need to be checked
- Find classes by targeting a search
- Define settings for the appearance and scope of the search result for your user
- Use various options for processing the search result
You can start from either the master data of the object or the central assignment functions of the Classification System to classify an object.

There are 2 assignment functions:
- You can assign an object to one or more classes. On the initial screen of this function, you enter the object. The same assignment function is available when you classify an object in its master record.
- You can assign several objects to a class at the same time. On the initial screen of this function, you enter the class.
The classification status provides information on the assignment of an object to a class.

- If at least the required characteristics have assigned values, the assignment has status 1 (released).
- A classification where any required characteristic has no assigned value can only be saved with status 3 (incomplete).
- If the characteristic values of an assignment are inconsistent due to object dependencies, the assignment can only be saved with status 2 (locked).
- Status 2 (locked) and status 3 (incomplete) can also be set manually.
- When a user searches for objects, the user can define whether locked or incomplete assignments are included in the search result.
- There is a range of functions for evaluating and reworking locked or incomplete assignments.
- If the assignment is completed subsequently, the status must be set to released. There is a range of options for doing this either manually or automatically.
You can use the user settings to influence how the search result is displayed. To do this, we maintain the Find object tab in the user settings.

The settings for the scope of the search result are of particular importance. These settings influence how many objects are found, as well as the display format.

The Objs with chars but no values includes objects that have no value assigned to the characteristics used as search criteria - in other words, objects that do not contradict the search criteria. For example, if Color = red is one of the search criteria, the search finds materials that have no color assigned.
From the result of the classification status report, you can go to functions for reworking locked or incomplete assignments. You can also start reworking from any other assignment transaction.

Once errors or uncertainties are cleared up, the status 1 (released) can be set for an individual assignment (individual release).

If several entries in an assignment list are selected, you can release them all at the same time (collective release). You can do this both for several objects assigned to a class and for several class assignments for one object.

There is a separate function for releasing assignments across different classes and objects (mass release). The system proposes to release, for example, all assignments in one class type that are not released. You decide which assignments to release by selecting and saving.

All release options only let you release classifications that are consistent and have values assigned to at least the required characteristics.
Automatic release means that the system sets the classification status to 1 (released) as soon as all required characteristics have assigned values and the values are consistent.

For example, if the system recognized that required characteristics in an initial assignment had no value assigned, so that the system had set the status to 3 (incomplete), the system can release the assignment once the values are complete without prompting confirmation from the user.

You can activate automatic release for each classification status in Customizing for each class type. We only recommend activating it for internal status 5 (incomplete, set by the system).
Before you can search for objects, you must enter an initial class for the search.

You have various options for finding a class:
- Generic entry with *
- Matchcode search, using (for example):
  - Keywords
  - Class group
- Find class without superior.
  These classes have no superior classes. These classes are either at the top of a class hierarchy, or are not linked to a hierarchy.
- Find class using class hierarchy
Finding Objects by Class Type

- **Concept**
  Find all objects with a specific feature. For example, all products by one manufacturer.

- **Prerequisites**
  You can only search within one class type. The search criteria (characteristics) must be available in all classes.

- **Procedure**
  1. Specify class type
  2. Choose characteristics
  3. Enter selection criteria
  4. Start search

As of Release 4.6C, you can use the class type to find objects. The search includes all the classes of a class type. In the classification system menu, choose `Find -> Find Object in Class Type`.

You can specify the characteristics that are relevant to your search and enter values on the `Selection Criteria` tab page. Then choose the `Find in Class Type` icon.

All other functions for finding by class type are the same as for finding by class.
After running a search, you can fine tune your search criteria and reselect. This search only reads the objects that are already in the search result.

- You can enter filter reports that are executed in addition to the search criteria. This lets you restrict the search result to, for example, objects with warehouse stock of at least 50. These report programs must be created beforehand and entered in Customizing. Report program RMCLSFIL is supplied by SAP as a template.
- You can also specify report programs or transactions for processing objects found in the search result.
- In addition to the options shown, the search result can also be saved or exported in different file formats.
You are now able to:

- Use further characteristic formats and attributes
- Use all the central functions of the Classification System
- Use the most important classification functions
- Use further options for finding classes and objects
More Functionality Exercises

Unit: More Functionality
Topic: Characteristics management

At the conclusion of these exercises, you will be able to:

- Create characteristics in different data formats
- Create multiple-value characteristics and value hierarchies
- Use the most important data screens and fields in a characteristic as best suited to your requirements

Your first tests have shown that further characteristics are required. In this context, you are also testing other characteristic formats, templates, and further options for characteristics maintenance.

1-1 Create a characteristic for packaging formats used for screws in your warehouse.

1-1-1 Call the characteristic **CR3##** and choose *Create*.

1-1-2 Maintain the following *Basic data*:

Enter the description **Packaging ##**, and assign group **T-##**.

Assign status **Released**.

Select **Character format** with 10 characters.

Some screws are procured in different packaging formats. For this reason, allow multiple values to be set for this characteristic at the same time.

1-1-3 On the *Values* tab, enter the following values and descriptions:

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>P100</td>
<td>Plastic 100</td>
</tr>
<tr>
<td>P200</td>
<td>Plastic 200</td>
</tr>
<tr>
<td>C500</td>
<td>Cardboard 500</td>
</tr>
<tr>
<td>C1000</td>
<td>Cardboard 1000</td>
</tr>
</tbody>
</table>

Allow other values to be used in addition to these values.

Most screws are stored in 100s. For this reason, make value P100 the default value for the characteristic.

1-1-4 On the *Additional data* tab, select *Display allowed values*. 
What effect does this setting have?

1-1-5  Save your characteristic.

1-2  Create a characteristic in date format for the period during which a screw or nut is released for use.

1-2-1  Create characteristic CR4## with the description Release period ##, group T-##, and status Released.

Select the most suitable data type.
Since the characteristic is for representing periods of time, allow intervals as values.
Set Entry required.

1-2-2  On the Values tab, restrict entries to the period between January 1, 1998 and December 31, 2005.

Save your characteristic.

1-3  Create a characteristic with a template for entering an internal description for screws.

1-3-1  Create characteristic CR5## with the description Internal description ##. The characteristics group is T-##, the status is Released.

Select character format as the data type, and define a template in the Basic data. The internal description always comprises 2 letters and 3 figures (for example, AG102 or ZT232).

In templates, N is a figure, A is an alphanumeric character (letter), and C is a character (letter or figure). All other characters are fixed separators.

1-3-2  In the Additional data, define that the template is shown during characteristic value assignment.

Save your characteristic.
Exercises

Unit: More Functionality
Topic: Classes

At the conclusion of these exercises, you will be able to:

- Use the most important data screens and fields in a class as best suited to your requirements
- Overwrite characteristic attributes for a specific class

The new characteristics must be inserted in classes that already exist. Certain characteristics are used simultaneously in different classes.

2-1 Add the characteristics you created in the previous exercises to your class for screws (CLS##).

2-1-1 Change class CLS## and enter new characteristics CR3##, CR4##, and CR5##.

2-1-2 In the characteristics list, check whether any of the characteristics is a required characteristic. How can you tell?

Characteristic CR4## (release period) needs to be a required characteristic. If it isn't, change the characteristic and set the Entry required indicator in the Basic data.

2-2 Enter date characteristic CR4## in your class for nuts (CLM##), too.

2-3 In the class for screws (CLS##), the settings for date characteristic CR4## need to be slightly different from those defined in the characteristic itself.

2-3-1 In this class only, entry is not required for this characteristic.
2-3-2 In this class only, the characteristic has allowed values up to the end of the year 2010.

2-4 Ensure that the system displays a warning message if two materials have exactly the same assigned values in the class for screws (CLS##).

Which of the following restrictions apply – are the following statements true or false?

2-4-1 The check is only made once values are assigned to all characteristics.

2-4-2 The system does not check whether there are differences in the material master.

2-4-3 The system only checks single-value characteristics.
Exercises

Unit: More Functionality
Topic: Classification and finding objects

At the conclusion of these exercises, you will be able to:

- Use a suitable status to identify assigned values that are incomplete or need to be checked
- Evaluate, rework, and release assigned values that are incomplete or need to be checked
- Define settings for the appearance and scope of the search result for your user
- Use various options for processing the search result

The data for the changed class must be reworked. You need to document whether values for each assignment are complete.

3-1 Since your two classes have had characteristics added to them, you need to assign more characteristic values to the assignments.

3-1-1 Which assignment transaction is best suited to this task?

3-1-2 In the class for nuts (CLM##), enter characteristic values for all materials.

3-1-3 Maintain characteristic values for the assignments in the class for screws (CLS##), too.

   For screw T-RS1##, leave at least one characteristic without a value, and document this by setting the classification status to Incomplete.

   Maintain all values for the other screws.

   Set the classification status for one of the screws to Locked. Save your assignments.

3-2 Search for objects in class CLS##, checking various options.
3-2-1 Start a full search – without search criteria.

3-2-2 Ensure that the classification status is displayed in the search result. Also, all characteristics must be shown. Use the layout to make any necessary adjustments.

3-2-3 Ensure that incomplete assignments are included in the search result, but locked assignments are not.

3-2-4 It is possible that only one value is shown in the search result for multiple-value characteristics, even though several values exist.

How can you display all the values in such cases?

3-3 The incomplete and locked assignments need to be reworked.

3-3-1 To do this, display a list of all incomplete and locked classifications in class type 001.

3-3-2 Select your class for screws from the list and assign the missing characteristic values.

Save the changed data. Has the classification status changed?

3-3-3 If there are any more incomplete or locked assignments in your classes, release them. Use the collective release function.

Describe the difference between collective release and mass release.

3-4 True or false?

3-4-1 You can restrict the allowed values for a characteristic by overwriting them, but you cannot extend them.

3-4-2 Once you have classified an object, the transaction you used to do it is irrelevant.

3-4-3 If you do not assign a value to a required characteristic, you can only save the assignment with *Incomplete* status.

3-4-4 Locked assignments are never displayed in the search result.

3-5 Optional Exercise (without discussion): Processing the Search Result
3-5-1 Start a search without selection criteria in class **CL126**.

3-5-2 Restrict the search result by reselecting monitors from manufacturer **Sunny**.
   Number of objects: _______

3-5-3 Use filter report program **ZFILTER_BESTAND** to display only the monitors that have a stock of at least 30 in plant 1000.
   Number of objects: _______

3-5-4 Select a monitor and copy its material number to transaction **Stock Overview** (MMBE).
   Material:  
   Stock (plant 1000):  
   Stock (total):  

More Functionality Solutions

Unit: More Functionality
Topic: Characteristics

1-1  Favorites →... Characteristics

1-1-1  Characteristic  CR3##

1-1-2  Choose Create and, in the basic data, maintain the description, group, status, and data format.

To allow several packaging formats to be assigned to a material simultaneously, select Multiple values.

1-1-3  Go to the Values tab and maintain the values and descriptions shown in the task.

Select Additional values.

To make P100 the default value, select column D.

1-1-4  Go to the Addnl data tab and select Display allowed values.

This setting determines that, on the value assignment screen, the allowed values are listed on the screen and do not need to be called by displaying the possible entries (F4). Values that have been selected are shown in a different color. This setting requires more space.

1-1-5  Choose Save.

1-2  Favorites →... Characteristics

1-2-1  Enter CR4##, choose Create and, in the Basic data, maintain the description, group, and status as specified in the task.

Select data type Date format. Select Interval values and Entry required.

1-2-2  Go to the Values tab and enter 010198 – 311205 in the first line, then choose Enter.

Save your characteristic.

1-3  Favorites →... Characteristics

1-3-1  Enter CR5##, choose Create and, in the Basic data, maintain the description, group, and status as specified in the task.

Select data type Character format and enter the template AANNN.
1-3-2 Go to the *Addnl data* tab and select **Propose template.** Save your characteristic.
Solutions

Unit: More Functionality
Topic: Classes

2-1  Favorites →... Classes
2-1-1 Enter class CLS##, choose the Char. tab, and enter the characteristics specified.
2-1-2 Characteristics with attribute Entry required have the Required entry column selected. In the standard system, this column is set so narrow that you only see R as the column heading.

2-2  Favorites →... Classes
Go to the Char. tab for class CLM##, too, and enter characteristic CR4##.

2-3  Favorites →... Classes
2-3-1 Enter class CLS## and choose Char. Select characteristic CR4## and choose → Edit → Characteristic → Overwrite characteristic (or choose the icon).
Deselect Entry required. Go back to the Char. tab of class CLS## by choosing F3. Do not save yet.
2-3-2 Leave characteristic CR4## selected and choose → Edit → Characteristic → Overwrite values (or choose the icon).
Overwrite the year 2005 with the year 2010. Go back to the class by choosing F3.
Save the changed class.

2-4  Favorites →... Classes
In the basic data of class CLS##, under Same classification, select Warning message.
2-4-1 True.
2-4-2 True. The check for identical values is only for characteristic values, not for fields in the material master record.
2-4-3 False. The single-value or multiple-value attribute makes no difference.
Solutions

Unit: More Functionality
Topic: Classification and finding objects

3-1  Favorites →... Assign Objects/Classes to Class

3-1-1 This transaction is the best, because you can start from the changed class and see all assignments. The other alternative, Assign Object to Classes, would have to be started several times, and you would need to know all the classified objects.

3-1-2 Enter class CLM##. Choose Enter to see the existing assignments.

You can edit the characteristic values for each material by double-clicking on the material number.

3-1-3 Enter class CLS##. Use the procedure described in 3-1-2 to assign values to all assignments.

For screw T-RS1##, leave a characteristic without a value. In the assignment list, set the Status for this material to 3 (incomplete).

Set the Status for one of the other materials to 2 (Locked).

Choose Enter, and the different statuses in the list are shown by different icons. Save your assignments.

3-2  Favorites →... Find Objects in Classes

3-2-1 Enter class CLS## and choose Enter, then Find in initial class.

3-2-2 If the classification status (1, 2, or 3) is not shown in the search result or if characteristics are missing, choose the Change layout icon and move the information required to the left-hand side of the dialog box. Save your changed layout.

3-2-3 Choose →Extras →User settings, then the Find object tab. Here, Incomplete assignments must be selected and Locked assignments must not be selected. Save and use these settings.

These settings do not affect the current search result until you restart the search by choosing Find in initial class.
3-2-4 If more than one value is assigned to a characteristic for an object, only the first value is displayed, but this value is shown in a different color (in this example, this could be the case with the characteristic for Packaging, because this is a multiple-value characteristic).

All values are displayed if you choose the **Expand multiple values** icon.

3-3 \(\rightarrow\) **Logistics \(\rightarrow\) Central Functions \(\rightarrow\) Classification \(\rightarrow\) Environment \(\rightarrow\) Reporting \(\rightarrow\) Classification Status**

3-3-1 Enter class type **001** and choose **Execute**.

Select statuses 2 and 3 and choose **Continue**.

3-3-2 In the list, find your class **CLS##** and place the cursor on it.

Start to rework assignments by **double-clicking** or by choosing the **Maintain assignment** icon at the top left.

Finish assigning values and save.

The classification statuses that you set manually remain the same, even if the assigned values are now complete.

3-3-3 **Favorites \(\rightarrow\) Assign Objects/Classes to Class**

After entering your class and choosing **Enter**, you see a list of assignments.

Select the entries you want to release and choose **Edit → Collective release**. Choose **Save**.

The difference between this procedure and **Mass release** is that mass release lets you release the assignments for several materials in several classes at once.

Menu path for mass release: **→ Logistics → Central Functions → Classification → Classification → Mass Release of Assignments**

3-4

3-4-1 **False**. When overwriting, you can enter completely different allowed values, regardless of the allowed values defined in the global characteristic.

3-4-2 **True**.

3-4-3 **True**.

3-4-4 **False**. You can define whether locked assignments are displayed in the user settings.

3-5 **Favorites \(\rightarrow\) Find Objects in Classes**

3-5-1 Enter class **CL126** (class type **001**) and choose **Enter**, then **Find in initial class**.

You see a search result listing all monitors in class CL126. Stay on this screen.

3-5-2 As search criteria, enter manufacturer **Sunny**, and choose **Reselect**.

You see a list containing only monitors by Sunny.
3-5-3 In the upper application toolbar, choose the Set filter report icon. Select the report specified in the task, and select Filter active.

Choose Continue, then Reselect.

Enter plant 1000 (Hamburg) and stock 30. Choose the Execute icon.

You see a list of all Sunny monitors with stock of at least 30 in plant 1000.

Stay in the search result.

3-5-4 Choose → Environment → List functions, then select transaction MMBE.

Choose Continue.

In the bar above the search result, on the far right, you see an Execute icon for the stock overview.

Select a monitor and choose Stock overview.
Class Hierarchy

Contents:

- Setting up a class hierarchy with and without inheritance
- Using the class hierarchy to find classes and objects
At the conclusion of this unit, you will be able to:

- Set up a hierarchy by assigning classes to classes
- Include characteristics at a high level of the hierarchy to use inheritance
- Restrict the allowed values of inherited characteristics in the hierarchy
- Find classes in the hierarchy
- Use the hierarchy for a cross-class search
Course Overview Diagram

- Course Overview
- Introduction
- Basic Functionality
- More Functionality
- Class Hierarchy
  - Functionality for Complex Tasks
  - Object Dependencies
  - Customizing
  - Applications of Class Types (optional)
To organize the large number of classes, the classes are linked to form a hierarchy. If a characteristic is required in subtrees of the hierarchy, we use the inheritance functionality.
There are 2 functions for setting up a class hierarchy:
- Assign class to superior classes
  You start from the subordinate class and assign it to one or more superior classes.
- Assign Objects/classes to class
  You start from the superior class and assign one or more subordinate classes to it.
You can now use graphical maintenance to assign classes to superior classes. The overview tree means that you can set up complex class hierarchies without losing track. Each step you take is logged and can be undone.

You can create, delete, or change assignments using Drag&Drop. You can create new classes without leaving graphical hierarchy maintenance.

Graphical hierarchy maintenance gives you several options for starting functions: double-click with the mouse, pushbutton or icon, and menu or context menu (right-hand mouse button).
In a class hierarchy without inheritance, no characteristics are assigned to the superior classes.

Only the classes on the bottom level of the hierarchy have characteristics that describe assigned objects.
In a class hierarchy with inheritance, the superior classes have characteristics. These characteristics are inherited by all subordinate classes.

If you need a characteristic in all the classes in a subtree of the hierarchy, you only need to enter it once, in the superior class, not once for each individual class.

There is no difference between hierarchy classes and classes with objects assigned to them.
When you set up a class hierarchy, you can restrict the allowed values of a characteristic from one level of the hierarchy to the next.

When you set up a class hierarchy, the *single-value* attribute maintained in characteristics is irrelevant. Characteristic *Length* can be restricted on any level of the hierarchy to a certain range of allowed values. In subordinate classes, you only see the restricted allowed values.
In a class hierarchy, you conduct your search from one level to the next, down the hierarchy.

- In the search result, you see the objects and classes that match your search criteria and are assigned to the class you searched. You cannot search in more than one class.
- You can select a class from the search result and continue searching in this class.
- When you enter selection criteria, you see the allowed values from the classification.
When you search in a hierarchy class, you have the option of searching not just in one class, but in all classes below it in the hierarchy, too.

This finds classes (if values that match your search criteria were assigned to them when the hierarchy was set up) as well as other objects, such as materials. In this case, we recommend that you display the "object type" and "class" in the search result.
You can set up a hierarchical network, in which a class can have several superior classes.

There is no need to keep to one search path. You can use different search paths to find your class.

On the value assignment screen, you see the characteristics of all superior classes.
Inheritance reduces the maintenance effort for classes, because an inherited characteristic only needs to be entered in 1 class, to make it available to all subordinate classes.

However, the maintenance effort for setting up a hierarchy is greater, because you need to assign characteristic values to the classes when you assign them to superior classes, in order to restrict the allowed values and deliver consistent search results.

Inheritance makes it harder to change the hierarchy's structure later on. For example, you cannot delete a class from the hierarchy if assigned values exist for the inherited characteristic. Likewise, you cannot delete characteristics from a class if they are inherited.

The big advantage of inheritance is that (as of Release 4.6) it enables a cross-class search.
You are now able to:

- Set up a hierarchy by assigning classes to classes
- Include characteristics at a high level of the hierarchy to use inheritance
- Find classes in the hierarchy
- Use the hierarchy for a cross-class search
Class Hierarchy Exercises

Unit: Class Hierarchy

At the conclusion of these exercises, you will be able to:

• Set up a hierarchy by assigning classes to classes
• Use inheritance
• Find classes in the hierarchy
• Use the hierarchy for a cross-class search

Now that more and more areas are using classification, the number of classes has become too large to manage easily. For this reason, you want to structure the classes hierarchically.

In addition, some characteristics are required for entire groups of classes. For this reason, you decide to test the inheritance function of the classification system.

1-1 Set up the following hierarchy in class type 001 by performing the steps described below.

1-1-1 Create class CLT## for fasteners and assign the existing characteristic TCR01 (Property class) to it.

1-1-2 Create class CLZ## for rivets (without characteristics).

1-1-3 Set up the hierarchy by assigning the three subordinate classes to class CLT##. When you assign the classes, assign the following values:

• Screws can only have property classes of categories B and C.
• Nuts can only have a property class of category C.
• Rivets can have all property classes.

We recommend that you use transaction *Assign objects/classes to class*. Characteristic value assignment is done in the same way as for assigning materials.

1-1-4 Why could you enter several values for each class during value assignment?
   a) Because the characteristic is a multiple-value characteristic
   b) Because you are assigning values to a class.

1-1-5 Could you restrict the allowed values by overwriting the characteristic in the subordinate classes? Why / Why not?

1-2 Use the *Class hierarchy* function to check whether the hierarchy has the structure you require.

If the hierarchy is set up wrongly, the class for fasteners is assigned to the other three classes instead of the other way around. In this case, delete the assignments and start again.

1-3 Reclassify your materials by assigning a value to the inherited characteristic.

1-3-1 Which values can you assign to the property class characteristic when you classify a material in the class for screws?

Set value C-1 for at least one screw.

If the inherited characteristic does not appear for value assignment, this may be due to your user settings. On the Char. val. asmt tab, *With inherited chars* must be selected.

1-3-2 Which values can you assign to the property class characteristic when you classify a material in the class for nuts?

Set value C-1 for at least one nut.

1-4 Search in class CLT##.
1-4-1 Use search criterion *Property class C-1* and choose *Find in initial class*. Which objects are in the search result?

___________________________________________________________

___________________________________________________________

___________________________________________________________

1-4-2 Start the search with search criterion *Property class C-1* again, but this time choose *Include subordinate classes*. Which additional objects are in the search result?

___________________________________________________________

___________________________________________________________

___________________________________________________________

1-5 Assign your entire hierarchy to class **101** (pump parts). Use the *Graphical Hierarchy Maintenance* transaction.

1-6 Search for the following materials. Use different strategies for finding the class, such as search helps or searching in the hierarchy (starting with class CL).

1-6-1 A 17” monitor by MAG in the top price class.

Material number: ________________________________

1-6-2 Two pumps with a lift of 10 m and for use in a reactor.

Material numbers: ______________________ / ______________________

1-6-3 An OS/2 operating system by IPS.

Material number: ________________________________

1-6-4 A keyboard for a PC manufactured by CHERRY.

Material number: ________________________________

1-7 True or false?

1-7-1 Every class must included in a hierarchy.

___________________________________________________________

1-7-2 If you use a hierarchy, you should put all your classes in it.

___________________________________________________________

1-7-3 Entering characteristics in superior classes always leads to inheritance – you cannot switch it off.

___________________________________________________________

1-7-4 The most important advantage of inheritance is that you can do a cross-class search.

___________________________________________________________
Class Hierarchy Solutions

Unit: Class Hierarchy

1-1

1-1-1 Favorites → ... Classes
Create class CLT## for fasteners. Fill out the required fields in the Basic data. Go to the Char. tab and enter characteristic TCR01. Save your class.

1-1-2 Favorites → ... Classes
Create class CLZ## for rivets. Fill out the required fields in the Basic data. Save your class.

1-1-3 Favorites → ... Assign Objects/Classes to Class
Enter class CLT## and class type 001 and choose Enter.
Choose → Edit → New assignments. Answer the query for object type with Class.
In the list, enter classes CLM##, CLS##, and CLZ##, then choose Enter.
To assign values to the assignments of screws, double-click on CLS##. Assign values to characteristic Property class, using all B and C values.
Repeat this procedure for the two other class assignments. For class CLM##, select all C values, and for class CLZ## select all values.
Save your assignments.

1-1-4 b) is true. Characteristic TCR01 is single value. If you assign values to an object that is a class, you can always enter more than one value.

1-1-5 This would not be possible. Overwriting is only possible for characteristics that are assigned directly to the class, not for inherited characteristics.

1-2 → Logistics → Central Functions → Classification → Environment → Reporting → Class Hierarchy

Use initial class CLT## and select Subordinate classes (you can also select Graphical display). Choose the Execute icon or → Program → Execute.

1-3 Favorites → ... Assign Objects/Classes to Class
1-3-1 Start with class CLS##. Choose Enter to see the existing assignments. To see the assigned values for an assignment, use double-click. You should also see inherited characteristic TCR01 (property class).
You only see B and C values. This is due to the restriction of the allowed values, which you defined in task 1-1-3.

Set value C-1 for at least one screw.

1-3-2 Repeat this procedure for class CLM##.

Here, only C values should appear.

Set value C-1 at least once.

1-4 Favorites →... Find Objects in Classes

Enter class CLT## and choose Enter.

1-4-1 Enter value C-1 for characteristic Property class and choose Find in initial class.

The search result should contain the three classes CLS##, CLM##, and CLZ##, because all three classes had value C-1 assigned to them in task 1-1-3.

Since no materials are assigned to class CLT##, no material numbers are displayed in the search result.

1-4-2 Start the search again with the same search criteria, but this time choose Include subordinate classes.

This time, the search result contains all materials assigned to subordinate classes that had the value C1 assigned to them in task 1-3, as well as the three subordinate classes.

1-5 The assignment is possible with the Assign Objects/Classes to Class transaction, which we have used before. However, to follow the instructions in the task, choose:

→ Logistics → Central Functions → Classification → Master Data → Graphical Hierarchy Maintenance

Start with class 101 and choose Enter. Choose the New assignments icon and enter class CLT##. Save the new structure.

1-6 Find the classes either by starting with class CL and navigating through the hierarchy, or by using the possible entries and keywords.

1-6-1 Class CL126
Material M-13

1-6-2 Class 100
Materials P-101 and P-109

1-6-3 Class CL131
Material DPC1034

1-6-4 Class CL123
Material DPC1011
1-7

1-7-1  **False.** The use of hierarchies is optional.

1-7-2  **True.** If a hierarchy exists, it is often used for finding classes. You should then ensure that all classes can actually be found in the hierarchy.

1-7-3  **True.** Inherited characteristics can be hidden, but they are always there.

1-7-4  **True.**
Contents:

- Reference characteristics and organizational areas
- Optimization and reporting functions
At the conclusion of this unit, you will be able to:

- Create and use reference characteristics
- Link documents to classes and characteristics
- Define and use organizational areas in a class
- Group characteristics for display
- Split and merge classes
- Name the factors that affect the speed of the object search
To avoid redundancy, various fields from the material master are to be used for the Classification System, too. Other requirements include the layout of functions for different groups of users and improving system performance.
At the conclusion of this topic, you will be able to:

- Create and use reference characteristics
- Define and use organizational areas in a class
In the *Additional data*, you can define reference characteristics and link documents to characteristics.
The table reference lets you use information from the object master record in classification and avoid inconsistencies.

For example, in the material master record of a material, you enter the basic material. You want to use the basic material of a material in classification, too. To do this, you can refer to field Basic material in master data table MARA for materials. You use the reference characteristic in the class for classifying materials. When you classify a material, you see the basic material from the material master record.

You can also use reference characteristics to find objects.
You can enter reference characteristics in classes, like other characteristics, to use them for finding objects. However, you can also use any reference characteristics for the object type you are searching for to find objects, if you choose Extras -> Additional reference characteristics.

Reference characteristics are only displayed for finding objects if this is defined in your user settings (With additional characteristics on the Char. val. asmt tab).
You can assign an object to several classes at once. The classes may be different from either an organizational or technical point of view. If you use multiple classification, an object that you classify inherits the characteristics of all the classes to which you assign it.

- You can use any of the classes to find the object.
- As an alternative to creating several classes to classify an object from different points of view, you can include all the characteristics in one class and assign the characteristics to different organizational areas.
- In Customizing for the Classification System, you can define your own organizational areas.
Organizational areas are determined by the class type. In Customizing for the Classification System, you can change the organizational areas for a class type.

In the basic data of a class, you enter all the organizational areas that are relevant to the class. You then define which organizational areas are relevant to each characteristic. You can only use the organizational areas that you defined in the basic data of the class.
At the conclusion of this topic, you will be able to:

- Optimize work with the classification system by linking documents
- Optimize the value assignment screen with user-specific settings and groups of characteristics
- Split and merge classes
- Name the factors that affect the speed of the object search
- Use functions for mass changes to assigned values
- Use reporting functions in the classification system
On the *Texts* tab, you can use long texts to describe the class.

On the *Document* tab, you can link a document from the SAP Document Management System (a drawing, for example) to a class. You can also use object links to link to several documents.
You can link DMS document info records (DIRs) to:

- Characteristic
- Characteristic value
- Class

You can display a document as a graphical illustration in functions for:

- Class maintenance
- Classification
- Finding objects

- You can link a document to a characteristic, a characteristic value, or a class.
- First, the document must have a document info record in the Document Management System.
In the user settings for characteristic value assignment, you can define which characteristics are available for value assignment and how they are shown.
On the value assignment screen, you can define how default values in the characteristic are interpreted. You can define that a default value must be confirmed during value assignment. If the default value is not confirmed, the characteristic is interpreted as having no assigned value. You can also determine that the default value does not need to be confirmed.
In classes with large numbers of characteristics, it can be useful to group characteristics.

To group characteristics, select the characteristics on the value assignment screen and choose *Value assignment -> Characteristic grouping -> Create.*

This setting applies to the class in the entire client, and can be defined separately on the value assignment screens for classification and finding objects.

You choose whether the groups of characteristics are displayed on tab pages or pushbuttons.
- **Split class**:
  If too many objects are assigned to a class, this can lead to long response times when you search for objects.
  You can use selection criteria that you define to split the assignments between 2 different classes, thus reducing the number of assignments per class.
  The 2 classes must have the same attributes and characteristics.

- **Merge classes**:
  If 2 identical classes have too few assignments, you can merge the assignments of both classes into one class.
The mass change functions let you process large quantities of existing data. This is especially useful for making changes to your classification model.

The objects whose classification you want to change can easily be selected by using the find object function or a customer enhancement.

In the classification system menu, choose Classification → Mass Change for Assigned Values, then Copy Values Assigned to Object.

You can start from any object. For the characteristics of the object, you select values to copy to the target object.

You can check the mass change first, to avoid any inconsistencies that may arise, and to ensure that the result is what you want.
You can use this function to change, delete, or set large quantities of characteristic values without losing track. You can also classify objects or delete existing assignments.

The objects whose classification you want to change can easily be selected by using the find object function or a customer enhancement.

In the classification system menu, choose Classification → Mass Change for Assigned Values, then Set and Change Values.

You start this function with a class type and an object type. You can replace old values with new values. You can set new values where no values were set before, or delete old values.

If the characteristic has data type numeric, you can also use an operator to recalculate values. You can add, subtract, multiply, and divide figures. These fields are grayed out for characteristics of data type character.

On the Assignments tab, you can classify the target objects, or delete existing assignments.
Mass Change: Assign Values in Matrix

**Concept**
Assign values to several objects in a matrix.

**Procedure**
1. Specify class type, class and object type
2. Choose characteristics
3. Choose target objects
4. Process values in matrix table
5. Save

**Prerequisites**
All characteristics and objects must be assigned to the same class.

**Restrictions**
- No required entries.
- No warning about inconsistencies.
- Classification status is set, but not displayed.

You can use this function to assign values to several objects at once in a table.

In the classification system menu, choose Classification → Mass Change for Assigned Values, then Assign values in matrix.

You start with a class. You select the relevant characteristics of the class. You can then assign values to the characteristics of the target objects in an easy-to-read table.

Multiple-value characteristics are shown in a different color, but you only see one value. You can use the F4 help to show further values.

For information on restrictions and on how to process the classification status, see the SAP Library.
Performance Killers

Try to avoid:

- Using the same characteristics in several classes
- Long lists of values, multiple-value characteristics, intervals
- Large numbers of characteristics in one class
- Large numbers of assignments in one class
- Assigned values that are scarcely different from each other

It helps if you:

- Enter as many search criteria as possible
- Create value statistics
- Save assigned values to generated tables
Value statistics in the SAP R/3 System sort the data access alternatives for finding objects, and therefore improve performance when you search for objects. Characteristics are sorted according to their selectivity. A characteristic is selective if it has many different values assigned to classified objects, because it restricts the search result.

- If you change the objects assigned to a class frequently, create new value statistics on a regular basis.
- All values assigned to characteristics in all class types are saved to table AUSP. As of Release 4.6C, you also have the option of saving assigned values to generated tables. This lets you find objects more quickly.
Reporting Functions for Classification

- **Lists**
  - Characteristics list, class list, class hierarchy, classes without superior, object list, object comparison, and classification status

- **Where-used lists**
  - For a class, a characteristic, or a characteristic value

- **Documentation of changes**
  - Change documents for characteristics and classes, and (optional) for classification
  - Optional: Engineering Change Management (Customizing for Class Types)
To find out which objects are classified with a characteristic value, you can produce a where-used list for a characteristic value. This can be useful if you want to delete a value, for example.

The resulting list shows all the objects that have this value assigned to them in all classes. This is a cross-class reporting function.
You are now able to:

- Create and use reference characteristics
- Link documents to classes and characteristics
- Define and use organizational areas in a class
- Group characteristics for display
- Split and merge classes
- Name the factors that affect the speed of the object search
Functionality for Complex Tasks Exercises

Unit: Functionality for Complex Tasks
Topic: Reference characteristics and organizational areas

At the conclusion of these exercises, you will be able to:
• Create and use reference characteristics
• Define and use organizational areas in a class

Data from the material master is to be used in classification, without redundant maintenance of this data. Also, specific characteristics are only to be used by certain users in your system.

1-1  Display the basic data of the material master record for screw T-RS1##. Find the Basic material field.

1-1-1 What value is in it?

1-1-2 Find out the table and field names.

1-2  Create a reference characteristic that makes the Basic material field in the material master available to the classification system.

1-2-1 Create characteristic WRKST## and refer to the relevant field in the material master.

The system may display a message telling you that only the first 30 characters of the 48-character field can be used in classification. This is a technical restriction.

Confirm this message by choosing Enter.

1-2-2 Assign the characteristic to group T-##, and add your group number ## to the characteristic description proposed by the system.
Save your characteristic.

1-3 Change your class for screws (CLS##).
   1-3-1 On the Characteristics tab, enter reference characteristic WRKST##.
   1-3-2 In the Basic data, enter two organizational areas. On the Characteristics tab, assign each characteristic to at least one organizational area.

1-4 Start the Assign Objects/Classes to Class transaction with class CLS##.
   1-4-1 Is the basic material displayed in value assignment for the first screw? Could you enter a value here?

   __________________________________________________________

   1-4-2 Restrict the display of characteristics to one organizational area. Then undo this setting.

1-5 Test the usability of the reference characteristic for finding objects.
   1-5-1 Search in class CLS## for screws made of basic material ST50 (use capital letters!).
   1-5-2 Can you use the reference characteristic for the basic material to find objects that are nuts? What options do you have here?

   __________________________________________________________
Exercises

Unit: Functionality for Complex Tasks
Topic: Optimization and Reporting

At the conclusion of these exercises, you will be able to:

- Optimize work with the classification system by linking documents
- Optimize the value assignment screen with user-specific settings
- Use reporting functions in the classification system

To optimize the processes for classification and finding objects for the user, images are to be linked to characteristics. Also, further options for the value assignment screen and various reporting functions are tested.

2-1 Link a document to one of your characteristics.

2-1-1 Link document **T-D01** (document type **DRW**, document part **000**, document version **00**) to your characteristic **CR1##**.

2-1-2 Test how you can display the document in the object search.

   Whether the document is actually displayed on your monitor depends on the configuration of your workstation. The system may display an error message.

   If the system asks for your **Front end type**, select **Training**.

2-2 Define specific settings for the value assignment screen.

2-2-1 Start the **Find Objects In Classes** transaction for class **CLS##** and ensure that the allowed values for each characteristic are visible on the screen itself, and that each characteristic is displayed on its own "page".

2-2-2 Once you have tested these settings, undo them again.

2-3 Run reporting functions for your classes and characteristics.

2-3-1 Find out when and by whom your class for screws (**CLS##**) was last changed.
What was changed? ______________________________________

2-3-2 Produce a list of all the characteristics that you have created.

2-3-3 Could you (theoretically!) delete your characteristic for the thread type now?
Yes/no? _______ Why / Why not? ________________________

How do you get an overview of where this characteristic is used?

2-4 True or false?

2-4-1 In characteristic value assignment, the characteristics can be grouped on tab pages according to functional criteria by choosing Value assignment → Characteristic grouping.

2-4-2 To split or merge classes, the classes concerned must have identical characteristics.

2-4-3 To avoid slowing down system performance, it is recommended that you do not assign all materials in the same class to extend the material master.

2-4-4 The characteristic value list works across classes.

2-5 Use the mass maintenance function (Mass Change for Assigned Values) to maintain the assigned values in your class for screws.

The following tasks only make a small change to the data. The advantage of this transaction in practice is that you can process large quantities of data.

2-5-1 Maintain your class for screws CLS##. Copy the values assigned to some of the characteristics of material T-RS1## to material T-RS2##. This overwrites any existing values.

Please note that you cannot use mass maintenance to process intervals. This means that you cannot copy the assigned values for the date characteristic.
2-5-2 Maintain the assigned values for this class in a matrix. Change a few values (any values) and save them.
Functionality for Complex Tasks Solutions

Unit: Functionality for Complex Tasks
Topic: Reference characteristics and organizational areas

1-1  ➔ Logistics ➔ Materials Management ➔ Material Master ➔ Material ➔ Display ➔ Display Current

The Basic material field is on the Basic data 2 view.

1-1-1 Material T-RS1## has basic material ST-25.

1-1-2 Place the cursor on the Basic material field and choose F1 or click on the query. In the help box, choose the Technical info icon. The information you require is under Field data.

Table     MARA
Field      WRKST

1-2 Favorites ➔... Characteristics

1-2-1 Enter characteristic WRKST## and choose Create.

Go to the additional data and enter Table name MARA and field name WRKST.

The system tells you that the format data has been copied. Confirm. You see the Basic data.

1-2-2 Maintain the Characteristics group and add your group number to the Description. Save your characteristic.

1-3 Favorites ➔... Classes

1-3-1 Go to the Char. tab of class CLS## and enter characteristic WRKST##, which you have just created.

1-3-2 Go to the Basic data. Select any two entries in the Organizational area field.

Go back to the Char. tab. Now the organizational areas column is ready for input. Enter one or two organizational areas for each characteristic.

1-4 Favorites ➔... Assign Objects/Classes to Class

1-4-1 The basic material is displayed in value assignment. However, the field is not ready for input. The value comes from the material master and can only be maintained there.

1-4-2 Choose ➔ Value assignment ➔ Organizational areas.
1-5  Favorites →... Find Objects in Classes

1-5-1  Search in class CLS##.

In the object search, the reference characteristic is ready for input. Enter value ST50 and choose Find in initial class.

The result should contain at least one screw.

1-5-2  In the master record of class CLM##, characteristic basic material is not actually entered. However, you can still use it here. Start the search transaction for class CLM##.

Choose Extras → Additional reference characteristics. Choose Material and select basic material. Choose Enter/Continue. Now you can enter a search criterion for this characteristic, too (for example, ST50).

If the reference characteristic is to be used regularly in the class, you can also enter it in the class itself.
Solutions

Unit: Functionality for Complex Tasks
Topic: Optimization and Reporting

2-1

2-1-1 Favorites → ... Characteristics
Go to the Addnl data tab and enter the document. Save your characteristic.

2-1-2 Favorites → ... Find Objects in Classes
If you search in class CLS## and call the possible entries for characteristic Thread length, you will see the document icon for displaying the document at the top of the screen. If the system asks for your Front end type, select Training.

2-2 Favorites → ... Find Objects in Classes
2-2-1 Start with class CLS##. On the screen where the characteristics are shown for value assignment, choose Extras → User settings. On the Char. val. asmt tab, select With values and one char. per page.
2-2-2 Deselect this option again.

2-3

2-3-1 Favorites → ... Classes
Start class maintenance for class CLS## and choose Environment → Change documents.
The latest change is at the top of the list. From here, you can find further information by double-clicking.

2-3-2 Logistics → Central Functions → Classification → Environment → Reporting → Characteristics List
Select your characteristics group and start the report.

2-3-3 This characteristic cannot be deleted as long as it is still in use.
To see an overview of where it is used, choose Favorites → Characteristics, go to the data of the characteristic, then choose Environment → Where-used list.

2-4
2-4-1 True.
2-4-2 True.
2-4-3 True.
2-4-4 True.

2-5

→ Logistics → Central Functions → Classification → Classification → Mass Release of Assignments

2-5-1 Choose Copy Values Assigned to Objects

Enter template material T-RS1##. Enter.

On the Values tab, select, for example, the values assigned to the first two characteristics, then choose the Copy char. values icon.

Go to the Target objs tab and enter material number RS2##. Select Overwrite existing values.

Choose the Carry out a mass change icon.

2-5-2 Choose Assign Values in Matrix.

Enter class type 001 and class CLS##.

On the Chars tab, select the characteristics that you want to process. You can copy the characteristics of your class for screws by choosing the Chars of class pushbutton.

On the Target objs tab, enter the materials that you want to process. You can select and copy the material numbers in your class by choosing the Find object pushbutton.
Object Dependencies

Contents:

- Maintaining preconditions for characteristics and characteristic values
- Maintaining procedures for characteristics and characteristic values
- Maintaining selection conditions for characteristics
- Finding further information on object dependencies in the SAP Library
At the conclusion of this unit, you will be able to:

- Explain what dependencies are for
- Name the types of dependency
- Use preconditions, selection conditions, and procedures in the classification system
Course Overview Diagram

Course Overview
Introduction
Basic Functionality
More Functionality
Class Hierarchy
Functionality for Complex Tasks
Object Dependencies
Customizing
Applications of Class Types (optional)

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It has been noted that certain characteristics and characteristic values are interdependent. These interdependencies are to be mapped in the system, to reduce the data entry effort and prevent errors in value assignment.

This includes, for example:
- Disallowing certain value combinations
- Automatic setting of values where values are directly dependent on each other
- Dynamic required entry for characteristics
- Dynamic setting of default values
Examples of Object Dependencies (I)

- Only allow certain value combinations
  
  Example: Surround sound is only possible for 120W or more

- Dynamic required entry for characteristics
  
  Example: Sony speakers need an internal description

- Automatic setting of values
  
  Example: Siemens speakers always have a metal foot
Examples of Object Dependencies (II)

- Only allow value assignment for characteristics under certain conditions

  Example: You must assign the manufacturer before the country

- Dynamic setting of default values

  Example: For Magnat speakers, the default output is 80 w
## Dependency Types - What?

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
</table>
| **Precondition** | Can a value be assigned to a characteristic / can a specific value be assigned?  
You can assign the value, but you can also choose not to. |
| **Selection condition** | You MUST assign a value to a characteristic if the condition is fulfilled. |
| **Procedure (action)** | Sets characteristic values in classification, if the condition is fulfilled. The assigned value can be a default. |

- In R/3 variant configuration, you can also use dependency type "constraint".
<table>
<thead>
<tr>
<th>Use of Object Dependencies - Where?</th>
</tr>
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<td>characteristic value</td>
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</tr>
<tr>
<td>Characteristic (basic data)</td>
</tr>
<tr>
<td><strong>Procedure</strong></td>
</tr>
<tr>
<td>(action)</td>
</tr>
<tr>
<td>Characteristic (basic data),</td>
</tr>
<tr>
<td>characteristic value,</td>
</tr>
<tr>
<td>class</td>
</tr>
</tbody>
</table>
Object Dependencies - When Do They Take Effect?

Object dependencies work:

- In classification
- Not for finding objects
- In variant configuration
Preconditions

- **CHARACTERISTIC VALUES:**
  - The value to which the precondition is assigned only appears in value assignment if the condition is fulfilled.

- **CHARACTERISTICS:**
  - The characteristic to which the precondition is assigned only appears in value assignment if the condition is fulfilled.
Examples of Preconditions

- Only allow certain value combinations

- What? Precondition
  - Where? Value "Surround sound"
  - Syntax: (condition)
    - Power >= 120

- Only allow value assignment for characteristics under certain conditions

- What? Precondition
  - Where? Characteristic "Country"
  - Syntax: (condition)
    - Manufacturer specified

Example: Surround sound is only possible for 120W or more

Example: You must assign the manufacturer before the country
### Syntax of Dependencies (I)

**Characteristic in sel. conditions:** $self.characteristic

**Characteristic values:** character string in quotes

**Logical operators**

AND, OR, NOT, nesting as required (parentheses)

**Comparison operators**

$\leq, \leq, \geq, \geq, \lt, \gt, \lt, \gt, \leq, \geq, \lt, \gt$,

**Arithmetical expressions**

+$, -, /, *, \sin, \cos, \tan, \exp, \ln, \abs, \sqrt, \log10, \arcsin,
\arccos, \arctan, \sign, \frac, \ceil, \trunc, \floor$

---

- You can use the following arithmetical expressions for calculations in dependencies:
  
  + Addition - Subtraction / Division * Multiplication

  Example: $\text{CHAR_WIDTH} = \text{CHAR_LENGTH} / 4$

- You can use the following standard functions:

  sin (sine function); cos (cosine function); tan (tangent function); exp (exponent for base e); ln (natural logarithm); abs (absolute amount); sqrt (square root); log10 (logarithm for base 10); arcsin (arcsine function (reverse of sin)); arccos (arccosine (reverse of cos)); arctan (arctangent (reverse of tan)); sign (sign (sign before x)); frac (decimal part of x);

  Example: $\sin(2\times3.14\times\text{angle} / 360)$

Upper-case and lower-case characters are not interpreted as different in functions. Function names are automatically converted to upper case.
Syntax of Dependencies (II)

Additional expressions

<table>
<thead>
<tr>
<th>Expression</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color IN ('Red', 'Blue', 'Black')</td>
<td>Simple expression for lists and intervals</td>
</tr>
<tr>
<td>Length IN (100 - 300)</td>
<td>Simple expression for a characteristic with an assigned value</td>
</tr>
<tr>
<td>Color SPECIFIED</td>
<td>Condition is fulfilled if an allowed value is selected for the characteristic. Condition is not fulfilled if no value is selected for the characteristic.</td>
</tr>
</tbody>
</table>

See also: SAP Library

- LO - Logistics General
- LO - Logistics Variant Configuration
Procedures (Actions)

- Procedures (actions) set values.
- When you choose ENTER:
  - Procedures for a class are all processed
  - Procedures for a characteristic are processed, if the characteristic has an assigned value
  - Procedures for a characteristic value are processed, if the value is assigned
- If values set manually differ from values set by procedures (actions), inconsistency occurs.
- Procedures (not actions) can:
  - Set default values
  - Calculate recursions
  - Overwrite values set by each other
  - Be processed in a sequence you define
Examples of Procedures

- **Automatic setting of values**

  ![Value assignment for class SPEAKER - Object T-AP1](image)

  - **What?** Procedure
  - **Where?** Value "Siemens"
  - **Syntax:** (setting values)
    
    ```
    $self.Special features = 'Metal foot'
    ```

  - **Example:** Siemens speakers always have a metal foot

- **Dynamic setting of default values**

  ![Value assignment for class SPEAKER - Object T-AP1](image)

  - **What?** Procedure
  - **Where?** Class "Speakers"
  - **Syntax:** (setting values with condition)
    
    ```
    $set_default ($self, Power, 80 if Manufacturer = 'Magnat'
    ```

  - **Example:** For Magnat speakers, the default output is 80 w
## Storage of Dependencies

<table>
<thead>
<tr>
<th>Global dependencies</th>
<th>Special menu option</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Can be used multiple times</td>
</tr>
<tr>
<td></td>
<td>Maintained centrally</td>
</tr>
<tr>
<td></td>
<td>Referenced (not a copy)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Local dependencies</th>
<th>Defined and effective for one object only</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(for example, characteristic value)</td>
</tr>
<tr>
<td></td>
<td>Not maintained centrally</td>
</tr>
</tbody>
</table>

- We make a distinction between global and local object dependencies.
- You create and maintain global dependencies centrally, using a special function in the *Variant Configuration* menu. A global dependency is identified by a name and can be used many times.
- You define local dependencies for a specific class, characteristic, or characteristic value. A local dependency is identified by an internal number and cannot be used again.
Selection Conditions

**For characteristics:**

The characteristic becomes a required characteristic in classification if the condition is fulfilled.
Examples of Selection Conditions

- Dynamic required entry for characteristics

Example: Sony speakers need an internal description

- What? Selection condition
- Where? Characteristic "Internal desc."
- Syntax: (condition)
  Manufacturer = 'Sony'

Required characteristics for T-AP1
You are now able to:

- Explain what dependencies are for
- Name the types of dependency
- Use preconditions, selection conditions, and procedures in the classification system
- Find further information on object dependencies in the SAP Library
Object Dependencies Exercises

Unit: Object Dependencies

At the conclusion of these exercises, you will be able to:
- Maintain object dependencies for a characteristic
- Maintain object dependencies for a characteristic value

The data processing administrators have suggested mapping constant interdependencies between certain characteristics in the system. The purpose is to reduce the data entry effort and minimize errors in value assignment.

1-1 Class **TCL8##** for motorcycles (class type 001) already exists. Display this class.

1-1-1 Which characteristics does this class have?

Characteristic 1: ______ ______  Description: _________________________
Characteristic 2: ______ ______  Description: _________________________
Characteristic 3: ______ ______  Description: _________________________

1-1-2 Are there any required characteristics (characteristics with Entry required)?

____________________________________________________________

1-2 Characteristic 2 should only appear if characteristic 1 has a value assigned.

1-2-1 Which type of dependency can you use to do this?

____________________________________________________________

1-2-2 Where must you enter the dependency?

____________________________________________________________

1-2-3 Optional: Create the dependency in the system.

1-3 Model **SUNBURN-1000** always belongs to category **CRUISER**.

1-3-1 Which type of dependency can you use to do this?
1-3-2 Where must you enter the dependency?

________________________________________________________________________

1-3-3 Optional: Create the dependency in the system.

1-4 If value SUPERSPORT is assigned to characteristic TX2##, an entry is required for performance (characteristic TX3##).

1-4-1 Which type of dependency can you use to do this?

________________________________________________________________________

1-4-2 Where must you enter the dependency?

________________________________________________________________________

1-4-3 Optional: Create the dependency in the system.

1-5 Test the effect of this dependency in classification.

________________________________________________________________________

1-5-1 Create a material master record for a new motorcycle (material type trading goods, material number and so on can be anything you like) and assign it to class TCL8##.

1-5-2 Check the dependencies by assigning values to the characteristics.

Does characteristic 2 appear as required – only after a value has been assigned to characteristic 1?

If you assign value SUNBURN-1000, is the standard value CRUISER set?

Does characteristic 3 become required entry if you enter category SUPERSPORT?

________________________________________________________________________

1-6 True or false?

1-6-1 If a precondition is fulfilled, the system automatically sets the relevant value, but you can change the value manually.

________________________________________________________________________

1-6-2 An action sets a value that you cannot change.

________________________________________________________________________

1-6-3 If a selection condition for a characteristic is fulfilled, this has the same effect as the Entry required indicator in the basic data of a characteristic.
Object Dependencies Solutions

Unit: Object Dependencies

1-1 Favorites →... Classes
1-1-1 Start with class TCL8## and go to the Char. tab.

   Characteristic 1:   TX1## (Model)
   Characteristic 2:   TX2## (Category)
   Characteristic 3:   TX3## (Performance)

1-1-2 No. None of the characteristics is a required characteristic. You see this from column R (Required entry).

1-2

1-2-1 Precondition.
1-2-2 In the characteristic affected – characteristic 2 (TX2##) in this case.

1-2-3 Favorites →... Characteristics

   Go to the data of characteristic TX2## and choose → Extras → Object dependencies → Editor.

   Select dependency type precondition.

   In line 000010, enter the following syntax: TX1## specified

   Choose the Check icon. If there are no error messages, save the dependency.

   Save your characteristic.

1-3

1-3-1 Procedure or action
1-3-2 In the triggering value – value SUNBURN-1000 for characteristic TX1## in this case.

1-3-3 Favorites →... Characteristics

   In characteristic TX1##, go to the Values tab and place the cursor on value SUNBURN-1000. Choose → Extras → Object dependencies → Editor.

   Select dependency type procedure or action.

   In line 000010, enter the following syntax: $SELF.TX2## = 'CRUISER'

   Choose the Check icon. If there are no error messages, save the dependency.
Save your characteristic.

1-4

1-4-1 **Selection condition.**

1-4-2 In the characteristic affected – characteristic TX3## in this case.

1-4-3 **Favorites →... Characteristics**

Go to the data of characteristic TX3## and choose →*Extras* →*Object dependencies* →*Editor*.

Select dependency type **selection condition**.

In line 000010, enter the following syntax: TX2## = ‘SUPERSPORT‘

Choose the **Check** icon. If there are no error messages, save the dependency.

Save your characteristic.

1-5

1-5-1 →*Logistics* →*Materials Management* →*Material Master* →*Material* →*Create (General)* →*Immediately*

Select the **Classification** view. Fill out the required fields (description and unit of measure) and enter class TCL8##, class type 001.

1-5-2 Select the assignment and choose the **Values for assignment** icon.

Check the effects of the dependences you have defined, by setting and/or deleting the relevant values.

1-6

1-6-1 **False.** A precondition does not set any values – it only checks whether values are allowed.

1-6-2 **True.**

1-6-3 **True.**
Contents:

- Customizing for characteristics management
- Customizing for class management, classification, and finding objects
- Customizing for class types
At the conclusion of this unit, you will be able to:

- Define settings for characteristics management
- Define settings for class management, classification, and finding objects
- Change class types and set up new ones
- Name the steps required to add to the list of classifiable object types
- Maintain and assign user profiles
Course Overview Diagram

Course Overview
- Introduction
- Basic Functionality
- More Functionality
- Class Hierarchy
- Functionality for Complex Tasks
- Object Dependencies
- Customizing
- Applications of Class Types (optional)

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To create classes that are suitable for classifying both materials and documents, you need to set up a new class type. You also want to check how much work would be required to make materials classifiable at plant level.
In Customizing for the Classification System, you can define the following settings under *Characteristics*:
- Default field entries for when you create a characteristic
- Characteristics groups to help you search for characteristics
- Statuses for characteristics - check the standard settings and change them if required
- Template characters and templates for entering characteristic values
For each class type, you define class statuses, organizational areas, text types for classes, classification statuses, and functions and filters for finding objects.

The standard system has predefined class statuses and classification statuses. You can check the statuses and change them if required.

You can define groups for classes (as you can for characteristics) to help you find classes. Class groups are for all class types.
You can create new class types for an object type, or change existing class types.
Before you can use a new class type, you must define class statuses and classification statuses for the class type.
Class types can allow assignment of objects from different tables at the same time. To define this, select *Multiple objs allowed* on the detail screen of the class type.

- If you set this indicator, you must also process the *Objects* view for the class type. This is where you enter the object tables that you want to classify with the class type.
- For technical reasons, the *Generated tables* and *Change documents* indicators can only be set in conjunction with the *Multiple objs allowed* indicator. This means that you may sometime need to set the *Multiple objs allowed* indicator, even if you only want to classify one object type.
You can also classify objects that are not defined as classifiable in the standard system. To do this, you must define the object type as classifiable.

You need to write your own programs, as well as define settings in Customizing. First, find out which file (master data table) contains the objects, and which are the key fields of this table. Enter this data under Maintain Object Keys.

Under Maintain Object Types and Class Types, enter the screens that are called for classifying the new objects. You must create these screens in the Screen Painter (name range 9000-9999).

Before you can work with the new objects, function module OBJECT_CHECK_<object file> must exist. This must be created in the ABAP Workbench. This function module checks whether the objects you want to classify are valid.

For more details, see the Implementation Guide (IMG) for the Classification System.
The system administration (if authorized to do so) defines a profile for roles, which contains all appropriate settings. The profile can be assigned to users either directly or via the role. Once a user has the authorization to maintain profiles, the user can define profiles, too. Users can change and save the predefined settings in each function of the classification system, or assign themselves to another profile.

You can define the following settings:

- Value assignment screen: scope and display options
- Settings for searches: display options and sorting
- General settings: language settings, parameters, and DIN code
- Default values for the value assignment screen

Authorization object C_CLA_PROF lets you define profiles.
You are now able to:

- Define settings for characteristics management
- Define class-type-specific settings for class management and classification
- Change class types and set up new ones
- Name the steps required to add to the list of classifiable object types
- Maintain and assign user profiles
Customizing Exercises

Unit: Customizing
(optional exercise)

At the conclusion of these exercises, you will be able to:

• Create a new class type
• Change the attributes of a class type in Customizing

A new section of the company works fairly independently, and therefore wants to set up its own classes. These are to be clearly separate from existing material classifications. You need to check whether these requirements can be fulfilled by a new class type.

1-1 In the Customizing settings for characteristics, find out the differences between characteristic status 0 and 2.

________________________________________________________________________________________
________________________________________________________________________________________
________________________________________________________________________________________

1-2 For object table MARA, create class type Z## (Material Classes Group ##).

1-2-1 To do this, copy class type 001 and ensure that no hierarchy can be set up in the new class type. The new class type is not the standard class type for materials.

1-2-2 For class type Z##, define the new organizational area C for Controlling.

1-2-3 The class type uses the same class statuses and classification statuses as class type 001. Check whether these have been copied.

What would be the consequences if no class statuses or classification statuses were entered for your new class type?

________________________________________________________________________________________

1-3 Test your new class type Z## in the application, by creating a class for screws again. First answer some questions.

1-3-1 In class type Z##, can you reuse the class name you used in class type 001 (CLS##) for a new class?
1-3-2 Can you use the same characteristics?

1-3-3 If you use the same characteristics: Would values assigned to materials be copied from class type 001?

1-3-4 Test your answers in the system.
   Create class **CLS##** in class type **Z##**.
   Enter characteristic **CR1##** in the class.
   Assign screw **T-RS1##** to the class and assign a value to the characteristic.
   Use your results to decide whether your answers to the three questions above were correct.

1-4 In Customizing, create user profile **ZP##**.

1-4-1 Define the following settings:

**Value Assignment:** Required characteristics are to be marked as such in characteristic value assignment.

**Finding Objects:** In the search result, the object key and description are to be shown at all times. Incomplete assignments are also to be shown.

**Default Values:** Default values must be confirmed by the user before saving.

**Save the new profile.**

1-4-2 Switch to an application transaction from the classification or find objects function, and enter profile **ZP##** in the user settings for your user.
Customizing Solutions

Unit: Customizing

1-1  → Tools → AcceleratedSAP → Customizing → Project Management

Choose SAP Reference IMG, then:

→ Cross-Application Components → Classification System → Characteristics → Define Characteristic Statuses.

Status 0 (in preparation) and 2 (locked) both mean that the characteristic is not released for the application. The difference is that status 2 has a deletion flag.

1-2  IMG: → Cross-Application Components → Classification System → Classes → Maintain Object Types and Class Types

1-2-1 Select table entry MARA and double-click on Class Types in the dialog structure on the left.

Select entry 001 and choose → Edit → Copy as.

You see the data of class type 001 as a template. Overwrite the class type with Z01 and the description with Material classes group ##. Deselect Hierarchy allowed.

Answer the system query as to whether Z## is to be the new standard class type for materials with No.

Save the new class type.

1-2-2 Change the class type. In the list of class types, select entry Z## and double-click on Organizational Areas in the dialog structure on the left. Enter the new organizational area C for Controlling.

1-2-3 In the list of class types, select entry Z## and double-click on Class Status in the dialog structure on the left. Class statuses 0, 1, and 2 should have been copied with the class type.

The classification statuses should also have been copied. You can check this by double-clicking on Classification Status.

1-3  Favorites →... Classes

1-3-1 Yes. The classes created in class type 001 are not relevant to class type Z##.

1-3-2 Yes. Characteristics can be used in all class types, unless you explicitly restrict their use.
1-3-3 No. The characteristic values of a material only apply within one class type.

1-3-4 Enter class name CLS## and class type Z##, then choose Create.

No data is copied from the class of class type 001 that has the same name. This also applies to assignments and assigned values.

1-4 IMG: → Cross-Application Components → Classification System → Classes → Maintain User Profile

1-4-1 Enter profile name ZP##, and choose the pencil icon to maintain it. Confirm the system message by choosing Enter.

Define the settings as described in the task. Then save the profile.

1-4-2 Choose, for example, the following application transaction:

Favorites → ... Find Objects in Classes

Start the transaction with any class, then choose → Extras → User settings.

Choose Change profile, enter profile ZP##, then save.
Contents:

- Overview of class types and their applications
Applications of Class Types: Unit Objectives

At the conclusion of this unit, you will be able to:

- Name and use further class types for finding objects
- List the most important applications of classification
- Name class types with special features
To make the Classification System even more useful to your company, you analyze class types that have not been used so far. One specific request concerns the selection of object numbers for reporting functions, according to classification.
Finding objects is the main purpose of the Classification System and most class types.

Objects are classified for searches at client level in class types such as:

- 001 Materials
- 002 Equipment
- 010 Vendors
- 011 Customers
- 038 Activities
- ...

The Classification System lets you classify other objects as well as materials.

In Customizing for the Classification System, SAP has predefined the settings for classifying certain objects, but you can include further objects if required.
Class Types for Finding Objects (2)

- **Objects are classified for searches at other SAP organizational levels in class types such as:**

<table>
<thead>
<tr>
<th>Class Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>005 Inspection chars</td>
<td>Plant / master insp. char.</td>
</tr>
<tr>
<td>006 Inspection methods</td>
<td>Plant / inspection method</td>
</tr>
<tr>
<td>019 Work centers</td>
<td>Plant / work center</td>
</tr>
<tr>
<td>041 Funds centers</td>
<td>FM area / funds center</td>
</tr>
<tr>
<td>...</td>
<td></td>
</tr>
</tbody>
</table>

- Most objects are classified at client level, so you only enter the object key when you classify an object.
- Some objects are classified in a specific organizational unit, not at client level. You enter the object key and the organizational unit when you classify the object.
- The classification of these objects only applies to the organizational unit you enter.
**Class Types for Finding Objects (3)**

- **The key of some objects has more than one part. Examples include:**
  
  Documents, which may have several versions and/or parts. You can classify the different versions and parts separately.

<table>
<thead>
<tr>
<th>017 Document management</th>
<th>=&gt; Type / Document / Version / Part</th>
</tr>
</thead>
</table>

Class type 018 includes different types of task list, such as inspection plans, routings, and general maintenance task lists.

<table>
<thead>
<tr>
<th>018 Task list class</th>
<th>=&gt; Type / Group / Group counter</th>
</tr>
</thead>
</table>
You can define class types that let you classify different types of object, such as materials AND documents.

For example, in class type 022, you can classify materials and batches.

- The class forms a single logical object for a material master record that is handled in batches and its batches.
- Values assigned to the material restrict the values allowed for its batches, so the information is passed down the hierarchy.

In Customizing for the Classification System, you can define a class type that lets you classify objects of different types. This can be useful if you want to link objects that are logically related by classifying them in one class (for example, materials and equipment).

Class type 022 has an object hierarchy for batches and materials. Materials act as hierarchical nodes (like classes in a class hierarchy) and batches inherit their values.

CAUTION:
The object hierarchy for materials and batches is hard-coded in the SAP System. You cannot use Customizing functions to set this up.
For Variant Configuration, you need a class type that has the *Variant configuration* indicator in Customizing.

In the standard system, class type 300 is defined for Variant Configuration.

When you assign a configurable material to a variant class, you can use the characteristics of the class to describe a variant.

You assign a configurable material to a variant class in the configuration profile for the material.

For more information on Variant Configuration, see the SAP Library, *LO Variant Configuration*. 
You can enter classes as items in BOMs for configurable materials.
You use these classes to classify materials (for example) that are used in different variants of the material.
This saves your having to enter a separate item in the BOM for each material.
When you assign characteristic values during configuration, the class item is replaced by a material that is classified with the values you assigned.
The class you enter as a class item must have a class type that has the *Class node* indicator in Customizing. You can set this indicator in class types for materials or documents.
For *materials*, class types 200 and 300 are defined for use in BOMs in the standard system. For *documents*, class type 201 is defined in the standard system.
You must maintain the *Additional Data* screen in classes of these class types. On this screen, you set the indicator that lets you use the class in BOMs, and you can enter the item category of the resulting material.
For more information on using classes in BOMs, see the SAP Library, *LO Variant Configuration*. 
Distribution classes group objects together that are to be distributed using Application Link Enabling (ALE). You assign the objects to the class, but do not assign characteristic values.

You can define no more than 1 distribution class type for each object type (for example, materials or documents).

In the ALE application menu, you enter the class for distribution instead of all the individual objects you want to distribute. All objects in the class are distributed to the target system.
Class type 013 is for classifying orders. Class type 014 is for classifying projects. Each class has a range of reference characteristics predefined.

In Cost Object Controlling, for example, you classify production orders so that you can aggregate costs and key figures (such as scrap costs per plant) and display them according to classification characteristics. Overhead Cost Controlling uses classification in a similar way for internal orders.

If classification is active for the order type you are working with, the order is classified automatically when you maintain master data for the order. Values are assigned to the reference characteristics automatically.

You can also create user-defined characteristics that do not refer to fields in the order, and assign values to these characteristics manually when you maintain master data for the order.

You can classify WBS (work breakdown structure) elements in the Project System in the same way, to give you more details to use in the reporting functions in the information system.
The substance database in EH&S describes substance properties, using characteristics and classes of class type 100 (substance characteristic values).

A separate information system replaces the functions for finding objects in the Classification System.

The Environment, Health and Safety system uses the Classification System to define the properties of substances and to manage the values of these properties.

In Customizing activity *Transfer standard substance database structure*, you install the substance database structure predefined by SAP with its classes, characteristics, value types and standard properties tree. This is a pre-Customizing activity.

The settings you need to define, and the documentation on these settings, are in Customizing for EH&S, under *Substance Database Structures*.
Other class types have special functions that are only available for this class type, such as:

- **017 Document management**
  Creating additional customer-specific fields for the document info record (characteristics of a class of class type 017)

- **032 Release strategies**
  Defining conditions for selecting a release strategy for purchasing documents (for example, purchase orders)

- **049 Approvals**
  Defining conditions for selecting an approval for maintenance orders in PM

These functions are both programmed and documented in the relevant application.
If you want to select several objects at once using a search help, and copy them to your application, you can use the find objects function from the Classification System.

In situations where you can enter several objects at once, you can use the Multiple selection function in the search help.

You select the search help for finding by classes. You can copy several objects from the search result.
In the Logistics Information System (LIS), you can use classes to sort the results of reporting functions.

The data is aggregated in class hierarchies.

- You can use class hierarchies to drill down the results of standard analyses in the Logistics Information System (LIS).
- The system reads the class to which the objects are assigned when you run the analysis.
- You cannot use characteristic values to drill down.
You are now able to:

- Name and use further class types for finding objects
- List the most important applications of classification
- Name class types with special features
Applications of Class Types Exercises

Unit: Applications of Class Types
(optional exercise)

At the conclusion of these exercises, you will be able to:

- Create classes, classify, and search for different object types
- Use the Classification System to select objects for reporting functions.

You have been given the task of checking whether other objects besides materials can be classified. Also, the information in material classifications is to be used to select materials for reporting functions.

1-1 Consider whether classification would be useful for your applications for other object types than materials, such as vendors, customers, and equipment.

1-1-1 Use the possible entries function on the class type field to find out the class types for the following object types:

- Vendors ____________________
- Customers ____________________
- Equipment ____________________
- Activities ____________________
- Work centers ____________________
- Documents ____________________

1-1-2 Create a class in one of these class types. Enter 1-2 characteristics (any characteristics) and save the class.

- Class type: ______  Class: ______________________

1-1-3 Start the assignment transaction and assign some objects to the class, selecting them with the search help if necessary.

- Objects: _______________________________

1-1-4 Start a search for objects in your new class.
1-1-5 Use a reporting function to find out whether there are other classes of the class type you selected in the system.

1-2 Display a list of purchase orders for 17" monitors from MAG (Logistics → Materials Management → Purchasing → Purchase Order → List Displays → By Material).

1-2-1 Find out the material numbers concerned by going from transaction Purchase Orders for Material to the Classification System (class CL126).

To go from transaction Purchase Orders for Material to the Classification System, choose the Multiple selection icon at the end of the Material from ... to line.

Then choose Multiple selection and select search help Materials for class.

1-2-2 Copy the material numbers you find, remove plant if defaulted into selection criteria, and start the report.

1-3 True or false?

1-3-1 You can never use a class type to classify objects of more than one type.

1-3-2 Within a class type, you can only assign one value per characteristic to each object. In another class type, however, the same characteristic can have different values.
Applications of Class Types Solutions

Unit: Applications of Class Types

1-1

1-1-1 Go to any transaction that requires you to enter the class type, such as Favorites →... Class management.

On the Class type field, choose the possible entries (F4) and note down the class types.

- Vendors 010
- Customers 011
- Equipment 002
- Activities 038
- Work centers 019
- Documents 017

1-1-2 Favorites →... Class management

1-1-3 Favorites →... Assign Objects/Classes to Class

1-1-4 Favorites →... Find Objects in Classes

1-1-5 Logistics → Central Functions → Classification → Environment → Reporting → Class List

Enter the class type you selected and start the report.

1-2 Logistics → Materials management → Purchasing → Purchase Order → List Displays → For Material

1-2-1 To go to the Classification System, choose the Multiple selection icon at the end of the Material from ... to line.

Then choose Multiple selection and select search help Materials for class.

Enter class CL126 and class type 001 and choose Enter. As search criteria, enter manufacturer MAG and screen size 17 inches. Choose Find in initial class.

1-2-2 Select the material numbers in the search result and choose the green checkmark to Copy.
Choose Copy again and start the report by choosing Program → Execute.

1-3

1-3-1 False. This is usually the case, but there are also class types for multiple object types.

1-3-2 True.
Conclusion

Course Overview
Introduction
Basic Functionality
More Functionality
Class Hierarchy
Functionality for Complex Tasks
Object Dependencies
Customizing
Applications of Class Types (optional)
You are now able to:

- Create characteristics and classes
- Assign objects to classes and values to objects
- Target a search to find classified objects
- Use advanced, more complex functions in the Classification System, such as object dependencies
- Define settings in Customizing
- Name the most important applications of classification

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Classification System Functions (Example)

Master data

Characteristics
- Performance
- Casing
- Manufacturer
- Length
- Type (Laser/Inkjet)
- Weight
- Color
- Memory
- ...

Classes
Class C1 (Printers)
- Type
- Memory
- Manufacturer

Classification
Assignment
Object: Printer 1
Class: C1
Assigned values
Type: Laser
Memory: 1 MB
Manufacturer: HP

Application

Finding Objects
- Find class
- Find objects in class

When you set up a classification system, first you define characteristics and allowed characteristic values.
Next, you maintain classes and assign the characteristics to the class.
Next, you assign objects (such as materials) to the classes, and use the characteristics to describe the objects.
Then you can use the classification system to find classified objects.
Recommended Follow-up Courses

- LO990 Variant Configuration Part 1
- LO991 Variant Configuration Part 2
- LO955 Batch Management
- LO980 Engineering Change Management
Recommended Follow-up Activities

- Go through the exercises using IDES data or your own data
- Read on-line documentation
- Read IMG documentation
- Read release notes
Appendix

Contents:

- Glossary
- Menu paths
- Additional slides:
  - ALE
  - User-defined data type
  - Importing standards data (DIN)
  - Tables, BAPIs and user exits in the Classification System
Glossary

Organizational Areas
The characteristics that are used to describe the objects classified in a class may be relevant to different areas of a company. For example, some characteristics are only relevant to purchasing, some are only relevant to sales, and others are only relevant to engineering.

You can use organizational areas to assign the characteristics of a class to individual areas in a company. When you search for an object or classify an object, you may want to see only the characteristics that are assigned to one or more specific organizational areas. For example, you can restrict the list to show only the characteristics that are assigned to the organizational areas purchasing or design.

Object Dependencies
Knowledge that describes the mutual interdependencies between objects. For example, you can define dependencies between characteristics and characteristic values such that 21-speed gears are only allowed for racing bicycles.

You can also use object dependencies to ensure that the correct BOM items and operations are selected when an object is configured.

You describe object dependencies in a dependency editor using a special syntax. There are different types of object dependencies for different purposes.

In product variant structures, local dependencies are used in the form of selection conditions for component variants.

Class
A group of similar objects described by means of characteristics that they have in common.

Class Type
Top-level unit of control for classes. Each class must be assigned to exactly one class type. There is no connection between the individual class types.

The class type is used to define a number of parameters in the Classification System, such as:

- Which objects can be classified in a class
- Whether objects of different object types can be classified in the same class
- Whether an object can be classified in more than one class of the same class type
- Which class maintenance screens can be processed

Class Hierarchy
Definition of a multi-level search path via classes. The initial class has subordinate classes assigned to it, and you can restrict the search systematically by choosing the appropriate subordinate class.

For example, class VEHICLES has the subordinate classes CARS and TRUCKS. Class CARS has the subordinate classes SPORTSCARS, STATION WAGONS, and SEDANS. When you are looking for a particular car, you can restrict the search down the hierarchy levels as appropriate.

Classification
Assignment of objects to a class.
When you assign objects to a class, you assign values for the object to the characteristics in the class.

**Characteristic**
Property for describing and distinguishing between objects, such as length, color, or weight.

**Characteristic Inheritance**
The automatic inheritance of characteristics within a class hierarchy.
This means that the characteristics do not have to be entered manually in each class in this subtree of the hierarchy.

**Reference Characteristic**
A characteristic that is created with reference to a table field. The characteristic takes on the attributes (such as the format and length) of the table field, as defined in the ABAP Dictionary.
You can assign a reference characteristic to a class. If the table field (for example, table MARA, *Basic material* field) contains a value for an object, you see this value when you classify the object. You can also use reference characteristics that are not assigned to a class as additional search criteria for finding objects.
List of Menu Paths

Classification System Menu

*Logistics* → *Central functions* → *Classification*

Create, change, display characteristic

*Master Data* → *Characteristics (CT04)*

Create, change, display class

*Master Data* → *Classes (CL02)*

Assign objects

1. *Classification* → *Assign Object to Classes (CL20N)*
2. *Classification* → *Assign Objects/Classes to Class (CL24N)*

Find objects

*Find* → *Find Objects in Classes (CL30N)*

Restrict user-specific class type list

*Environment* → *Settings* → *Class Types (CL2B)*

Reporting functions

*Environment* → *Reporting* → *Characteristics List (CT10)*

*Environment* → *Reporting* → *Characteristic Values List (CT11)*

*Environment* → *Reporting* → *Class List (CL6A)*

*Environment* → *Reporting* → *Class Hierarchy (CL6C)*

*Environment* → *Reporting* → *Classification Status (CL2A)*

Create value statistics

*Environment* → *Reorganization* → *Create Statistics (CLST)*

Split / merge classes

*Environment* → *Reorganization* → *Split/Merge (CL6H)*

Set up class hierarchy

1. *Classification* → *Assign Class to Superior Classes (CL22N)*
2. *Classification* → *Assign Objects/Classes to Class (CL24N)*
c.) **Master Data** → Graphical Hierarchy Maintenance (CLHP)

Copy DIN standard

- **Environment** → Copy Standard → Copy DIN Standard (CL6E)
- **Environment** → Copy Standard → Copy Characteristics Data (CL6F)
- **Environment** → Copy Standard → Material from Standard (CL6G)

**Functions in Other Menus**

Customizing (initial screen)

- **Tools** → AcceleratedSAP → Customizing → Edit Project (SPRO)
  → Goto → SAP Reference IMG

Customizing for class types

- → Cross-Application Components → Classification System → Classes
- → Maintain Object Types and Class Types (O1CL)

Create material master record

- **Logistics** → Materials Management → Material Master → Material
  → Create (General) → Immediately (MM01)

Change material master record

- **Logistics** → Materials Management → Material Master → Material
  → Change → Immediately (MM02)

Create global dependency

- **Logistics** → Central Functions → Variant Configuration → Dependency
  → Single Dependency → Create (CU01)
Distribution via ALE

Outbound system

1. Characteristics
2. Classes
3. Classification

Target system

Distribution via ALE

Outbound system

Characteristics
Classes
Classification

Target system

Characteristics
Classes
Classification
User-defined data types let you group characteristics together.

First, you define the individual characteristics in the appropriate format. Then you create a class of class type 031, and assign your characteristics to this class.

Finally, you create another characteristic for grouping the other characteristics together. As the data type of this characteristic, enter your class of class type 031. This class forms the link between the new characteristic and the individual characteristics.
DIN (the German standards institute) provides standards information for materials in German (DIN 4001). CAD manufacturers also supply information as part of a standards library.

You can use the *Copy Standard* function to copy this information from a sequential file on a workstation to the SAP System.
There are 3 steps to copying standards data:
- Create a DIN class and copy the characteristics in the standard. You must assign a name to the characteristics in the SAP System. The DIN class is a class like any other. You can perform just this step if required, then change the class and classify objects.
- Copy the characteristics data records that contain the characteristic values for the standard materials. The data records are stored in a buffer table.
- Assign the material to the DIN class, and assign a characteristics data record to the material.
Tables in Classification (2)

- **INOB**
  - Internal # to external #

- **KSSK**
  - Assignment of object to class

- **AUSP**
  - Assigned values

- **CABN**
  - Chars

- **CAWN**
  - Values for chars

**Objects / Classes**

- EQUI
- MARA
- ..... KLAH
BAPIs and Enhancements (User Exits)

- BAPIs in function groups CTBP (characteristics) and CLBP (classes, classifications, and finding objects)
- User exits for classification
  - CLFM0001
    Change or redefine classification of object
  - CLFM0002
    Call before updating classification data
- User exits for finding objects
  - CLCTMS01
    Default selection criteria
  - CLCTMS02
    Check for same classification
  - CLSC0001
    Manipulation of search result

To find a BAPI in the ABAP Workbench, search for function modules in the function groups shown above. Their names begin with BAPI_CHARACT_ or BAPI_CLASS.