# 1 Introduction

The Excel Binary File Format (.xls) Structure specifies the Excel Binary File Format (.xls). The Excel Binary File Format (.xls) is a collection of records and structures that specify [**workbook**](#gt_343c4660-90e1-4d86-b9cc-5007075d9dfe) content, which can include unstructured or semi半-structured tables of numbers, text, or both numbers and text, formulas, external data connections, charts, and images. Workbook content is typically 通常organized 有组织的in a grid based layout布局, and often 经常includes numeric data, structured data, and formulas.

Sections 1.7 and 2 of this specification are normative规范. All other sections and examples in this specification are informative信息丰富的.

## 1.1 Glossary术语表

This document uses the following terms:

**3-D Phong shading**: A shading algorithm that is used to apply shading to 3-D charts. The algorithm interpolates 篡改color between points on the surface 表面of a chart to give a smooth 3-D appearance.

**A1**: A [**reference style**](#gt_71d7e4ad-d6b6-49d9-b247-e2ebba1469e9) in which each column is identified sequentially from left-to-right with a letter or series of letters 一系列的信件in alphabetical 字母顺序排列order. Column headings are ordered A-Z, then AA-AZ, BA-BZ... ZA-ZZ, AAA-AAZ, and so forth. Each row is numbered sequentially from the top down.

**absolute reference**: A reference to a fixed location on a [**sheet (1)**](#gt_0b356926-f9cb-4dc2-a859-71441d62503d). An absolute reference always refers to the same range, even if the formula that contains it is moved or copied to a new location.

**accelerator key**: Any combination of keys that are pressed simultaneously 同时to run a command.

**active cell**: The cell that is currently selected in a worksheet.

**active pane**: The pane 窗格that currently has focus or contains the current selection or object.

**active sheet**: The sheet that is currently selected.

**ActiveX control**: A reusable software control, such as a check box or button, that uses ActiveX technology and provides options to users or runs macros or scripts that automate a task. See also [**ActiveX object**](#gt_0d95e494-61b2-43bc-8818-51aa162d2018).

**ActiveX Data Objects (ADO)**: A data access interface that connects to, retrieves, manipulates, and updates data in [**Object Linking and Embedding (OLE)**](#gt_171744b8-3f44-4198-b7b9-1c0147282d2c) database-compliant data sources.

**ActiveX object**: An object that is supplied by a component that supports automation.

**add-in**: Supplemental functionality that is provided by an external application or macro to extend the capabilities of an application.

**add-in function**: A worksheet function that is provided by an [**add-in**](#gt_a3be101e-9d37-484a-a5e6-b70d559146c6), instead of being built-in.

**advanced filter**: An extended filter option that enables users to specify complex filter criteria and a destination range for the filter results.

**aggregation function**: A function, such as sum or average, that appears in the total row of a table and is used to summarize data.

**ALL**: See OLAP All member.

**alternate startup directory**: A secondary location that stores files to be opened by an application when the application starts.

**American National Standards Institute (ANSI) character set**: A [**character set**](#gt_5004b992-4a9c-41c9-b65c-b2e7a2b04204) defined by a [**code page**](#gt_210637d9-9634-4652-a935-ded3cd434f38) approved by the American National Standards Institute (ANSI). The term "ANSI" as used to signify Windows code pages is a historical reference and a misnomer that persists in the Windows community. The source of this misnomer stems from the fact that the Windows code page 1252 was originally based on an ANSI draft, which became International Organization for Standardization (ISO) Standard 8859-1 [[ISO/IEC-8859-1]](https://go.microsoft.com/fwlink/?LinkId=90689). In Windows, the ANSI character set can be any of the following code pages: 1252, 1250, 1251, 1253, 1254, 1255, 1256, 1257, 1258, 874, 932, 936, 949, or 950. For example, "ANSI application" is usually a reference to a non-[**Unicode**](#gt_c305d0ab-8b94-461a-bd76-13b40cb8c4d8) or code-page-based application. Therefore, "ANSI character set" is often misused to refer to one of the character sets defined by a Windows code page that can be used as an active system code page; for example, character sets defined by code page 1252 or character sets defined by code page 950. Windows is now based on [**Unicode**](#gt_c305d0ab-8b94-461a-bd76-13b40cb8c4d8), so the use of ANSI character sets is strongly discouraged unless they are used to interoperate with legacy applications or legacy data.

**ASCII**: The American Standard Code for Information Interchange (ASCII) is an 8-bit character-encoding scheme based on the English alphabet. ASCII codes represent text in computers, communications equipment, and other devices that work with text. ASCII refers to a single 8-bit ASCII character or an array of 8-bit ASCII characters with the high bit of each character set to zero.

**attribute hierarchy**: A single-level [**hierarchy**](#gt_a07fc05d-cdb0-442c-984a-dd3589b9f682) that uses only an attribute or a column from a source, back-end relational database as its hierarchy. An attribute hierarchy typically has the same name as the attribute and is always associated with the attribute on which it is based. An all-level member can optionally be enabled for an attribute hierarchy. See also OLAP hierarchy.

**Augmented Backus-Naur Form (ABNF)**: A modified version of Backus-Naur Form (BNF), commonly used by Internet specifications. ABNF notation 评分balances 秤compactness 密实度and simplicity 简单with reasonable 合理的representational 表征power. ABNF differs from standard BNF in its definitions and uses of naming rules, repetition, alternatives, order-independence, and value ranges. For more information, see [[RFC5234]](https://go.microsoft.com/fwlink/?LinkId=123096).

**AutoComplete**: A feature that suggests text automatically based on the first few characters that a user types.

**AutoFilter**: A mechanism that can be used to filter tabular data based on user-defined criteria such as values, strings, and formatting.

**AutoFormat**: A built-in set of complementary formatting options that can be applied to ranges of cells and other objects in a document.

**AutoRecover**: A feature that recovers document and application states in the event of a hardware or software failure.

**AutoShow**: A filter option that enables users to display a specified number of the top- or bottom-most items within a PivotTable field.

**background color**: A color against which characters, patterns, and graphics are displayed. See also [**foreground color**](#gt_6710b91a-10b4-4df0-885f-99e53e7f816a).

**beta**: A pre-released version of a product that is sent to customers and partners for evaluation and feedback.

**BIFF12**: A binary file format that is used to save workbooks in Microsoft Office Excel 2007 and Microsoft Excel 2010.

**BIFF2**: A binary file format that is used by default to save worksheets in Microsoft Excel 2.1.

**BIFF3**: A binary file format that is used by default to save worksheets in Microsoft Excel 3.0 for Windows.

**BIFF4**: A binary file format that is used by default to save worksheets in Microsoft Excel 4.0 for Windows.

**BIFF5**: A binary file format that is used by default to save workbooks in Microsoft Excel 5.0 for Windows and Microsoft Excel for Windows 95.

**BIFF8**: A binary file format that is used to save workbooks in Microsoft Office Excel 2003 and earlier versions of Microsoft Excel.

**big-endian**: Multiple-byte values that are byte-ordered with the most significant byte stored in the memory location with the lowest address.

**Binary Interchange File Format (BIFF)**: The binary file formats that are used to save Excel workbooks.

**block-level formatting**: A type of formatting that can be applied to a field or column in a table. It is applied to all existing records and automatically to new records.

**border**: A line that can be applied to the outer edge of a cell, shape, object, or chart element. A border can be variously formatted for style, color, and thickness.

**border formatting**: A set of properties that, as a whole, specify the appearance of a border, such as color, line style, and thickness.

**border style**: See [**border formatting**](#gt_96ac39c1-e3ee-4485-b481-0553e5606cad).

**bounding rectangle**: A frame that encompasses an object. A bounding rectangle is not rotated and, therefore, always aligns along the x and y axes.

**Briefcase**: A system folder in Windows that is used to share and synchronize files between computers.

**bubble size**: A value that represents the diameter of a bubble in a bubble chart.

**build identifier**: An integer that identifies a build.

**build number**: A part of a sequential numbering system that is used to differentiate one version of a software product from another.

**built-in name**: A member of the group of defined names that are reserved for specific functionality.

**ButtonPopup control**: A type of Button control that displays a menu of related commands when activated.

**calculation mode**: A setting that determines whether the formulas in a worksheet are recalculated automatically or manually. See also automatic calculation mode and manual calculation mode.

**camera picture**: An image of a range of cells that is generated by using the camera tool. The image can be linked such that when the data in the source range changes, the image is updated automatically.

**caption**: One or more characters that can be used as a label for display purposes or as an identifier.

**cascading style sheet (CSS)**: An extension to [**HTML**](#gt_549c4960-e8be-4c24-bc2b-b86530f1c1bf) that enables authors and users of HTML documents to attach style sheets to those documents, as described in [[CSS-LEVEL1]](https://go.microsoft.com/fwlink/?LinkId=99527) and [[CSS-LEVEL2]](https://go.microsoft.com/fwlink/?LinkId=114090). A style sheet includes typographical information about the appearance of a page, including the font for text on the page.

**category**: (1) A custom string that is used to group one or more documents.

(2) A subdivision of items into useful groups such as geographical regions. For example, categories that represent geographical regions could be North, South, East, and West.

**category label**: A label that appears on the horizontal (x) axis of a chart and identifies the categories of the source data.

**cell**: A box that is formed by the intersection of a row and a column in a worksheet or a table. A cell can contain numbers, strings, and formulas, and various formats can be applied to that data.

**cell reference**: A set of coordinates that a cell occupies on a worksheet. For example, "B3" is the reference of a cell that appears at the intersection of column "B" and row "3".

**cell value**: The text or numeric content of a cell, or the results of a formula. A cell value does not include a formula expression, cell formatting, or other metadata.

**center-across-selection alignment**: A formatting setting that centers cell content horizontally within a selected range of cells.

**centered alignment**: A formatting setting that specifies how content is positioned within the horizontal, vertical, or both horizontal and vertical space within a cell, object, or page. When centered, content is equidistant from the edges of the cell, object, or page.

**character set**: A mapping between the characters of a written language and the values that are used to represent those characters to a computer.

**chart area**: A region in a chart object that is used to position chart elements, render axes, and plot data.

**chart sheet**: A single logical container that is used to create and store charts in a workbook.

**checksum**: A value that is the summation of a byte stream. By comparing the checksums computed from a data item at two different times, one can quickly assess whether the data items are identical.

**child**: An object that is immediately below the current object in a hierarchy.

**class identifier (CLSID)**: A [**GUID**](#gt_f49694cc-c350-462d-ab8e-816f0103c6c1) that identifies a software component; for instance, a DCOM object class or a COM class.

**class module**: A module that contains the definition for a new object. Each instance of a class creates a new object, and procedures that are defined in the module become properties and methods of the object.

**client area**: In an application, the display area that is used to create data, such as drawing or typing functions. The client area does not include toolbars, menus, or status bars.

**code page**: An ordered set of characters of a specific script in which a numerical index (code-point value) is associated with each character. Code pages are a means of providing support for [**character sets**](#gt_5004b992-4a9c-41c9-b65c-b2e7a2b04204) and keyboard layouts used in different countries. Devices such as the display and keyboard can be configured to use a specific code page and to switch from one code page (such as the United States) to another (such as Portugal) at the user's request.

**collapsed outline state**: A state in which the content that is nested within an outline is not displayed.

**color palette**: A collection of colors that is available to format text, shapes, cells, and chart elements.

**color scale**: A specific range of colors that is used to give additional meaning to data by assigning certain values to colors in the spectrum.

**color scheme**: A table of color values that enables colors to be referenced by an index value in the table instead of a color value. See also [**color palette**](#gt_05879d13-b9e0-4333-b96d-63cc3433997e).

**column formula**: A formula that is used in a calculated column.

**column outline**: A nested grouping of columns in a worksheet.

**comment**: An annotation that is associated with a cell, text, or other object to provide context-specific information or reviewer feedback.

**compact axis**: A state in which PivotTable members from different levels in a hierarchy are displayed in a single column.

**Component Object Model (COM)**: An object-oriented programming model that defines how objects interact within a single process or between processes. In [**COM**](#gt_ef2ebebc-1760-407a-9ace-af48f9050e02), clients have access to an object through interfaces implemented on the object. For more information, see [[MS-DCOM]](file:///C:\Users\Administrator\Desktop\OfficeEncryption\%5bMS-DCOM%5d.pdf#Section_4a893f3dbd2948cd9f43d9777a4415b0).

**conditional formatting**: A mechanism that changes the appearance of a user interface element based on the evaluation of a rule or expression.

**connection string**: A series of arguments, delimited by a semicolon, that defines the location of a database and how to connect to it.

**consolidation range**: A range of source data that is used in a data consolidation process.

**cryptographic service provider**: An independent software module that performs authentication, encoding, and encryption services that Windows-based applications access through the CryptoAPI.

**cube**: A set of data that is organized and summarized into a multidimensional structure that is defined by a set of [**dimensions (1)**](#gt_70d18eb1-eb3c-48f8-b0cd-7140f206406c) and [**measures**](#gt_70548cb6-ef0e-4f2a-8e34-7293a9df8998).

**cube function**: A function that is used to extract and display Online Analytical Processing (OLAP) data sets and values.

**custom color palette**: A set of user-defined colors that is available for formatting.

**custom filter**: A filter that contains preconfigured expressions in which users can optionally enter a string to filter data.

**custom list**: A user-defined list or enumeration that can be used to sort data in a worksheet.

**custom rollup**: An aggregation calculation that is customized for a dimension level, dimension member, or measure. A custom rollup contains a custom formula or operator, overrides the aggregate functions of a cube's measures, and is defined on a hierarchy.

**custom view**: A collection of display and print settings that users can name and save. Users can switch between custom views to change settings quickly.

**Data Access Objects (DAO)**: A programming interface that can be used to access and manipulate database objects.

**data bar**: A graphical representation of cell content as a bar graph.

**data consolidation**: The process of combining tabular data from various worksheets into a single list.

**data marker**: A customizable symbol or shape that identifies a data point on a line, scatter, or radar chart. A data marker can be formatted with various sizes and colors.

**data provider**: A known data source that is specific to a target type and that provides data to a collector type.

**data recovery**: A process in which files are repaired through error correction or restored from backup media.

**data region**: A region of a table that encompasses the range of cells that contains the table records. A data region does not include the [**header row**](#gt_42711baf-2679-445d-a994-0eadd91b1a38), insert row, or total row of a table.

**data source**: A database, web service, disk, file, or other collection of information from which data is queried or submitted. Supported data sources vary based on application and data provider.

**data table**: (1) A range of cells that is designated to perform what-if analysis for formulas, based on various input values.

(2) A grid that can be added to some charts and contains the numeric data that is plotted in the chart.

**data validation**: The process of testing the accuracy of data; a set of rules that specify the type and range of data that users can enter.

**date system**: A method of calculating calendar dates and times.

**DDE link**: A connection between a [**Dynamic Data Exchange (DDE)**](#gt_c24a2630-38ed-45a5-b15a-b29992007ccc) source document and a destination document.

**DDE server**: An application that responds to a [**Dynamic Data Exchange (DDE)**](#gt_c24a2630-38ed-45a5-b15a-b29992007ccc) request from a DDE client application.

**DDE topic**: A general classification of information about a [**Dynamic Data Exchange (DDE)**](#gt_c24a2630-38ed-45a5-b15a-b29992007ccc) server within which multiple, specific data items related to the topic can be exchanged.

**defined name**: A word or string of characters in a formula that represents a cell, range of cells, formula, or constant value.

**descending order**: A sort order in which text strings are arranged in reverse alphabetical order, numerical values are arranged from largest to smallest, and dates and times are arranged from newest to oldest.

**diagonal-down**: A cell [**border formatting**](#gt_96ac39c1-e3ee-4485-b481-0553e5606cad) that displays a line diagonally from the top left corner of a cell to the bottom right corner.

**diagonal-up**: A cell [**border formatting**](#gt_96ac39c1-e3ee-4485-b481-0553e5606cad) that displays a line diagonally from the bottom left corner of a cell to the top right corner.

**dialog sheet**: A single logical container that is used to create a custom dialog box.

**dimension**: (1) A structural attribute of a cube, which is an organized hierarchy of categories (levels) that describe data in a fact table. These categories typically describe a similar set of members upon which the user bases an analysis.

(2) A categorization of data in rows or columns in an Excel worksheet.

**display folder**: A folder into which attributes, measures, calculated members, and key performance indicators can be organized to facilitate browsing.

**display units**: An axis-formatting option that determines how numeric units are displayed on a value axis.

**distributed alignment**: A formatting setting that spreads text evenly, both vertically and horizontally, between the edges of a cell, object, or page. Distributed alignment is used primarily with East Asian languages. See also [**justify distributed**](#gt_11eced66-af2c-4391-8b45-87a60ad41483).

**document library**: A type of list that is a container for documents and folders.

**double accounting**: An underline style that places two lines beneath the formatted text. Double accounting is frequently used to indicate totals.

**down bar**: See [**up-down bar**](#gt_54f291c2-81aa-41b6-8831-88d180a09ea0).

**drawing**: A collection of drawing objects, such as shapes, curves, or WordArt, that are viewed together as a single image.

**drawing group**: A collection of images that are designated by the user as a single group of images and manipulated as a single [**drawing object**](#gt_51dfe494-9c84-4a0e-9d53-06068c5ce3ac).

**drawing object**: A shape, curve, line, WordArt, or other type of graphical object that can be inserted into a document.

**drillthrough**: A query that is used to retrieve individual records that were used to calculate an aggregate value.

**drop lines**: A set of supplemental lines on an area chart or a line chart. Drop lines increase the legibility of a chart by connecting each data point in a series to the category axis.

**Dynamic Data Exchange (DDE)**: An inter-process communication method that is featured in Windows. DDE allows two or more applications that are running simultaneously to exchange data and commands.

**embedded object**: An object that is created by using one application and is hosted in a document that was created by using another application. Embedding an object, rather than inserting or pasting it, ensures that the object retains its original format. Users can double-click an embedded object and edit it with the toolbars and menus from the application that was used to create it. See also [**Object Linking and Embedding (OLE)**](#gt_171744b8-3f44-4198-b7b9-1c0147282d2c).

**Excel Linked Library (XLL)**: A Dynamic Link Library (DLL) that is authored to function as an [**add-in**](#gt_a3be101e-9d37-484a-a5e6-b70d559146c6) for Microsoft Excel.

**Excel macro (XLM)**: A programming language that provides development capability in Microsoft Excel. XLM was superseded by Microsoft Visual Basic for Applications (VBA).

**expand/collapse button**: A user interface control that is used to determine which hierarchical level is displayed in an outline, or in row and column groupings.

**expression**: A combination of operators, symbols, constants, literal values, functions, names of fields or columns, controls, and properties that evaluates to a single value.

**external data**: Data that is stored in a repository outside a workbook.

**external link**: A reference to a cell, range, defined name, or other object in another worksheet or workbook.

**fill**: A color, pattern, or other attribute that is used to format the background of a cell, shape, or chart element. See also [**fill color**](#gt_ed1c5310-a27a-4576-883a-f9f3e18ba20a) and [**fill pattern**](#gt_87f0d54c-75c5-4242-a462-f55a2a95be9e).

**fill alignment**: A setting that repeats a cell value to fill the horizontal space of a cell. If the cell value exceeds the horizontal width of the cell, the value is truncated.

**fill color**: A color that is used to fill the background of a cell, shape, or chart element.

**fill pattern**: A repetitive design that users can add to the background of a cell, shape, or chart element.

**filter**: A mechanism by which a set of data is scoped to display only those entries that meet specified logical criteria.

**filtering state**: A setting that indicates whether a filter value or filter date value is included as part of the criteria that is used to define the filter for an [**AutoFilter**](#gt_aa1cb4ce-f545-4fe2-b44c-5d393d833c35).

**fit to page**: A printing option that scales a document to print on a specified number of pages.

**floating-point number**: A number that is represented by a mantissa and an exponent according to a given base. The mantissa is typically a value between "0" and "1". To find the value of a floating-point number, the base is raised to the power of the exponent, and the mantissa is multiplied by the result.

**floor**: An extension of the horizontal axis, or the area created by the inclusion of the z axis, in a 3-D chart to create a three-dimensional effect. See also [**wall**](#gt_c9b1bc1a-a2cf-429d-bf06-27019e9bb73c).

**folder**: A file system construct. File systems organize a volume's data by providing a hierarchy of objects, which are referred to as folders or directories, that contain files and can also contain other folders.

**followed hyperlink**: A hyperlink that has been activated by a user.

**font**: An object that defines the graphic design, or formatting, of a collection of numbers, symbols, and letters. A font specifies the style (such as bold and strikeout), size, family (a typeface such as Times New Roman), and other qualities to describe how the collection is drawn.

**font face weight**: A value that specifies the thickness of a font.

**font family**: A set of fonts that all have common stroke width and serif characteristics. For example, Times Roman and Times Roman Italic are members of the same font family.

**font scaling**: A process of resizing a proportionally-spaced font.

**font scheme**: A combination of complementary fonts in a [**theme**](#gt_8b5eb4c0-949b-47d9-8b63-b9bda81d61b8).

**forecast**: The process of projecting values forward or backward in a series, based on trends in existing data.

**foreground color**: A color that is used to display text, patterns, and other objects that appear in front of or on top of the [**background color**](#gt_8e2b1aa9-87f0-4a42-aa3d-9e3a5d5a826c).

**form**: A structured document with controls and spaces that are reserved for entering and displaying information. Forms can contain special coding for actions such as submitting and querying data.

**format string**: A string that contains the number formatting information to apply to data, such as decimal position, percentage indicator, or currency symbol.

**formatting run**: A set of formatting properties that are applied to a [**text run**](#gt_393612a7-9552-48b0-abf6-0371dbd6d553).

**formula bar**: A user interface element that appears at the top of a worksheet and is used to display and edit cell content.

**formula error checking**: A mechanism that identifies invalid worksheet data, formulas, or formatting and then proposes corrections.

**friendly name**: A name for a user or object that can be read and understood easily by a human.

**frozen**: See [**frozen panes**](#gt_28507dfc-4443-4a02-a18c-27b5db006946).

**frozen panes**: Portions of a worksheet that remain static and do not scroll when the worksheet is displayed in split pane view. See also [**split pane**](#gt_03a3359c-d8a8-4988-ace6-369a2ae4ff82).

**full screen view**: A document view that expands the display of a document to fill the computer screen. The view hides menus, toolbars, and taskbars.

**function**: A code module that takes a value as input, performs an operation, and returns the results to a worksheet.

**function category**: A group of worksheet functions that are part of the same broad usage area, such as Finance or Statistical. A function category can be built-in or user-defined.

**general alignment**: A default formatting setting for the horizontal alignment of cell content in a worksheet. Text is positioned to the left and numbers are positioned to the right.

**globally unique identifier (GUID)**: A term used interchangeably with universally unique identifier (UUID) in Microsoft protocol technical documents (TDs). Interchanging the usage of these terms does not imply or require a specific algorithm or mechanism to generate the value. Specifically, the use of this term does not imply or require that the algorithms described in [[RFC4122]](https://go.microsoft.com/fwlink/?LinkId=90460) or [[C706]](https://go.microsoft.com/fwlink/?LinkId=89824) must be used for generating the [**GUID**](#gt_f49694cc-c350-462d-ab8e-816f0103c6c1). See also universally unique identifier (UUID).

**gradient fill**: A type of fill that applies gradient formatting to the background of a cell or an object.

**gradient stop**: A marker on a gradient spectrum that denotes where a specific color is introduced in gradient formatting.

**grand total**: An aggregation of all of the field subtotals in a PivotTable report.

**graph object**: An object that represents a chart and the datasheet that contains the data for that chart.

**GraphicDropDown control**: A type of DropDown control that can display custom graphics in a list of options.

**gridline**: A line that is drawn on a worksheet or table for use as a visual aid to distinguish between cells.

**gutter**: An area above a column heading and to the left of a row heading. A gutter typically displays outline symbols that are used to expand and collapse groups of cells.

**hash**: A fixed-size result that is obtained by applying a one-way mathematical function, which is sometimes referred to as a hash algorithm, to an arbitrary amount of data. If the input data changes, the hash also changes. The hash can be used in many operations, including authentication and digital signing.

**header row**: A row in a table, typically the first row, that contains labels for columns in the table.

**hidden**: A condition of an object that prevents it from being displayed in rendered output.

**hidden cell**: A cell that does not appear in a worksheet view because it is contained within a [**hidden row**](#gt_3833addc-1f77-4c64-856c-c1b967fdaa75) or a [**hidden column**](#gt_ea5c8135-254e-407c-999b-5cf39e709164).

**hidden column**: A column that does not appear in a worksheet view because its width is set to 0 (zero). A column can be hidden if an outline is collapsed.

**hidden protection**: A cell protection property that prevents formulas, but not values, from appearing in a cell when a worksheet is [**protected**](#gt_edd09e04-ab93-4769-ae34-2cad606fa829).

**hidden row**: A row that does not appear in a worksheet view because its height is set to "0" (zero). A row can be hidden if the data is filtered or an outline is collapsed.

**hierarchy**: A logical tree structure that organizes the members of a dimension such that each member has one parent member and zero or more child members.

**high-low lines**: Supplemental lines that are added to a line chart and connect the maximum data points of one series with the minimum data points of another series for each [**category (2)**](#gt_7d6acf13-ba4d-4a0a-930e-3eaee465c7f1). High-low lines are typically used on stock charts.

**horizontal alignment**: A formatting setting that specifies how content is positioned within the horizontal space of a cell, object, or page. Content can be aligned along the left or right edge, or distributed evenly across the horizontal space.

**hyperlink**: A relationship between two anchors, as described in [[RFC1866]](https://go.microsoft.com/fwlink/?LinkId=90296).

**Hypertext Markup Language (HTML)**: An application of the Standard Generalized Markup Language (SGML) that uses tags to mark elements in a document, as described in [[HTML]](https://go.microsoft.com/fwlink/?LinkId=89880).

**icon**: A graphical image used to supplement alphanumeric text in the visual identification of an object on a computer monitor. [**Icons**](#gt_ec8c21aa-5773-4c2e-99bb-d50e680e1870) are typically small, relative to the size of the area on which they are displayed.

**icon set**: A collection of icons that can be used to comment and classify data into categories.

**indentation level**: A measure of the distance between the position of content that is in a cell and the logical left side of the cell. An indentation level is equal to three spaces.

**Information Rights Management (IRM)**: A technology that provides persistent protection to digital data by using encryption, certificates, and authentication. Authorized recipients or users acquire a license to gain access to the protected files according to the rights or business rules that are set by the content owner.

**ink**: A process of entering text in handwritten form. Instead of converting handwritten text to typed text, ink is converted to an object and displayed exactly as it was written.

**inner rectangle**: In a cell that is formatted with a rectangular gradient, a rectangle that is formed by the leftmost, rightmost, topmost, and bottommost lines of pixels in which the initial color of the gradient is completely dissipated. See also [**rectangular gradient**](#gt_bc10f1e2-8a79-4d73-92ff-f4648d3f0ada).

**input cell**: A cell in which each input value from a data table is substituted.

**input language**: A pairing of input language and input method. The pairing determines what language is currently being entered and how. The input language is usually determined by the keyboard language that is currently active in the operating system. Users can install keyboard layouts and Input Method Editors (IMEs) for several languages, and then switch between them at appropriate times to indicate the input language.

**Input Method Editor (IME)**: An application that is used to enter characters in written Asian languages by using a standard 101-key keyboard. An IME consists of both an engine that converts keystrokes into phonetic and ideographic characters and a dictionary of commonly used ideographic words.

**insert row**: A placeholder row at the bottom of a table. It is used to enter new records.

**international macro sheet**: A macro sheet that displays English function names and operates with U.S. English locale settings, regardless of product locale, user locale, or system locale.

**iterative calculation**: A [**calculation mode**](#gt_f02f81e1-8eda-4ec3-88e9-c2c483ff47ee) in which calculations are performed until a specific numeric condition is met or a maximum number of iterations is reached.

**justify distributed**: A special, distributed-alignment setting that evenly distributes the last line of text in a cell. The setting is primarily used for East Asian languages. See also [**distributed alignment**](#gt_dae18ea5-2a98-4e10-9570-7f4ac695c6b8).

**key performance indicator (KPI)**: A predefined measure that is used to track performance against a strategic goal, objective, plan, initiative, or business process. A visual cue is frequently used to communicate performance against the measure.

**language code identifier (LCID)**: A 32-bit number that identifies the user interface human language dialect or variation that is supported by an application or a client computer.

**leader line**: A line that connects a data label to its corresponding data point. The primary purpose of a leader line is to increase legibility.

**left-to-right**: A reading order in which characters in words are read from left to right, and words are read from left to right in sentences.

**legend entry**: An item in a chart legend that identifies a single series or [**category (2)**](#gt_7d6acf13-ba4d-4a0a-930e-3eaee465c7f1).

**legend key**: A symbol that is associated with a legend entry.

**library directory**: A directory in which Microsoft Excel [**add-ins**](#gt_a3be101e-9d37-484a-a5e6-b70d559146c6) are installed.

**license key**: An array of bytes that enables access to a control according to the usage policies for that control.

**line style**: A style, including width and dash type, that is applied to and alters the appearance of a line or [**border**](#gt_85bbea8d-a9f4-40a2-b4f8-68b587d21a4c).

**linear gradient**: A type of gradient fill in which the color of a cell or other object gradually changes horizontally, vertically, or diagonally from one edge of the object to the other.

**linked object**: An object that is inserted into a document and continues to exist in a separate source file. If the object in the source file changes, the object in the document is updated automatically to reflect those changes.

**list**: A container within a SharePoint site that stores list items. A list has a customizable schema that is composed of one or more fields.

**list view**: A named collection of settings for querying and displaying items in a SharePoint list. There are two types of views: Personal, which can be used only by the user who created the view; and Public, which can be used by all users who have permission to access to the site.

**little-endian**: Multiple-byte values that are byte-ordered with the least significant byte stored in the memory location with the lowest address.

**local name**: A defined name whose scope is limited to a specific sheet instead of the entire workbook.

**locale**: A collection of rules and data that are specific to a language and a geographical area. A locale can include information about sorting rules, date and time formatting, numeric and monetary conventions, and character classification.

**localization**: The process of adapting an application or documentation, including text and non-text elements, to meet the language, cultural, and political expectations and requirements of a specific geographic country or region.

**locked**: The condition of a cell, worksheet, or other object that restricts edits or modifications to it by users.

**locked protection**: A cell-protection property that restricts the editing of cell content when a worksheet is [**protected**](#gt_edd09e04-ab93-4769-ae34-2cad606fa829).

**logical left**: A position that is relative to the language orientation of a document. Logical left means left, except in a right-to-left language where it means right. Also referred to as leading edge.

**logical right**: A position that is relative to the language orientation of a document. Logical right means right, except in a right-to-left language where it means left. Also referred to as trailing edge.

**logical top-left**: A position that is relative to the language orientation of a document. Logical top-left is the upper-left corner of a range or object when in left-to-right mode. It is the upper-right corner when in right-to-left mode.

**logical top-right**: A position that is relative to the language orientation of a document. Logical top-right is the upper-right corner of a range or object when in left-to-right mode. It is the upper-left corner when in right-to-left mode.

**long file name**: A folder or file name that is longer than the 8.3 file name standard, which permits as many as eight characters followed by a period and a file name extension of three characters.

**macro**: A set of instructions that are recorded or written, and then typically saved to a file. When a macro is run, all of the instructions are performed automatically.

**macro sheet**: A single, logical container that is used to store and run Excel 4.0 macro formulas.

**major gridline**: A horizontal or vertical line that is in the plot area of a chart and corresponds to the major scaling unit on an axis.

**major scheme**: A font scheme that is used for primary text elements, such as headings and titles, in a [**theme**](#gt_8b5eb4c0-949b-47d9-8b63-b9bda81d61b8).

**major tick mark**: A tick mark that corresponds to a major scaling unit on an axis.

**Mandarin phonetic symbols**: A phonetic system for transcribing Chinese through the use of an alphabet that includes characters for all possible sounds in the spoken Mandarin language.

**manifest**: A file that stores metadata about an expansion pack, such as the name of the expansion pack, the files and resources that are included in the expansion pack, and the dependencies that it has on other files and components.

**MD5**: A one-way, 128-bit hashing scheme that was developed by RSA Data Security, Inc., as described in [[RFC1321]](https://go.microsoft.com/fwlink/?LinkId=90275).

**MDX unique name**: A unique identifier for a multidimensional expression (MDX) member or value in a given Online Analytical Processing (OLAP) cube, for example "[Customer].[Customer Geography].[Country].&[Australia]".

**measure**: In a cube, a set of values that are typically numeric and are based on a column in the fact table of the cube. Measures are the central values that are aggregated and analyzed.

**measure group**: A collection of related [**measures**](#gt_70548cb6-ef0e-4f2a-8e34-7293a9df8998) in a [**cube**](#gt_a0c8d97b-322c-4117-8525-37e5f26751e7) that derive from a single fact table, typically in a data source view.

**member**: (1) An identity that belongs to a shared space.

(2) See [**OLAP member**](#gt_c0dd6cb4-ad4b-45ef-bd4f-75c650f84f32).

**member property**: An attribute on a data item within a specific dimension in an Online Analytical Processing (OLAP) database.

**merge conflict**: A problem that occurs if two users are editing the same cell or other type of object in a workbook while changes are being merged in a shared workbook.

**merged cell**: A single cell that is created by combining two or more adjacent cells.

**messaging system service provider**: A business that supplies email and other messaging services to individuals, businesses, and other organizations.

**metafile**: A file that stores an image as graphical objects, such as lines, circles, and polygons, instead of pixels. A metafile preserves an image more accurately than pixels when an image is resized.

**Microsoft Office Web Components**: A set of controls that can be used to create data analysis and reporting solutions.

**minimal save**: A process that saves only critical workbook data to disk when errors are detected during a file save operation.

**minor gridline**: A horizontal or vertical line that is in the plot area of a chart and corresponds to the minor scaling unit on an axis.

**minor scheme**: A font scheme that is used for secondary text elements, such as body text, in a [**theme**](#gt_8b5eb4c0-949b-47d9-8b63-b9bda81d61b8).

**minor tick mark**: A tick mark that corresponds to a minor scaling unit on an axis.

**module**: A collection of routines and data structures that performs a specific task or implements a specific abstract data type. Modules usually consist of two parts, a module header and a module body. A module header is a set of name/value attribute pairs that specify the linguistic characteristics of the module. A module body is the VBA source code, a set of declarations followed by procedures. VBA supports two types of modules, procedural modules and class modules.

**moving average**: A type of trendline that is calculated based on the most recent period of data points in a series.

**Multidimensional Expressions (MDX)**: A syntax that is used for defining multidimensional objects, and for querying and manipulating multidimensional data.

**named range**: See [**defined name**](#gt_5bb97b28-4adc-48ec-b544-02542753a933).

**narrow katakana**: A non-cursive [**character set**](#gt_5004b992-4a9c-41c9-b65c-b2e7a2b04204) that is used to write non-Japanese words phonetically in Japanese. Narrow katakana characters are represented with a single byte. Also referred to as half-width katakana.

**natural language formula**: A syntax for referring to tabular data in formulas by using column and row labels instead of cell references.

**natural language label**: A value of a cell or cells that identifies a range in a natural language formula. A label is typically the same as a column or row header in tabular data.

**ninched**: A condition in which a group of selected cells or objects do not share a specific property. For example, if a selection has three cells and only two of the cells share the same color formatting, the color formatting of the selection is in a ninched state.

**non-contiguous range**: A selected [**range**](#gt_c2c93fec-8d3e-45de-8010-c738cc1cea99) that includes non-adjacent cells.

**Normal view**: A document view that displays text formatting and a simplified page layout of a document. The Normal view hides some layout elements such as the header and footer. Referred to as Draft view in Microsoft Office Word 2007 and Microsoft Word 2010.

**number format**: A property of a cell or other type of object that determines how numerical data is displayed or interpreted. For example, a currency number format affixes the proper currency symbol to the number.

**obfuscation key**: A secret shared key combined with a cryptographic hash function that is intended to prevent a reversal of an encoding process. See also [**XOR obfuscation**](#gt_cbfd1a35-e8c9-4c5a-bc26-e618633d2f50).

**Object Linking and Embedding (OLE)**: A technology for transferring and sharing information between applications by inserting a file or part of a file into a compound document. The inserted file can be either embedded or linked. See also [**embedded object**](#gt_708607be-8655-416e-93f3-b434e9ecbd56) and [**linked object**](#gt_cfc45e76-9219-4c47-9ef2-5832a172f795).

**object model**: A collection of object-oriented APIs that represent data structures and are designed to promote software interoperability.

**OCXDropDown control**: A type of DropDown control that displays a list of the ActiveX controls that are available within that application.

**Office data connection (ODC) file**: A file that stores information about a connection to a data source, such as an Access database, worksheet, or text file. This file facilitates data source administration.

**OLAP calculated member**: An [**OLAP member**](#gt_c0dd6cb4-ad4b-45ef-bd4f-75c650f84f32) whose value is calculated at run time.

**OLAP cube**: A data structure that aggregates [**Online Analytical Processing (OLAP)**](#gt_055c223a-52f1-4d41-b95b-d7c60eaa388f) measures by [**OLAP levels**](#gt_00e48261-dfd3-4f32-b53f-91e2344d6168) and [**OLAP hierarchies**](#gt_1e0ca171-3095-4e3c-9c69-65148df00a9c). An OLAP cube combines several OLAP hierarchies, such as time, geography, and product lines, with OLAP measures, such as sales or inventory figures.

**OLAP hierarchy**: An [**attribute hierarchy**](#gt_8f75d668-e8c6-4f42-ba44-d90604d3b9dc) or a user-defined hierarchy in a data structure. By default, each dimension attribute has an attribute hierarchy. A user-defined hierarchy is a set of related attribute hierarchies that is used to facilitate browsing an [**OLAP cube**](#gt_11427e13-37ed-49dd-8f0d-5f2b21f7aa4c).

**OLAP KPI**: See [**key performance indicator (KPI)**](#gt_1d2666f5-ffca-4053-868a-0cd4434ce5a8).

**OLAP level**: Within an [**OLAP hierarchy**](#gt_1e0ca171-3095-4e3c-9c69-65148df00a9c), a set of data that is organized into a lower or higher level of detail, such as Year, Quarter, Month, and Day levels in a Time hierarchy.

**OLAP measure**: A set of numeric values in an [**OLAP cube**](#gt_11427e13-37ed-49dd-8f0d-5f2b21f7aa4c) that is used in aggregation and analysis.

**OLAP measure group**: A collection of related [**OLAP measures**](#gt_7431c051-4564-4476-ad00-39c66f169118) in an [**OLAP cube**](#gt_11427e13-37ed-49dd-8f0d-5f2b21f7aa4c). An OLAP cube can contain multiple measure groups.

**OLAP member**: An item that is in an [**OLAP level**](#gt_00e48261-dfd3-4f32-b53f-91e2344d6168). For example, a Canada member in a Country level of a Geography hierarchy.

**OLAP member property**: A relationship between two [**OLAP hierarchies**](#gt_1e0ca171-3095-4e3c-9c69-65148df00a9c), such as a Population member property of a Country member.

**OLAP named set**: A collection of [**OLAP tuples**](#gt_3a1a687f-d28b-485b-96a0-ba0b7eb4119e) that have the same dimensionality. Also referred to as OLAP set.

**OLAP set**: A collection of [**OLAP tuples**](#gt_3a1a687f-d28b-485b-96a0-ba0b7eb4119e) with the same dimensionality. Also referred to as OLAP named set.

**OLAP tuple**: An ordered collection of members that are from different dimensions of an [**OLAP cube**](#gt_11427e13-37ed-49dd-8f0d-5f2b21f7aa4c). A single member is a special case of a tuple.

**OLE compound file**: A form of structured storage, as described in [[MS-CFB]](file:///C:\Users\Administrator\Desktop\OfficeEncryption\%5bMS-CFB%5d.pdf#Section_53989ce47b054f8d829bd08d6148375b). A compound file allows independent storages and streams to exist within a single file.

**OLE DB**: A set of interfaces that are based on the Component Object Model (COM) programming model and expose data from a variety of sources. These interfaces support the amount of Database Management System (DBMS) functionality that is appropriate for a data store and they enable a data store to share data.

**OLE link**: A connection between an [**Object Linking and Embedding (OLE)**](#gt_171744b8-3f44-4198-b7b9-1c0147282d2c) object and its OLE server. See also [**DDE link**](#gt_0aa0fad9-afc1-4433-b772-2dc11e641721).

**OLE object**: An object that supports the [**Object Linking and Embedding (OLE)**](#gt_171744b8-3f44-4198-b7b9-1c0147282d2c) protocol.

**OLE server**: An application or DLL that supplies a linked or embedded OLE object to another application.

**OLE2**: See [**Object Linking and Embedding (OLE)**](#gt_171744b8-3f44-4198-b7b9-1c0147282d2c).

**one-variable data table**: A data table that consists of only one input cell, which is either a row input cell or a column input cell.

**Online Analytical Processing (OLAP)**: A technology that uses multidimensional structures to provide access to data for analysis. The source data for OLAP is stored in data warehouses in a relational database. See also [**cube**](#gt_a0c8d97b-322c-4117-8525-37e5f26751e7).

**Open Database Connectivity (ODBC)**: A standard software API method for accessing data that is stored in a variety of proprietary personal computer, minicomputer, and mainframe databases. It is an implementation of [[ISO/IEC9075-3:2008]](https://go.microsoft.com/fwlink/?LinkId=223900) and provides extensions to that standard.

**outline**: A nested grouping of rows or columns that are in a worksheet.

**outline effect**: A formatting effect in which a line is placed around the edge of a shape or around each character in a text string.

**outline level**: The number of levels that a task is indented from the top level of an outline; the order associated with an outline.

**outline state**: A setting that specifies whether an outline is currently outline expanded or outline collapsed.

**out-of-memory**: A state of a computer or application when it halts because all of the available volatile memory has been allocated and none is currently available for reallocation.

**page break**: A divider that breaks a worksheet into separate pages for printing. Page breaks are inserted automatically based on the paper size, margin settings, scaling options, and the positions of any page breaks that are inserted manually.

**Page Break Preview view**: A worksheet view that displays the areas to be printed and the locations of page breaks.

**Page Layout view**: A sheet view that displays a sheet as it would appear on a printed page, including margins, header and footer elements, and pagination.

**palette color**: A specific color among those that are available on the active color palette.

**pane**: A portion of a software window that has a distinct function and is bounded by and separated from other portions of the window by vertical or horizontal bars.

**Pane control**: A type of toolbar control that hosts a window within itself. The hosted window is not constrained by the layout and control type options of a basic toolbar or a menu toolbar.

**parameterized query**: A query that contains parameters. It applies to Open Database Connectivity (ODBC) and web queries. For example, a web query that retrieves stock quotes from a webpage can prompt users for a parameter, such as a stock symbol.

**phonetic guide**: A set of supplemental phonetic symbols that appears above text in Japanese and other East Asian languages. A phonetic guide is displayed automatically and can be edited by the user.

**phonetic information**: A series of characters that appear above text in a cell and provide information that helps users pronounce the text.

**phonetic string**: A series of characters that appear above a string and provide information that helps users pronounce the string. Phonetic strings are typically used in East Asian languages.

**phonetic text run**: A series of characters that are within a [**phonetic string**](#gt_7947dcd6-cb7d-4957-ada6-6e832b075e77).

**PivotChart filter pane**: A user interface element that displays a list of active fields in a PivotChart view and is used to apply filters to those fields.

**PivotTable field list**: A user interface element that displays a list of all of the fields in a PivotTable report. It can be used to populate a PivotTable report and to manipulate the fields.

**pixel**: A discrete unit of display on a computer display device.

**placeholder**: A character or symbol that is used in place of an actual value, text, or object. The actual value that the placeholder represents is unknown or unavailable at the current time, or is not displayed for security reasons.

**plot area**: A portion of a chart area that contains the plotted data and axes.

**point**: A unit of measurement for fonts and spacing. A point is equal to 1/72 of an inch.

**Popup control**: A built-in or custom control on a menu bar or toolbar that displays a menu of related commands when clicked.

**post method**: A method of submitting form data in the header of an HTTP request.

**precision as displayed**: A calculation setting that permanently changes stored values in cells from full precision (15 digits) to the currently displayed format, including the number of decimal places.

**primary pie**: The main chart in a bar of pie or pie of pie chart. A primary pie chart has one pie slice (data point) that is a grouping of data points.

**print area**: A collection of one or more ranges of cells that are designated to be printed. If a worksheet includes a print area, only the content inside the print area is printed.

**print settings**: The settings that specify how a file is printed in a specific print job, such as duplex or landscape orientation. Printer settings are settings that can differ from printer to printer but apply to every print job of a given printer. Print settings are values that typically vary between print jobs.

**print titles**: The rows or columns that appear on each page when a page is printed. Print titles are typically used to print column headers above tabular data that spans several printed pages.

**ProgID**: An identifier that is used by the Windows registry to uniquely identify an object and is in the form OLEServerName.ObjectName, for example, "Excel.Sheet" or "PowerPoint.Slide."

**property stream**: A series of object properties that is used in processes such as checksum calculations.

**protected**: A property that is applied manually to a file or a portion of a file, with or without a password, and that helps prevent users from accidentally or deliberately changing, moving, or deleting data.

**protection**: A mechanism that helps restrict users from making unwanted changes to the data or structure of a workbook.

**published**: A condition of portions of a workbook that are marked as being available to the user when that workbook is processed by a protocol server.

**published item**: A specific named object that is in a published workbook.

**query**: A formalized instruction to a data source to either extract data or perform a specified action. A query can be in the form of a query expression, a method-based query, or a combination of the two. The data source can be in different forms, such as a relational database, XML document, or in-memory object. See also search query.

**query table**: A two-dimensional table that presents data from an external data source.

**R1C1**: A [**reference style**](#gt_71d7e4ad-d6b6-49d9-b247-e2ebba1469e9) in which each row and each column has a numeric heading that is numbered sequentially from top to bottom and left to right, respectively. "R" stands for row and "C" stands for column.

**range**: An addressable region that is in a workbook. A range typically consists of zero or more cells and represents a single, contiguous rectangle of cells on a single sheet.

**reading order**: The positioning of characters in words and the positioning of words in sentences. This can be left-to-right or right-to-left.

**read-only recommended**: A file sharing property that displays an alert when a file is being opened. The text of the alert recommends that the user open the file with read-only permission.

**real-time data (RTD)**: Data that is pushed into a worksheet from an [**RTD server**](#gt_d4fc2cb5-c030-4ce4-9078-69627d562fc7) and is updated continually. Real-time data is frequently used to track stock prices or inventory levels in real time.

**recalculate**: The process of computing a value in a workbook by initiating a calculation repeatedly.

**reconnect condition**: A condition that specifies whether to connect to a database again after a connection expires.

**rectangular gradient**: A type of gradient fill in which the color of a cell or other object gradually changes with each successive inner rectangle of pixels.

**red-green-blue-alpha (RGBA)**: A color model that describes color information in terms of the red (R), green (G), blue (B), and alpha (A) intensities that comprise a color.

**reference style**: A system that is used in formulas to specify cells or ranges of cells. A reference style specifies a cell in a two-dimensional table by identifying the row and column that contain that cell or range of cells.

**refresh**: A process that retrieves values from a data source and populates a workbook with those values.

**regional settings**: See locale settings.

**relative reference**: A reference to a location on a sheet that is relative to the cell that contains the reference. A relative reference can be stored as a cell reference or as an offset.

**relative security descriptor**: A security descriptor that contains all associated security information in a contiguous block of memory.

**result cell**: A cell that contains the results of the calculation of changing cells in a scenario.

**revision**: A change in a document, file, or other object.

**revision history**: A list of data that describes document updates, such as when and by whom a document was modified.

**revision record**: Any of the records in the revision stream of a [**shared workbook**](#gt_241c4cae-c49a-438a-87dc-c8fb2c871921) that stores user edits to the workbook and other tracked information.

**right-to-left**: A reading and display order that is optimized for right-to-left languages.

**routing slip**: Information that specifies how a document is to be distributed from a document originator and processed by one or more recipients. It also specifies subject and message body text that is associated with the document routing process and routing status or workflow information.

**routing stage**: The current status of a document with a routing slip.

**row outline**: A mechanism for grouping and nesting the rows in a worksheet.

**RTD server**: A Component Object Model (COM) Automation server that is used by the real-time data (RTD) function to retrieve data in real time. The RTD server can exist as an ActiveX DLL or as an executable (.exe) file that runs on the same local computer or on a remote server.

**RTD topic**: A discrete combination of parameters that is used to request data from a real-time data (RTD) server.

**ruler**: A user interface element that enables users to adjust page margins and to measure and align objects in a document.

**safe load**: A process of loading a file in which additional error checking is performed and various corruption patterns in the file are detected and repaired.

**scenario**: A named set of input values (changing cells) that can be substituted in a worksheet model.

**Scenario Manager**: A process for creating and managing different sets of input values for calculation models in a worksheet.

**secondary bar/pie**: A secondary chart in a bar of pie or pie of pie chart that displays the detailed data of the grouped data point in the primary pie chart. The secondary bar/pie chart takes the form of a stacked bar chart or a pie chart that is connected to the primary pie chart with series lines.

**security descriptor**: A data structure containing the security information associated with a securable object. A [**security descriptor**](#gt_e5213722-75a9-44e7-b026-8e4833f0d350) identifies an object's owner by its security identifier (SID). If access control is configured for the object, its [**security descriptor**](#gt_e5213722-75a9-44e7-b026-8e4833f0d350) contains a discretionary access control list (DACL) with SIDs for the security principals who are allowed or denied access. Applications use this structure to set and query an object's security status. The [**security descriptor**](#gt_e5213722-75a9-44e7-b026-8e4833f0d350) is used to guard access to an object as well as to control which type of auditing takes place when the object is accessed. The [**security descriptor**](#gt_e5213722-75a9-44e7-b026-8e4833f0d350) format is specified in [[MS-DTYP]](file:///C:\Users\Administrator\Desktop\OfficeEncryption\%5bMS-DTYP%5d.pdf#Section_cca2742956894a16b2b49325d93e4ba2) section 2.4.6; a string representation of [**security descriptors**](#gt_e5213722-75a9-44e7-b026-8e4833f0d350), called SDDL, is specified in [MS-DTYP] section 2.5.1.

**selected**: The condition of a set of items that has focus in a workbook.

**selection**: An item or set of items, such as cells, shapes, objects, and chart elements, that has focus in a document.

**series line**: A supplemental line on a stacked column, stacked bar, pie of pie, or bar of pie chart that connects each data point in a series with the next data point to increase legibility.

**server name**: The name of a server, as specified in the operating system settings for that server.

**shade**: A color that is mixed with black. A 10-percent shade is one part of the original color and nine parts black.

**shadow effect**: A formatting effect that makes a font or object appear to be elevated from the page or screen surface, and therefore casts a shadow.

**shape**: A collection of qualifiers, such as names, and quantifiers, such as coordinates, that is used to represent a geometric object. A shape can be contained in a document, file structure, run-time structure, or other medium.

**shared workbook**: A workbook that is configured to enable multiple users on a network to view and make changes to it at the same time. Each user who saves the workbook sees the changes that are made by other users.

**sheet**: (1) A part of an Excel workbook. There are four types of sheets: [**worksheet**](#gt_2fdc6291-fa6a-48a6-afbb-04f910d68615), [**macro sheet**](#gt_410f5dd1-4217-4d31-ab16-48271bd25491), [**dialog sheet**](#gt_293d2e0c-de3d-4808-99fc-99fa824158a8), and [**chart sheet**](#gt_da561b7b-c629-4cd8-bfaa-6e62471d9e83). Multiple sheets are stored together within a workbook.

(2) A worksheet. The term sheet frequently refers to a worksheet because worksheets are the most common type of sheet.

**sheet stream**: See [**stream**](#gt_f3529cd8-50da-4f36-aa0b-66af455edbb6) and document stream.

**sheet tab**: A control that is used to select a sheet.

**sheet view**: A collection of display settings, such as which cells are shown, and the zoom level for a sheet window.

**shrink to fit**: The process of adjusting the font size of text in a cell to fit the current height and width of the cell.

**single accounting**: An underline style that places one line beneath the text. Single accounting can be used to indicate subtotals.

**single sign-on (SSO) identifier**: A string that represents the definition of user credentials that permit a user to access a network. See also single sign-on (SSO).

**smart document**: A file that is programmed to assist the user as the user creates or updates the document. Several types of files, such as forms and templates, can also function as smart documents.

**smart tag**: A feature that adds the ability to recognize and label specific data types, such as people's names, within a document and displays an action button that enables users to perform common tasks for that data type.

**smart tag actions button**: A user interface control that displays a menu of actions that are associated with a specific smart tag.

**smart tag indicator**: A triangular symbol that appears in the bottom right corner of a cell and indicates that the cell contains a smart tag.

**sort**: A process that arranges cells in ascending or descending order, based on cell content.

**sort condition**: A condition that determines how to sort cells in a range.

**sort order**: A specific arrangement of cells that is based on cell content. The order can be ascending or descending.

**sort range**: A range of cells that will be or has been sorted.

**source data**: The data that is used as the basis for charts, PivotTable reports, and other data visualization features.

**split pane**: A pane that consists of two or more discrete areas of a window. Each area displays content and scrolls independently from other areas of the window. See also [**frozen panes**](#gt_28507dfc-4443-4a02-a18c-27b5db006946).

**SplitButtonMRUPopup control**: A type of [**SplitButtonPopup control**](#gt_1c046ab6-2530-4a41-8d19-03f92914beaf) whose icon changes to reflect the command that the user most recently selected from the menu that is displayed by that button.

**SplitButtonPopup control**: A type of Button control that performs an action when clicked, and can also display a menu of related commands when the user clicks a drop-down arrow that appears on the button.

**SplitDropDown control**: A type of Button control that performs a default action when clicked, and can also expand to display a list of other possible actions when the user clicks a drop-down arrow that appears on the button.

**startup directory**: The directory from which an application opens data files when the application starts.

**storage**: An element of a compound file that is a unit of containment for one or more storages and streams, analogous to directories in a file system, as described in [MS-CFB].

**stream**: An element of a compound file, as described in [MS-CFB]. A stream contains a sequence of bytes that can be read from or written to by an application, and they can exist only in storages.

**strikethrough formatting**: A formatting option in which characters are crossed out by horizontal line.

**stripe band**: One or more adjacent columns or rows that are in a table and have the same stripe formatting.

**stroke order**: A sort order that arranges items in a sort range according to the number of strokes that is used to write each glyph. Stroke order is used when sorting text that is written in some East Asian languages.

**Structured Query Language (SQL)**: A database query and programming language that is widely used for accessing, querying, updating, and managing data in relational database systems.

**style**: A set of formatting options that is applied to text, tables, charts, and other objects in a document.

**subtotal column**: A column that uses a summary or subtotal function to display the total of detail items in a PivotTable field.

**table**: A list that is defined in a workbook.

**template**: A file that contains pre-defined formatting including layout, text and graphics. It serves as the basis for new documents that have a similar look or purpose. See also form template (Microsoft InfoPath) and site template (SharePoint Products and Technologies).

**text importation**: A process that incorporates textual data into a workbook, either by opening a text file or through an external link.

**text query**: A query that is used to import data from text files.

**text run**: A string of characters that represents a discrete span of text with the same formatting properties.

**text style**: A formatting option, such as bold or italic, that can be applied to a font.

**theme**: A set of unified design elements, such as colors, fonts, graphics, and styles, that define the appearance of a website, document, or data visualization.

**time hierarchy**: A specialized Online Analytical Processing (OLAP) hierarchy that can be organized into lower and higher levels of detail, such as Year, Quarter, Month, and Day.

**toolbar control**: An object that appears on a toolbar and enables user interaction or input, typically to initiate an action, display information, or set values.

**toolbar view**: A visual state of a toolbar that depends on the current state of the application. Valid toolbar views are docked, floating, and not visible.

**ToolTip**: A small pop-up window that provides brief context-sensitive help when users point to an item. Also referred to as ScreenTip.

**top N filter**: A filter that matches the top or bottom N items or N% of items in a specified column.

**total row**: A row in a list or table that provides a selection of aggregate functions that are useful for working with numerical data.

**transfer protocol**: A protocol that governs the transfer of files, Internet messages, and webpages between networked computers. On the Open Systems Interconnection (OSI) Basic Reference Model, these are application layer protocols. Examples of transfer protocols are Hypertext Transfer Protocol (HTTP), Simple Mail Transfer Protocol (SMTP), and File Transfer Protocol (FTP).

**transition formula entry**: A worksheet option that enables users to enter formulas that use IBM Lotus 1-2-3 syntax.

**transition formula evaluation**: A setting that enables formulas in a worksheet to be calculated in a manner that is consistent with IBM Lotus 1-2-3.

**trendline**: A line that is added to a chart to show the trend of multiple data points in a series. A trendline is used to facilitate regression analysis.

**tuple**: An ordered grouping of members from different dimensions or hierarchies. A single member is a special case of a tuple and can be used as an expression. Every hierarchy does not have to be represented in a tuple.

**twip**: A unit of measurement that is used in typesetting and desktop publishing. It equals one-twentieth of a printer's point, or 1/1440 of an inch.

**two-variable data table**: A data table that consists of two input cells, a row input cell and a column input cell.

**type library**: A binary file that describes the methods, properties, and data structure of a component.

**UNC volume**: A storage device that is accessible by network protocols and addressed in the standard Universal Naming Convention format, for example, "\\Server Name\Share Name".

**unfrozen pane**: A portion of a worksheet that continues to scroll and function normally in split pane view. See also [**frozen pane**](#gt_28507dfc-4443-4a02-a18c-27b5db006946).

**Unicode**: A character encoding standard developed by the Unicode Consortium that represents almost all of the written languages of the world. The [**Unicode**](#gt_c305d0ab-8b94-461a-bd76-13b40cb8c4d8) standard [[UNICODE5.0.0/2007]](https://go.microsoft.com/fwlink/?LinkId=154659) provides three forms (UTF-8, UTF-16, and UTF-32) and seven schemes (UTF-8, UTF-16, UTF-16 BE, UTF-16 LE, UTF-32, UTF-32 LE, and UTF-32 BE).

**Uniform Resource Identifier (URI)**: A string that identifies a resource. The URI is an addressing mechanism defined in Internet Engineering Task Force (IETF) Uniform Resource Identifier (URI): Generic Syntax [[RFC3986]](https://go.microsoft.com/fwlink/?LinkId=90453).

**Uniform Resource Locator (URL)**: A string of characters in a standardized format that identifies a document or resource on the World Wide Web. The format is as specified in [[RFC1738]](https://go.microsoft.com/fwlink/?LinkId=90287).

**up bar**: See [**up-down bar**](#gt_54f291c2-81aa-41b6-8831-88d180a09ea0).

**up-down bar**: A vertical bar that highlights the difference between data points in a line chart that contains more than one data series.

**user name**: A unique name that identifies a specific user account. The user name of an account is unique among the other group names and user names within its own domain or workgroup.

**user-defined function (UDF)**: A function that is coded in a VBA module, macro sheet, [**add-in**](#gt_a3be101e-9d37-484a-a5e6-b70d559146c6), or [**Excel Linked Library (XLL)**](#gt_3d6e3f45-91e7-46d5-871c-0b2fde20b5f5). A UDF can be used in formulas to return values to a worksheet, similar to built-in functions.

**VBA project**: A collection of the modules, class modules, and user forms that are needed to create an application. Modules, class modules, and user forms can be imported into and exported from a project.

**Vector Markup Language (VML)**: A system of marking up or tagging two-dimensional vector graphics for publication on the World Wide Web. VML graphics are scalable and editable, and typically require less disk space and less time to download.

**vertical alignment**: A formatting setting that specifies how content is positioned within the vertical space of a cell, object, or page. Content can be aligned along the top or bottom edge, or distributed evenly across the vertical space.

**visible**: A condition of an object that allows it to be displayed in rendered output.

**Visual Basic for Applications (VBA)**: A macro-based programming language that derives from Microsoft Visual Basic and can be used to customize and extend an application. Unlike Visual Basic, VBA code and macros can be run only from within a host application that supports VBA.

**volatile**: A condition of a formula in which the formula is calculated every time the workbook is calculated. This is unlike a non-volatile formula, which is calculated only when dependent values are changed.

**wall**: An extension of the background of a 3-D chart to create a three-dimensional effect. See also [**floor**](#gt_dc38c098-e0d3-4701-9656-5f2cf4d80f29).

**watched cell**: A cell whose value is monitored in a separate window while formulas that are associated with the cell are calculated.

**web query**: An external data connection that retrieves a table from a website and inserts table data into a workbook.

**web-only view**: A view of a workbook from within a web browser.

**wide katakana**: A non-cursive [**character set**](#gt_5004b992-4a9c-41c9-b65c-b2e7a2b04204) that is used to write non-Japanese words phonetically in Japanese. Wide katakana characters are represented with two bytes.

**window state**: The current positioning state of a window. Windows can be maximized or minimized, or the window size can be customized by the user.

**workbook**: A container for a collection of [**sheets (1)**](#gt_0b356926-f9cb-4dc2-a859-71441d62503d).

**workbook parameter**: A single cell that is designated to receive input from users.

**worksheet**: A single logical container for a set of tabular data and other objects in a workbook.

**write reservation**: A field or condition that is set on a document, workbook, or presentation to help prevent users from modifying it.

**XML**: The Extensible Markup Language, as described in [[XML1.0]](https://go.microsoft.com/fwlink/?LinkId=90599).

**XML map**: A feature that is used to import data from databases and applications and to map XML elements and attributes from the associated [**XML schema**](#gt_bd0ce6f9-c350-4900-827e-951265294067) to cells in a worksheet. The revised [**XML**](#gt_982b7f8e-d516-4fd5-8d5e-1a836081ed85) data can then be exported for interaction with other databases and applications.

**XML namespace**: A collection of names that is used to identify elements, types, and attributes in XML documents identified in a URI reference [RFC3986]. A combination of XML namespace and local name allows XML documents to use elements, types, and attributes that have the same names but come from different sources. For more information, see [[XMLNS-2ED]](https://go.microsoft.com/fwlink/?LinkId=90602).

**XML node**: The smallest unit of a valid, complete structure in an XML document. For example, a node can represent an element, an attribute, or a text string.

**XML Path Language (XPath)**: A language used to create expressions that can address parts of an XML document, manipulate strings, numbers, and Booleans, and can match a set of nodes in the document, as specified in [XPATH]. XPath models an XML document as a tree of nodes of different types, including element, attribute, and text. XPath expressions can identify the nodes in an XML document based on their type, name, and values, as well as the relationship of a node to other nodes in the document.

**XML schema**: A description of a type of XML document that is typically expressed in terms of constraints on the structure and content of documents of that type, in addition to the basic syntax constraints that are imposed by [**XML**](#gt_982b7f8e-d516-4fd5-8d5e-1a836081ed85) itself. An XML schema provides a view of a document type at a relatively high level of abstraction.

**XML schema definition (XSD)**: The World Wide Web Consortium (W3C) standard language that is used in defining XML schemas. Schemas are useful for enforcing structure and constraining the types of data that can be used validly within other XML documents. XML schema definition refers to the fully specified and currently recommended standard for use in authoring [**XML schemas**](#gt_bd0ce6f9-c350-4900-827e-951265294067).

**XOR obfuscation**: A type of file encryption that helps protect private data by using an exclusive or bitwise operation. This is done by adding a mathematical expression that prevents a simple reverse-engineering process.

**XPath expression**: An expression that searches an71 XML document and can extract and manipulate data in elements or attributes within that document.

**zoom level**: The degree to which a portion of an image, document, or other screen object is made to appear closer or farther away relative to its default appearance. This value is usually expressed as a percentage of the default appearance.

**z-order**: The rendering order of an object on a z axis.

**MAY, SHOULD, MUST, SHOULD NOT, MUST NOT:** These terms (in all caps) are used as defined in [[RFC2119]](https://go.microsoft.com/fwlink/?LinkId=90317). All statements of optional behavior use either MAY, SHOULD, or SHOULD NOT.

## 1.2 References

Links to a document in the Microsoft Open Specifications library point to the correct section in the most recently published version of the referenced document. However, because individual documents in the library are not updated at the same time, the section numbers in the documents may not match. You can confirm the correct section numbering by checking the [Errata](https://go.microsoft.com/fwlink/?linkid=850906).

### 1.2.1 Normative References

We conduct frequent surveys of the normative references to assure their continued availability. If you have any issue with finding a normative reference, please contact [dochelp@microsoft.com](mailto:dochelp@microsoft.com). We will assist you in finding the relevant information.

[CODEPG] Microsoft Corporation, "Code Pages", [http://www.microsoft.com/globaldev/reference/cphome.mspx](https://go.microsoft.com/fwlink/?LinkId=89840)

[DEVMODE] Microsoft Corporation, "DEVMODE structure", [http://msdn.microsoft.com/en-us/library/dd183565(VS.85).aspx](https://go.microsoft.com/fwlink/?LinkId=89844)

[ECMA-376] ECMA International, "Office Open XML File Formats", 1st Edition, ECMA-376, December 2006, [http://www.ecma-international.org/publications/standards/Ecma-376.htm](https://go.microsoft.com/fwlink/?LinkId=200054)

[IEEE754] IEEE, "IEEE Standard for Binary Floating-Point Arithmetic", IEEE 754-1985, October 1985, [http://ieeexplore.ieee.org/servlet/opac?punumber=2355](https://go.microsoft.com/fwlink/?LinkId=89903)

[MS-CFB] Microsoft Corporation, "[Compound File Binary File Format](file:///C:\Users\Administrator\Desktop\OfficeEncryption\%5bMS-CFB%5d.pdf#Section_53989ce47b054f8d829bd08d6148375b)".

[MS-CTXLS] Microsoft Corporation, "[Excel Custom Toolbar Binary File Format](file:///C:\Users\Administrator\Desktop\OfficeEncryption\%5bMS-CTXLS%5d.pdf#Section_b461dcd9933e471081bcdc1c74801b6b)".

[MS-DTYP] Microsoft Corporation, "[Windows Data Types](file:///C:\Users\Administrator\Desktop\OfficeEncryption\%5bMS-DTYP%5d.pdf#Section_cca2742956894a16b2b49325d93e4ba2)".

[MS-LISTSWS] Microsoft Corporation, "[Lists Web Service Protocol](file:///C:\Users\Administrator\Desktop\OfficeEncryption\%5bMS-LISTSWS%5d.pdf#Section_30b364cc38374e839ce81963292e2ee5)".

[MS-OAUT] Microsoft Corporation, "[OLE Automation Protocol](file:///C:\Users\Administrator\Desktop\OfficeEncryption\%5bMS-OAUT%5d.pdf#Section_bbb05720f72445c78d17f83c3d1a3961)".

[MS-ODRAW] Microsoft Corporation, "[Office Drawing Binary File Format](file:///C:\Users\Administrator\Desktop\OfficeEncryption\%5bMS-ODRAW%5d.pdf#Section_8560795e77594745838ff7f2ef2f1872)".

[MS-OFFCRYPTO] Microsoft Corporation, "[Office Document Cryptography Structure](file:///C:\Users\Administrator\Desktop\OfficeEncryption\%5bMS-OFFCRYPTO%5d.pdf#Section_3c34d72a1a614b52a893196f9157f083)".

[MS-OLEDS] Microsoft Corporation, "[Object Linking and Embedding (OLE) Data Structures](file:///C:\Users\Administrator\Desktop\OfficeEncryption\%5bMS-OLEDS%5d.pdf#Section_85583d21c1cf4afea35fd6701c5fbb6f)".

[MS-OSHARED] Microsoft Corporation, "[Office Common Data Types and Objects Structures](file:///C:\Users\Administrator\Desktop\OfficeEncryption\%5bMS-OSHARED%5d.pdf#Section_d93502fa5b8f4f47a3fe5574046f4b8d)".

[MS-OVBA] Microsoft Corporation, "[Office VBA File Format Structure](file:///C:\Users\Administrator\Desktop\OfficeEncryption\%5bMS-OVBA%5d.pdf#Section_575462babf6741909facc275523c75fc)".

[MS-PRSTFR] Microsoft Corporation, "[ADO XML Persistence Format](file:///C:\Users\Administrator\Desktop\OfficeEncryption\%5bMS-PRSTFR%5d.pdf#Section_7e50a09b3cf44bd9ae0c3eccddabe363)".

[MS-VIEWSS] Microsoft Corporation, "[Views Web Service Protocol](file:///C:\Users\Administrator\Desktop\OfficeEncryption\%5bMS-VIEWSS%5d.pdf#Section_84e77d68e69244ba9e4e1d08abcb2d99)".

[MS-WSSTS] Microsoft Corporation, "[Windows SharePoint Services](file:///C:\Users\Administrator\Desktop\OfficeEncryption\%5bMS-WSSTS%5d.pdf#Section_52b95801d55f4d63a1c3b4e857c43b31)".

[RFC1320] Rivest, R., "The MD4 Message-Digest Algorithm", RFC 1320, April 1992, [http://www.ietf.org/rfc/rfc1320.txt](https://go.microsoft.com/fwlink/?LinkId=90274)

[RFC1321] Rivest, R., "The MD5 Message-Digest Algorithm", RFC 1321, April 1992, [http://www.ietf.org/rfc/rfc1321.txt](https://go.microsoft.com/fwlink/?LinkId=90275)

[RFC1951] Deutsch, P., "DEFLATE Compressed Data Format Specification version 1.3", RFC 1951, May 1996, [http://www.ietf.org/rfc/rfc1951.txt](https://go.microsoft.com/fwlink/?LinkId=90302)

[RFC2119] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", BCP 14, RFC 2119, March 1997, [http://www.rfc-editor.org/rfc/rfc2119.txt](https://go.microsoft.com/fwlink/?LinkId=90317)

[RFC2781] Hoffman, P., and Yergeau, F., "UTF-16, an encoding of ISO 10646", RFC 2781, February 2000, [http://www.rfc-editor.org/rfc/rfc2781.txt](https://go.microsoft.com/fwlink/?LinkId=90380)

[RFC3986] Berners-Lee, T., Fielding, R., and Masinter, L., "Uniform Resource Identifier (URI): Generic Syntax", STD 66, RFC 3986, January 2005, [http://www.rfc-editor.org/rfc/rfc3986.txt](https://go.microsoft.com/fwlink/?LinkId=90453)

[RFC5234] Crocker, D., Ed., and Overell, P., "Augmented BNF for Syntax Specifications: ABNF", STD 68, RFC 5234, January 2008, [http://www.rfc-editor.org/rfc/rfc5234.txt](https://go.microsoft.com/fwlink/?LinkId=123096)

[SCHNEIER] Schneier, B., "Applied Cryptography, Second Edition", John Wiley and Sons, 1996, ISBN: 0471117099, [http://www.wiley.com/WileyCDA/WileyTitle/productCd-0471117099.html](https://go.microsoft.com/fwlink/?LinkId=817338)

[XMLDSig] Bartel, M., Boyer, J., Fox, B., et al., "XML-Signature Syntax and Processing", W3C Recommendation, February 2002, [http://www.w3.org/TR/2002/REC-xmldsig-core-20020212/](https://go.microsoft.com/fwlink/?LinkId=130861)

[XMLNS] Bray, T., Hollander, D., Layman, A., et al., Eds., "Namespaces in XML 1.0 (Third Edition)", W3C Recommendation, December 2009, [http://www.w3.org/TR/2009/REC-xml-names-20091208/](https://go.microsoft.com/fwlink/?LinkId=191840)

[XMLSCHEMA1] Thompson, H., Beech, D., Maloney, M., and Mendelsohn, N., Eds., "XML Schema Part 1: Structures", W3C Recommendation, May 2001, [http://www.w3.org/TR/2001/REC-xmlschema-1-20010502/](https://go.microsoft.com/fwlink/?LinkId=90608)

[XMLSCHEMA2] Biron, P.V., Ed. and Malhotra, A., Ed., "XML Schema Part 2: Datatypes", W3C Recommendation, May 2001, [http://www.w3.org/TR/2001/REC-xmlschema-2-20010502/](https://go.microsoft.com/fwlink/?LinkId=90610)

### 1.2.2 Informative References

[MSDN-ASRSD] Microsoft Corporation, "Absolute and Self-Relative Security Descriptors", [http://msdn.microsoft.com/en-us/library/aa374807.aspx](https://go.microsoft.com/fwlink/?LinkId=119907)

[MSDN-BMP] Microsoft Corporation, "Types of Bitmaps", [http://msdn.microsoft.com/en-us/library/ms536393.aspx](https://go.microsoft.com/fwlink/?LinkId=89960)

[MSDN-FONTS] Microsoft Corporation, "About Fonts", [http://msdn.microsoft.com/en-us/library/dd162470(VS.85).aspx](https://go.microsoft.com/fwlink/?LinkId=90008)

[MSDN-MapiMessage] Microsoft Corporation, "MapiMessage (Simple MAPI)", [http://msdn.microsoft.com/en-us/library/ms529146(EXCHG.10).aspx](https://go.microsoft.com/fwlink/?LinkId=121694)

[MSDN-OLEDBP-OI] Microsoft Corporation, "OLE DB Programming", [http://msdn.microsoft.com/en-us/library/502e07a7(VS.80).aspx](https://go.microsoft.com/fwlink/?LinkId=119666)

[MSDN-OpenDBConnectivity] Microsoft Corporation, "Microsoft Open Database Connectivity (ODBC)", [http://msdn.microsoft.com/en-us/library/ms710252.aspx](https://go.microsoft.com/fwlink/?LinkId=114655)

[MSDN-OSTD] Microsoft Corporation, "Overview of Smart Tag Development [Office 2003 SDK Documentation]", [http://msdn.microsoft.com/en-us/library/aa169328.aspx](https://go.microsoft.com/fwlink/?LinkId=120036)

[MSDN-SOM] Microsoft Corporation, "SOM Reference", [http://msdn.microsoft.com/en-us/library/ms754618(VS.85).aspx](https://go.microsoft.com/fwlink/?LinkID=156653&clcid=0x409)

[MSFT-ODBCODCO] Microsoft Corporation, "ODBC--Open Database Connectivity Overview", March 2007, [http://support.microsoft.com/kb/110093](https://go.microsoft.com/fwlink/?LinkId=119665)

[MSFT-XL2000] Microsoft Corporation, "XL2000: Unable to Share Custom Lists", Article ID 212245, November 2003, [http://support.microsoft.com/kb/212245/](https://go.microsoft.com/fwlink/?LinkId=119104)

## 1.3 Overview

This document specifies [**workbook**](#gt_343c4660-90e1-4d86-b9cc-5007075d9dfe) data contained in a compound file as described in [[MS-CFB]](file:///C:\Users\Administrator\Desktop\OfficeEncryption\%5bMS-CFB%5d.pdf#Section_53989ce47b054f8d829bd08d6148375b). The data is stored in the compound file by using storages, **streams** (section [2.1.2](#Section_f67ac5edb0a74b2c9b7a28933eeaac7e)), and **substreams** (section [2.1.3](#Section_5e380e95a9f54dfdb6d9c6998a9772f8)) that contain information about the content and structure of a workbook, including workbook data such as [**worksheet**](#gt_2fdc6291-fa6a-48a6-afbb-04f910d68615) definitions定义. Some storages, **streams**, and **substreams** store information by using binary **records** (section [2.1.4](#Section_170e90ce87d747589331dcf14cd72388)). The binary **record** (section 2.1.4) structure and content are specified in this document. Each binary **record** contains its record type, information about the record size, and zero or more type-specific fields depending 根据on the record type, which is specified in section [2.3](#Section_7c84e174e96f45e0b23fa5e81f8b5def). Type-specific fields contain information further specifying the workbook data. Specifications 规范of the fields for a given record type can be found in section [2.4](#Section_6fba03830d7a4c7aafe9642ff70cbd36).

See the **File Structure** section (section [2.1](#Section_2e6147d9e8ad48b09ff7bbfc51ca950d)) for a more detailed overview of specific file architecture 体系结构and content.

### 1.3.1 stream Byte Ordering

Some computer architectures number bytes in a binary word from left to right, which is referred to as [**big-endian**](#gt_6f6f9e8e-5966-4727-8527-7e02fb864e7e). This documentation uses big-endian bit diagrams图. Other architectures number the bytes in a binary word from right to left, which is referred to as [**little-endian**](#gt_079478cb-f4c5-4ce5-b72b-2144da5d2ce7). The underlying file format enumerations枚举, objects, and records are little-endian.

Using big-endian and little-endian methods, the number 0x12345678 would be stored as shown in the following table:

| Byte order | Byte 0 | Byte 1 | Byte 2 | Byte 3 |
| --- | --- | --- | --- | --- |
| Big-endian | 0x12 | 0x34 | 0x56 | 0x78 |
| Little-endian | 0x78 | 0x56 | 0x34 | 0x12 |

Unless otherwise specified, all data in files of the type specified by this document are stored in little-endian format.

### 1.3.2 Organization 组织of This Documentation

Section [2](#Section_c227d7656ccf411a84f4198592b6f843) of this document is arranged 安排with overviews of higher-level concepts 概念being followed by more detailed concepts. Section [2.1](#Section_2e6147d9e8ad48b09ff7bbfc51ca950d) and section [2.2](#Section_492295cd134443929aa9717534c9d475), in particular特定的, specify higher-level concepts 概念that are required 要求to understand the remainder 剩余部分of the document, and are read before reading the remainder of section 2.

Section 2.1 specifies the structures and concepts that are used to organize and structure the file itself. Subsection [2.1.7](#Section_e1ea0a148d2c469b8875272091ea5aa9) further specifies the valid storages, **streams** (section [2.1.2](#Section_f67ac5edb0a74b2c9b7a28933eeaac7e)), and **substreams** (section [2.1.3](#Section_5e380e95a9f54dfdb6d9c6998a9772f8)) allowed within files of the type specified by this document.

Section 2.2 specifies higher-level concepts that are normatively described for use in later sections of this document.

Section [2.3](#Section_7c84e174e96f45e0b23fa5e81f8b5def) specifies the record name associated with a given record type. For more information about record types, see section [2.1.4](#Section_170e90ce87d747589331dcf14cd72388). These associations are listed by record name as well as by record type.

Section [2.4](#Section_6fba03830d7a4c7aafe9642ff70cbd36) specifies the details of individual records.

Section [2.5](#Section_67410b0bfca64019ae2da53f9d392e03) specifies the details of structures used by records and other structures.

Section [3](#Section_ff0abdfb49934cfd99d476cb2d3b2cde) provides specific examples intended to illustrate the concepts, records, and structures of this file format.

Section [4](#Section_6df63a1fecd54d13801ea5321aa39caa) discusses encryption, obfuscation and other security issues relating to files of the type specified by this document.

Section 5 is a list of version-specific behaviors. It is not intended to be read alone, but rather to be understood in the context of specifications in section 2. Specifications in section 2 provide links to the relevant items in Section 5.

## 1.4 Relationship to Protocols 协议and Other Structures

The Excel Binary File Format is an [**OLE compound file**](#gt_b39d4d3a-2d16-4bab-b9fd-ba8e1f16e6a4) as described in [[MS-CFB]](file:///C:\Users\Administrator\Desktop\OfficeEncryption\%5bMS-CFB%5d.pdf#Section_53989ce47b054f8d829bd08d6148375b). It is dependent on the structures defined in the following references:

 [[ECMA-376]](https://go.microsoft.com/fwlink/?LinkId=200054) for the persistence of custom [**XML**](#gt_982b7f8e-d516-4fd5-8d5e-1a836081ed85) mappings.

 [[MS-CTXLS]](file:///C:\Users\Administrator\Desktop\OfficeEncryption\%5bMS-CTXLS%5d.pdf#Section_b461dcd9933e471081bcdc1c74801b6b) for command bar tables.

 [[MS-ODRAW]](file:///C:\Users\Administrator\Desktop\OfficeEncryption\%5bMS-ODRAW%5d.pdf#Section_8560795e77594745838ff7f2ef2f1872) for the persistence format for [**shapes**](#gt_d0e38aa4-2c71-4a6f-b5e6-75766fa9409e).

 [[MS-OFFCRYPTO]](file:///C:\Users\Administrator\Desktop\OfficeEncryption\%5bMS-OFFCRYPTO%5d.pdf#Section_3c34d72a1a614b52a893196f9157f083) for the persistence format for document signing, information rights management, document encryption 加密and obfuscation困惑.

 [[MS-OVBA]](file:///C:\Users\Administrator\Desktop\OfficeEncryption\%5bMS-OVBA%5d.pdf#Section_575462babf6741909facc275523c75fc) for the persistence 持久性format for a [**VBA project**](#gt_980e3334-2874-4425-a73a-f2235cec1e1e).

 [[MS-OSHARED]](file:///C:\Users\Administrator\Desktop\OfficeEncryption\%5bMS-OSHARED%5d.pdf#Section_d93502fa5b8f4f47a3fe5574046f4b8d) for the persistence format for additional common structures.

## 1.5 Applicability 适用性Statement声明

This document specifies a persistence 持久性format for [**workbook**](#gt_343c4660-90e1-4d86-b9cc-5007075d9dfe) content and templates, which can include unstructured or semi-structured tables of numbers, text, or both numbers and text, formulas, external data connections, charts and images. This persistence format is applicable for persistence of documents with a grid-based layout, including those with numeric data, structured data, and formulas.

This persistence format is applicable for use as a stand-alone document, and for containment within other documents as an embedded object as described in [[MS-OLEDS]](file:///C:\Users\Administrator\Desktop\OfficeEncryption\%5bMS-OLEDS%5d.pdf#Section_85583d21c1cf4afea35fd6701c5fbb6f).

This persistence format provides interoperability with applications that create or read documents conforming to this structure.

## 1.6 Versioning and Localization本地化

This document covers versioning issues in the following areas:

**Structure Versions:** There is only one version of the Excel Binary File Format (.xls) Structure Specification.

**Localization:** The following records and structures contain fields that specify locale-dependent meaning:

 **Header** (section 2.4.136)

 **Footer** (section 2.4.124)

 **Format** (section 2.4.126)

 **CodeName** (section 2.4.51)

 **Font** (section 2.4.122)

The Security Considerations section (section 4), the **Password Verifier Algorithm** section (section 2.2.9), the Encryption (Password to Open) section (section 2.2.10), and the **Macro Sheet Substream** section (section 2.1.7.20.4) also specify processes 流程and data that are locale-dependent依赖. See each record, structure, and section description for more information.

## 1.7 Vendor-Extensible Fields

This persistence 持久性format can be extended by storing information in [**streams**](#gt_f3529cd8-50da-4f36-aa0b-66af455edbb6) and storages not specified in section [2](#Section_c227d7656ccf411a84f4198592b6f843). Implementations are not required to preserve or remove additional streams or storages when modifying an existing document.