Introduction to Data Types and Field Properties

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Every table is made up of fields. The properties of a field describe the characteristics and behavior of data added to that field. A field's data type is the most important property because it determines what kind of data the field can store. This article describes the data types and other field properties available in Microsoft Access 2010, and includes additional information in a detailed data type reference section.

Overview

Data types can seem confusing. For example, if a field's data type is Text, it can store data that consists of either text or numerical characters. But a field whose data type is Number can store only numerical data. So, you have to know what properties are used with each data type. A field's data type determines many other important field qualities, such as the following:

- Which formats can be used with the field.
- The maximum size of a field value.
- How the field can be used in expressions.
- Whether the field can be indexed.

The field's data type can be predefined, or you will select a data type depending on how you create the new field. For example, if you create a field from the Datasheet view and:

- Use an existing field from another table, the data type is already defined in the template or in the other table.
- Enter data in a blank column (or field), Access 2010 assigns a data type to the field based on the values that you enter or you can assign the data type and format for the field.
- On the **Modify Fields** tab, in the **Fields & Columns** group, click **Add Fields**, Access 2010 displays a list of data types that you can select from.

When to use which data type

Think of a field's data type as a set of qualities that applies to all the values that are contained in the field. For example, values that are stored in a Text field can contain only letters, numbers, and a limited set of punctuation characters, and a Text field can only contain a maximum of 255 characters.

Tip: Sometimes, the data in a field may appear to be one data type, but is actually another. For example, a field may seem to contain numeric values but may actually contain text values, such as room numbers. You can often use an expression to compare or convert values of different data types.

The following tables show you the formats available for each data type and explain the effect of the formatting option.

Basic Types	
Format	**Use to display**
Text	Short, alphanumeric values, such as a last name or a street address.
Number	Numeric values, such as distances. Note that there is a separate data type for currency.
Currency	Monetary values.
Yes/No	Yes and No values and fields that contain only one of two values.

Basic Types	
Format	**Use to display**
Date/Time	Date and Time values for the years 100 through 9999.
Rich Text	Text or combinations of text and numbers that can be formatted using color and font controls.
Calculated Field	Results of a calculation. The calculation must refer to other fields in the same table. You would use the Expression Builder to create the calculation.
Attachment	Attached images, spreadsheet files, documents, charts, and other types of supported files to the records in your database, similar to attaching files to e-mail messages.
Hyperlink	Text or combinations of text and numbers stored as text and used as a hyperlink address.
Memo	Long blocks of text. A typical use of a Memo field would be a detailed product description.
Lookup	Displays either a list of values that is retrieved from a table or query, or a set of values that you specified when you created the field. The Lookup Wizard starts and you can create a Lookup field. The data type of a Lookup field is either Text or Number, depending on the choices that you make in the wizard. **Note**: Lookup fields have an additional set of field properties, which are located on the Lookup tab in the Field Properties pane.

Number	
Format	**Use to display**
General	Numbers without additional formatting exactly as it is stored.
Currency	General monetary values.
Euro	General monetary values stored in the EU format.
Fixed	Numeric data.
Standard	Numeric data with decimal.
Percentage	Percentages.
Scientific	Calculations.

Data and Time	
Format	**Use to display**
Short Date	Display the date in a short format. Depends on your regional date and time settings. For example, 3/14/2001 for USA.
Medium Date	Display the date in medium format. For example, 3-Apr-09 for USA.
Long Date	Display the date in a long format. Depends on your regional date and time settings. For example, Wednesday, March 14, 2001 for USA.
Time am/pm	Display the time only using a 12 hour format that will respond to changes in the regional date and time settings.
Medium Time	Display the time followed by AM/PM.
Time 24hour	Display the time only using a 24 hour format that will respond to changes in the regional date and time settings

Yes/No	
Data Type	**Use to display**
Check Box	A check box.
Yes/No	Yes or No options
True/False	True or False options.
On/Off	On or Off options.

OLE Object

OLE objects such as Word documents (OLE: An object supporting the OLE protocol for object linking and embedding. An OLE object from an OLE server (for example, a Windows Paint picture or a Microsoft Excel worksheet) can be linked or embedded in a field, form, or report.).

Additional field properties

After you create a field and set its data type, you can set additional field properties. The field's data type determines which other properties that you can set. For example, you can control the size of a Text field by setting its **Field Size** property.

For Number and Currency fields, the **Field Size** property is especially important, because it determines the range of field values. For example, a one-bit Number field can store only integers ranging from 0 to 255.

The **Field Size** property also determines how much disk space each Number field value requires. Depending on the field size, the number can use exactly 1, 2, 4, 8, 12, or 16 bytes.

Note: Text and Memo fields have variable field value sizes. For these data types, **Field Size** sets the maximum space available for any one value.

Data types in relationships and joins

A table relationship is an association that is established between common fields (columns) in two tables. A relationship can be one-to-one, one-to-many, or many-to-many.

A join is a SQL operation that combines data from two sources into one record in a query recordset based on values in a specified field that the sources have in common. A join can be an inner join, a left outer, or a right outer join.

When you create a table relationship or add a join to a query, the fields that you connect must have the same or compatible data types. For example, you cannot create a join between a Number field and a Text field, even if the values in those fields match.

In a relationship or a join, fields that are set to the AutoNumber data type are compatible with fields that are set to the Number data type if the **Field Size** property of the latter is **Long Integer**.

You cannot change the data type or the **Field Size** property of a field that is involved in a table relationship. You can temporarily delete the relationship to change the **Field Size** property. However, if you change the data type, you won't be able to re-create the relationship without first also changing the data type of the related field.

Reference for data types

When you apply a data type to a field, it contains a set of properties that you can select. The following section has information on the field properties that each data type supports.

Attachment

Purpose: Use an attachment field to attach multiple files, such as images, to a record.

Suppose that you have a job contacts database. You can use an attachment field to attach a photo of each contact, and you can also attach one or more resumes for a contact to the same field in that record.

For some file types, Access compresses each attachment as you add it.

Types of attachments that Access compresses

When you attach any of the following file types, Access compresses the file.

- Bitmaps, such as .bmp files
- Windows Metafiles, including .emf files
- Exchangeable File Format files (.exif files)
- Icons
- Tagged Image File Format files

You can attach many kinds of files to a record. However, some file types that may pose security risks are blocked. As a rule, you can attach any file that was created in one of the 2007 Microsoft Office system programs. You can also attach log files (.log), text files (.text, .txt), and compressed .zip files.

Attachment supported field properties	
Property	**Use**
Caption	The label text that is displayed for this field by default in forms, reports, and queries. If this property is empty, the name of the field is used. Any text string is allowed. **Tip**: An effective caption is usually brief.
Required	Requires that each record has at least one attachment for the field.

Supported image file formats

Access supports the following graphic file formats without the need for additional software being installed on your computer.

- Windows Bitmap (.bmp files)
- Run Length Encoded Bitmap (.rle files)
- Device Independent Bitmap (.dib files)
- Graphics Interchange Format (.gif files)
- Joint Photographic Experts Group (.jpe, .jpeg, and .jpg files)
- Exchangeable File Format (.exif files)
- Portable Network Graphics (.png files)
- Tagged Image File Format (.tif and .tiff files)
- Icon (.ico and .icon files)
- Windows Metafile (.wmf files)
- Enhanced Metafile (.emf files)

File naming conventions

The names of your attached files can contain any Unicode character supported by the NTFS file system that is used in Microsoft Windows NT. In addition, file names must follow the following guidelines:

- Names must not exceed 255 characters, including the file name extensions.
- Names cannot contain the following characters: question marks (**?**), quotation marks (**"**), forward or backward slashes (**/**), opening or closing brackets (**< >**), asterisks (*****), vertical bars or pipes (**|**), colons (**:**), or paragraph marks (**¶**).

AutoNumber

Purpose: Use an AutoNumber field to provide a unique value that serves no other purpose than to make each record unique. The most common use for an AutoNumber field is as a primary key, especially when no suitable natural key (a key that is based on a data field) is available.

An AutoNumber field value requires 4 or 16 bytes, depending on the value of its **Field Size** property.

Suppose that you have a table that stores contacts' information. You can use contact names as the primary key for that table, but how do you handle two contacts with exactly the same name? Names are unsuitable natural keys, because they are often not unique. If you use an AutoNumber field, each record is guaranteed to have a unique identifier.

Note: You should not use an AutoNumber field to keep a count of the records in a table. AutoNumber values are not reused, so deleted records can result in gaps in your count. Moreover, an accurate count of records can be easily obtained by using a Totals row in a datasheet.

AutoNumber supported field properties	
Property	**Use**
Field Size	Determines the amount of space that is allocated for each value. For AutoNumber fields, only two values are allowed: • The **Long Integer** field size is used for AutoNumber fields that are not used as replication IDs. This is the default value. You should not change this value unless you are creating a replication ID field. **Note**: Replication is not supported in databases that use a new file format, such as .accdb. This setting makes AutoNumber fields compatible with other Long Integer Number fields when they are used in relationships or joins. Each field value requires 4 bytes of storage. • The **Replication ID** field size is used for AutoNumber fields that are used as replication IDs in a database replica. Do not use this value unless you are working in or implementing the design of a replicated database. Each field value requires 16 bytes of storage.
New Values	Determines whether AutoNumber field increments with each new value or uses random numbers. Select one of the following: • **Increment**: Starts with the value 1 and incrementally increases by 1 for each new record. • **Random**: Starts with a random value and assigns a random value to each new record. Values are of the Long Integer field size, and range from -2,147,483,648 to 2,147,483,647.
Format	If you are using an AutoNumber field as a primary key or as a Replication ID, you should not set this property. Otherwise, choose a number format that meets your specific needs.
Caption	The label text that is displayed for this field by default in forms, reports, and queries. If this property is empty, the name of the field is used. Any text string is allowed. **Tip**: An effective caption is usually brief.
Indexed	Specifies whether the field has an index. There are three available values: • Yes (No duplicates): Creates a unique index on the field. • Yes (Duplicates OK): Creates a non-unique index on the field. • No: Removes any index on the field. **Note**: Do not change this property for a field that is used in a primary key. Without a unique index, it is possible to enter duplicate values, which can break any relationships in which the key is a part. Although you can create an index on a single field by setting the Indexed field property, some kinds of indexes cannot be created in this manner. For example, you cannot create a multi-field index by setting this property.

AutoNumber supported field properties	
Property	**Use**
Smart Tags	Attaches a smart tag to the field.
Text Align	Specifies the default alignment of text within a control.

Currency

Purpose: Use to store monetary data.

Data in a Currency field is not rounded off during calculations. A Currency field is accurate to 15 digits to the left of the decimal point and 4 digits to the right. Each Currency field value requires 8 bytes of storage.

Currency supported field properties	
Property	**Use**
Format	Determines the way that the field appears when it is displayed or printed in datasheets or in forms or reports that are bound to the field. You can use any valid number format. In most cases, you should set the Format value to Currency.
Decimal Places	Specifies the number of decimal places to use when displaying numbers.
Input Mask	Displays editing characters to guide data entry. For example, an input mask might display a dollar sign ($) at the beginning of the field.
Caption	The label text that is displayed for this field by default in forms, reports, and queries. If this property is empty, the name of the field is used. Any text string is allowed. **Tip**: An effective caption is usually brief.
Default Value	Automatically assigns the specified value to this field when a new record is added.
Validation Rule	Supplies an expression that must be true whenever you add or change the value in this field. Use in conjunction with the Validation Text property.
Validation Text	Enter a message to display when a value that is entered violates the expression in the Validation Rule property.
Required	Requires that data be entered in the field.
Indexed	Specifies whether the field has an index. There are three available values: • Yes (No duplicates): Creates a unique index on the field. • Yes (Duplicates OK): Creates a non-unique index on the field. • No: Removes any index on the field. **Note**: Do not change this property for a field that is used in a primary key. Although you can create an index on a single field by setting the Indexed field property, some kinds of indexes cannot be created in this manner. For example, you cannot create a multi-field index by setting this property.

Currency supported field properties	
Property	**Use**
Smart Tags	Attaches a smart tag to the field.
Text Align	Specifies the default alignment of text within a control.

Date/Time

Purpose: Use to store time-based data.

Date/Time supported field properties	
Property	**Use**
Caption	The label text that is displayed for this field by default in forms, reports, and queries. If this property is empty, the name of the field is used. Any text string is allowed. **Tip**: An effective caption is usually brief.
Default Value	Automatically assigns the specified value to this field when a new record is added.

Format	Determines the way that the field appears when it is displayed or printed in datasheets, or in forms or reports that are bound to the field. You can use a predefined format or build your own custom format.
	List of predefined formats:
	• **General Date**: By default, if the value is a date only, no time is displayed; if the value is a time only, no date is displayed. This setting is a combination of the Short Date and Long Time settings.
	  ○ Examples:
	  ▪ 4/3/07
	  ▪ 05:34:00 PM
	  ▪ 4/3/07 05:34:00 PM
	• **Long Date**: Same as the Long Date setting in the regional settings of Windows.
	  ○ Example: Saturday, April 3, 2007.
	• **Medium Date**: Displays the date as dd-mmm-yyyy.
	  ○ Example: 3-Apr-2007.
	• **Short Date**: Same as the Short Date setting in the regional settings of Windows.
	  ○ Example: 4/3/07.
	  ○ Warning: The Short Date setting assumes that dates between 1/1/00 and 12/31/29 are twenty-first century dates (that is, the years are assumed to be 2000 to 2029). Dates between 1/1/30 and 12/31/99 are assumed to be twentieth century dates (that is, the years are assumed to be 1930 to 1999).
	• **Long Time**: Same as the setting on the Time tab in the regional settings of Windows.
	  ○ Example: 5:34:23 PM.

Date/Time supported field properties	
Property	**Use**

	• **Medium Time**: Displays the time as hours and minutes separated by the time separator character, followed by an AM/PM indicator.
	  o Example: 5:34 PM.
	• **Short Time**: Displays the time as hours and minutes separated by the time separator, by using a 24-hour clock.
	  o Example: 17:34.
	Lists of components that you can use in custom formats
	Type any combination of the following components to build a custom format. For example, to display the week of the year and day of the week, type ww/w.
	Important: Custom formats that are inconsistent with the date/time settings specified in Windows regional settings are ignored.
	• **Separator components**
	  o **Note**: Separators are set in the regional settings of Windows.
	  ▪ **:** Time separator. For example, hh:mm
	  ▪ **/** Date separator. For example, mmm/yyyy
	  ▪ Any short string of characters, enclosed in quotation marks ("") Custom separator. Quotation marks are not displayed. For example, "," displays a comma.
	• **Date format components**
	  o **d** Day of the month in one or two numeric digits, as needed (1 to 31).
	  o **dd** Day of the month in two numeric digits (01 to 31).
	  o **ddd** First three letters of the weekday (Sun to Sat).
	  o **dddd** Full name of the weekday (Sunday to Saturday).
	  o **w** Day of the week (1 to 7).
	  o **ww** Week of the year (1 to 53).
	  o **m** Month of the year in one or two numeric digits, as needed (1 to 12).
	  o **mm** Month of the year in two numeric digits (01 to 12).
	  o **mmm** First three letters of the month (Jan to Dec).
	  o **mmmm** Full name of the month (January to December).
	  o **q** The quarter of the year (1 to 4).
	  o **y** Number of the day of the year (1 to 366).
	  o **yy** Last two digits of the year (01 to 99).
	  o **yyyy** Full year (0100 to 9999).
	• **Time format components**
	  o **h** Hour in one or two digits, as needed (0 to 23).
	  o **hh** Hour in two digits (00 to 23).

Date/Time supported field properties	
Property	**Use**
	○ **n** Minute in one or two digits, as needed (0 to 59). ○ **nn** Minute in two digits (00 to 59). ○ **s** Second in one or two digits, as needed (0 to 59). ○ **ss** Second in two digits (00 to 59). • **Clock format components** ○ **AM/PM** Twelve-hour clock with the uppercase letters "AM" or "PM," as appropriate. For example, 9:34PM. ○ **am/pm** Twelve-hour clock with the lowercase letters "am" or "pm," as appropriate. For example, 9:34pm. ○ **A/P** Twelve-hour clock with the uppercase letter "A" or "P," as appropriate. For example, 9:34P. ○ **a/p** Twelve-hour clock with the lowercase letter "a" or "p," as appropriate. For example, 9:34p. ○ **AMPM** Twelve-hour clock with the appropriate morning/afternoon designator as defined in the regional settings of Windows. • **Predefined formats** ○ **c** Same as the General Date predefined format. ○ **ddddd** Same as the Short Date predefined format. ○ **dddddd** Same as the Long Date predefined format. ○ **ttttt** Same as the Long Time predefined format.
IME Mode	Controls the conversion of characters in East Asian versions of Windows.
IME Sentence Mode	Controls the conversion of sentences in East Asian versions of Windows.
Indexed	Specifies whether the field has an index. There are three available values: • Yes (No duplicates): Creates a unique index on the field. • Yes (Duplicates OK): Creates a non-unique index on the field. • No: Removes any index on the field. **Note**: Do not change this property for a field that is used in a primary key. Although you can create an index on a single field by setting the Indexed field property, some kinds of indexes cannot be created in this manner. For example, you cannot create a multi-field index by setting this property.
Input Mask	Displays editing characters to guide data entry. For example, an input mask might display a dollar sign ($) at the beginning of the field.
Required	Requires that data be entered in the field.

Date/Time supported field properties	
Property	**Use**
Show Date Picker	Specifies whether to show the Date Picker control. **Note**: If you use an input mask for a Date/Time field, the Date Picker control is unavailable regardless of how you set this property.
Smart Tags	Attaches a smart tag to the field.
Text Align	Specifies the default alignment of text within a control.
Validation Rule	Supplies an expression that must be true whenever you add or change the value in this field. Use in conjunction with the Validation Text property.
Validation Text	Enter a message to display when a value that is entered violates the expression in the Validation Rule property.

Hyperlink

Purpose: Use to store a hyperlink, such as an e-mail address or a Web site URL.

A hyperlink can be a UNC path (universal naming convention: A naming convention for files that provides a machine-independent means of locating the file. Rather than specifying a drive letter and path, a UNC name uses the syntax \\servershare\path\filename.) or a URL (Uniform Resource Locator: An address that specifies a protocol (such as HTTP or FTP) and a location of an object, document, World Wide Web page, or other destination on the Internet or an intranet, for example: http://www.microsoft.com/.). It can store up to 2048 characters.

Hyperlink supported field properties	
Property	**Use**
Allow Zero Length	Allows entry (by setting to Yes) of a zero-length string ("") in a Hyperlink, Text, or Memo field.
Append Only	Determines whether to track field value changes. There are two settings: • **Yes**: Tracks changes. To view the field value history, right-click the field, and then click Show column history. • **No**: Does not track changes. Warning: Setting this property to No deletes any existing field value history.
Caption	The label text that is displayed for this field by default in forms, reports, and queries. If this property is empty, the name of the field is used. Any text string is allowed. **Tip**: An effective caption is usually brief.
Default Value	Automatically assigns the specified value to this field when a new record is added.

Hyperlink supported field properties	
Property	**Use**
Format	Determines the way that the field appears when it is displayed or printed in datasheets or in forms or reports that are bound to the field. You can define a custom format for a Hyperlink field.
IME Mode	Controls the conversion of characters in East Asian versions of Windows.
IME Sentence Mode	Controls the conversion of sentences in East Asian versions of Windows.
Indexed	Specifies whether the field has an index. There are three available values: • Yes (No duplicates): Creates a unique index on the field. • Yes (Duplicates OK): Creates a non-unique index on the field. • No: Removes any index on the field. Note: Do not change this property for a field that is used in a primary key. Although you can create an index on a single field by setting the Indexed field property, some kinds of indexes cannot be created in this manner. For example, you cannot create a multi-field index by setting this property.
Required	Requires that data be entered in the field.
Smart Tags	Attaches a smart tag to the field.
Text Align	Specifies the default alignment of text within a control.
Unicode Compression	Compresses text that is stored in this field when less than 4,096 characters are stored.
Validation Rule	Supplies an expression that must be true whenever you add or change the value in this field. Use in conjunction with the Validation Text property.
Validation Text	Enter a message to display when a value that is entered violates the expression in the Validation Rule property.

Memo

Purpose: Use to store a block of text that is more than 255 characters long and is formatted text.

Memo supported field properties	
Property	**Use**
Allow Zero Length	Allows entry (by setting to Yes) of a zero-length string ("") in a Hyperlink, Text, or Memo field.

Memo supported field properties	
Property	**Use**
Append Only	Determines whether to track field value changes. There are two settings: • Yes: Tracks changes. To view the field value history, right-click the field, and then click Show column history. • No: Does not track changes. **Warning**: Setting this property to No deletes any existing field value history.
Caption	The label text that is displayed for this field by default in forms, reports, and queries. If this property is empty, the name of the field is used. Any text string is allowed. **Tip**: An effective caption is usually brief.
Default Value	Automatically assigns the specified value to this field when a new record is added.
Format	Determines the way that the field appears when it is displayed or printed in datasheets or in forms or reports that are bound to the field. You can define a custom format for a Memo field.
IME Mode	Controls the conversion of characters in East Asian versions of Windows.
IME Sentence Mode	Controls the conversion of sentences in East Asian versions of Windows.
Indexed	Specifies whether the field has an index. There are three available values: • Yes (No duplicates): Creates a unique index on the field. • Yes (Duplicates OK): Creates a non-unique index on the field. • No: Removes any index on the field. **Note**: Do not change this property for a field that is used in a primary key. Although you can create an index on a single field by setting the Indexed field property, some kinds of indexes cannot be created in this manner. For example, you cannot create a multi-field index by setting this property.
Required	Requires that data be entered in the field.
Smart Tags	Attaches a smart tag to the field.
Text Align	Specifies the default alignment of text within a control.
Unicode Compression	Compresses text that is stored in this field when less than 4,096 characters are stored.
Validation Rule	Supplies an expression that must be true whenever you add or change the value in this field. Use in conjunction with the Validation Text property.

Memo supported field properties	
Property	**Use**
Validation Text	Enter a message to display when a value that is entered violates the expression in the Validation Rule property.

Number

Purpose: Use to store a numeric value that isn't a monetary value. If you might use the values in the field to perform a calculation, use the Number data type.

Number supported field properties	
Property	**Use**
Caption	The label text that is displayed for this field by default in forms, reports, and queries. If this property is empty, the name of the field is used. Any text string is allowed. **Tip**: An effective caption is usually brief.
Decimal Places	Specifies the number of decimal places to use when displaying numbers.
Default Value	Automatically assigns the specified value to this field when a new record is added.
Field Size	Select one of the following: • **Byte** — Use for integers that range from 0 to 255. Storage requirement is 1 byte. • **Integer** — Use for integers that range from -32,768 to 32,767. Storage requirement is 2 bytes. • **Long Integer** — Use for integers that range from -2,147,483,648 to 2,147,483,647. Storage requirement is 4 bytes. **Tip**: Use Long Integer when you create a foreign key to relate to another table's AutoNumber primary key field. • **Single** Use for numeric floating point values that range from -3.4×10^{38} to 3.4×10^{38} and up to seven significant digits. Storage requirement is 4 bytes. • **Double** Use for numeric floating point values that range from -1.797×10^{308} to 1.797×10^{308} and up to fifteen significant digits. Storage requirement is 8 bytes. • **Replication ID** Use for storing a globally unique identifier required for replication. Storage requirement is 16 bytes. Note that replication is not supported using the .accdb file format. • **Decimal** Use for numeric values that range from $-9.999... \times 10^{27}$ to $9.999... \times 10^{27}$. Storage requirement is 12 bytes. **Tip**: For best performance, always specify the smallest sufficient Field Size.
Format	Determines the way that the field appears when it is displayed or printed in datasheets, or in forms or reports that are bound to the field. You can use any valid number format.
Indexed	Specifies whether the field has an index. There are three available values:

Number supported field properties	
Property	**Use**
	• Yes (No duplicates): Creates a unique index on the field. • Yes (Duplicates OK): Creates a non-unique index on the field. • No: Removes any index on the field. **Note**: Do not change this property for a field that is used in a primary key. Although you can create an index on a single field by setting the Indexed field property, some kinds of indexes cannot be created in this manner. For example, you cannot create a multi-field index by setting this property.
Input Mask	Displays editing characters to guide data entry. For example, an input mask might display a dollar sign ($) at the beginning of the field.
Required	Requires that data be entered in the field.
Smart Tags	Attaches a smart tag to the field.
Text Align	Specifies the default alignment of text within a control.
Validation Rule	Supplies an expression that must be true whenever you add or change the value in this field. Use in conjunction with the Validation Text property.
Validation Text	Enter a message to display when a value that is entered violates the expression in the Validation Rule property.

OLE Object

Purpose: Use to attach an OLE Object, such as a Microsoft Office Excel spreadsheet, to a record. If you want to use OLE features, you must use the OLE Object data type.

In most cases, you should use an Attachment field instead of an OLE Object field. OLE Object fields support fewer file types than Attachment fields support. In addition, OLE Object fields do not let you attach multiple files to a single record.

OLE supported field properties	
Property	**Use**
Caption	The label text that is displayed for this field by default in forms, reports, and queries. If this property is empty, the name of the field is used. Any text string is allowed. **Tip**: An effective caption is usually brief.
Required	Requires that data be entered in the field.
Text Align	Specifies the default alignment of text within a control.

Text

Purpose: Use to store up to 255 characters of text.

Text supported field properties	
Property	**Use**
Allow Zero Length	Allows entry (by setting to Yes) of a zero-length string ("") in a Hyperlink, Text, or Memo field.
Caption	The label text that is displayed for this field by default in forms, reports, and queries. If this property is empty, the name of the field is used. Any text string is allowed. **Tip**: An effective caption is usually brief.
Default Value	Automatically assigns the specified value to this field when a new record is added.
Field Size	Enter a value from 1 to 255. Text fields can range from 1 to 255 characters. For larger text fields, use the Memo data type. **Tip**: For best performance, always specify the smallest sufficient Field Size. For example, if you are storing postal codes of a known length, you should specify that length as the Field Size.
Format	Determines the way that the field appears when it is displayed or printed in datasheets or in forms or reports that are bound to the field. You can define a custom format for a Text field.
IME Mode	Controls the conversion of characters in East Asian versions of Windows.
IME Sentence Mode	Controls the conversion of sentences in East Asian versions of Windows.
Indexed	Specifies whether the field has an index. There are three available values: • Yes (No duplicates): Creates a unique index on the field. • Yes (Duplicates OK): Creates a non-unique index on the field. • No: Removes any index on the field. **Note**: Do not change this property for a field that is used in a primary key. Although you can create an index on a single field by setting the Indexed field property, some kinds of indexes cannot be created in this manner. For example, you cannot create a multi-field index by setting this property.
Required	Requires that data be entered in the field.
Smart Tags	Attaches a smart tag to the field.
Text Align	Specifies the default alignment of text within a control.

Text supported field properties	
Property	**Use**
Unicode Compression	Compresses text that is stored in this field when less than 4,096 characters are stored.
Validation Rule	Supplies an expression that must be true whenever you add or change the value in this field. Use in conjunction with the Validation Text property.
Validation Text	Enter a message to display when a value that is entered violates the expression in the Validation Rule property.

Yes/No

Purpose: Use to store a Boolean value.

Yes/No supported field properties	
Property	**Use**
Caption	The label text that is displayed for this field by default in forms, reports, and queries. If this property is empty, the name of the field is used. Any text string is allowed. **Tip**: An effective caption is usually brief.
Default Value	Automatically assigns the specified value to this field when a new record is added.
Format	Determines the way that the field appears when it is displayed or printed in datasheets, or in forms or reports that are bound to the field. Select one of the following: • True/False: Displays the value as either True or False. • Yes/No: Displays the value as either Yes or No. • On/Off: Displays the value as either On or Off.
Indexed	Specifies whether the field has an index. There are three available values: • Yes (No duplicates): Creates a unique index on the field. • Yes (Duplicates OK): Creates a non-unique index on the field. • No: Removes any index on the field. **Note**: Do not change this property for a field that is used in a primary key. Although you can create an index on a single field by setting the Indexed field property, some kinds of indexes cannot be created in this manner. For example, you cannot create a multi-field index by setting this property.
Text Align	Specifies the default alignment of text within a control.
Validation Rule	Supplies an expression that must be true whenever you add or change the value in this field. Use in conjunction with the Validation Text property.

Yes/No supported field properties	
Property	**Use**
Validation Text	Enter a message to display when a value that is entered violates the expression in the Validation Rule property.

Set the field size

You can adjust the amount of space that each record in a table uses by changing the field size property of number fields in the table. You can also change the field size of a field that stores text data, although this action has a smaller effect on the amount of space that is used.

What happens when I change the field size?

You can change the field size of a field that is empty or that already contains data. The effect of changing the field size depends on whether the field already contains data.

- **If the field does not contain data**: When you change the field size, the size of new data values is limited for the field. For number fields, the field size determines exactly how much disk space Access uses for each value of the field. For text fields, the field size determines the maximum amount of disk space that Access will allow for each value of the field.
- **If the field contains data**: When you change the field size, Access truncates all the values in the field that exceed the specified field size, and also limits the size of new data values for the field.

Change the field size of a number field

Tip: If the field for which you want to change the field size already contains data, consider making a backup of your database before you proceed.

1) In the Navigation Pane, right-click the table that contains the field that you want to change, and then click **Design View**.
2) In the table design grid, select the field for which you want to change the field size.
3) In the **Field Properties** pane, on the **General** tab, enter the new field size in the **Field Size** property. You can choose from the following values:
   a) **Byte** — For integers that range from 0 to 255. Storage requirement is a single byte.
   b) **Integer** — For integers that range from -32,768 to +32,767. Storage requirement is two bytes.
   c) **Long Integer** — For integers that range from -2,147,483,648 to +2,147,483,647. Storage requirement is four bytes.

      Tip: Use the Long Integer data type when you create a foreign key to relate a field to another table's AutoNumber primary key field.
   d) **Single** — For numeric floating point values that range from -3.4×10^{38} to $+3.4 \times 10^{38}$ and up to seven significant digits. Storage requirement is four bytes.
   e) **Double** — For numeric floating point values that range from -1.797×10^{308} to $+1.797 \times 10^{308}$ and up to 15 significant digits. Storage requirement is eight bytes.
   f) **Replication ID** — For storing a GUID that is required for replication. Storage requirement is 16 bytes.
      - **Note**: Replication is not supported using an .accdb file format.
   g) **Decimal** — For numeric values that range from $-9.999... \times 10^{27}$ to $+9.999... \times 10^{27}$. Storage requirement is 12 bytes.

Change the field size of a text field

Tip: If the field for which you want to change the field size already contains data, consider making a backup of your database before you continue.

1) Open the table that contains the field that you want to change.
2) Select the field for which you want to change the field size, and then on the ribbon click the **Modify Fields** tab.
3) In the **Properties** group, click **More**, and then click **Field Size**.
4) Enter the new field size in the **Field Size** box. You can enter a value from 1 to 255. This number specifies the maximum number of characters that each value can have. If you need more than 255 characters, use the Memo data type instead.

   Note: For data in a Text field, Access does not reserve space beyond what is necessary to hold actual values. The **Field Size** property is the maximum field value size.