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scope similar to a field-ion microscope, which has a sharply rounded tip. This induces field ionization, which is directed towards the tip, giving it greater resolving power. More than 10 million ions can be detected. Also called **ion micro-**

field-ion microscope to study the structure and properties of solid surfaces. Its abbreviation is **FIM**.

field ionization The process of ionizing atoms or molecules through a strong electric field.

(3). A field length may be expressed in bits or bytes.

field magnet A magnet which provides a magnetic field for a device or machine. **Field generator**. 2. A field

measuring how the intensity of a signal varies with direction and distance. It is used for transmitting or receiving effectively. It is measured in any plane, and the field lines are generally perpendicular to the direction of the signal. **Field pattern**. The time required to transmit one cycle of the field frequency. In the case of a field, it is usually 1/60.

Field casting, such as that for casting a field of scenes outside a field of view.

Field of magnetic material, upon which a magnetic field is applied.

Field Its abbreviation is **FPGA**. A field-programmable gate array (FPGA) is a type of integrated circuit (IC) that can be programmed at a factory, and then used, for instance, for logic. Also called **programmable logic device**.

Field Its abbreviation is **FPLA**. A field-programmable logic array (FPLA) is a type of integrated circuit (IC) that can be programmed at a factory, usually during installation, and then used. Also called **programmable logic device**.

Field frequency.

Field A motor or generator, a rheostat, or a field coil.

Field A character which serves as a field separator.

Field intensity. 1. The strength of a magnetic field, or electric field, or the strength of an electric field vector, and is usually expressed in units of field intensity.

Field intensity meter. 1. An instrument for measuring the field strength. 2. An instrument for measuring the field strength of a radio transmitter. A field radio receiver may be used.

Field is performed under actual conditions, contrasts with a **bench test**, which is performed in a laboratory setting.

Field tests.

Field.

Field Format.

FIFO Acronym for first-in, first-out. A method of handling data in which the first item stored is the first item to be retrieved. In this manner, that which has been held the longest is that which is used first. Most printer queues use this scheme. This contrasts with **LIFO**, where the next item to be used is that which most recently arrived.

fifth-generation computer A computer utilizing very large-scale integration and ultra-large scale integration. This computer generation started approximately in the mid 1990s.

fifth-generation language A computer programming language that has more advanced natural language processing than fourth-generation languages, and which makes use of expert systems, inference engines, and the like. Its abbreviation is **5GL**.

fifth normal form In the normalization of a relational database, the fifth stage utilized to convert complex data structures into simpler relations. A database must first complete the fourth normal form before proceeding to the fifth. Its abbreviation is **5NF**.

fifth-order filter A filter with ten components, such as five inductors and five capacitors, and which provides a 30 dB rolloff. Used, for instance, as a crossover network.

figure of merit A performance characteristic or rating which determines the suitability of a component, circuit, or device for a given application. For instance, the noise figure for a circuit, the bit-error rate of a demodulator, or the gain-bandwidth product of an amplifier.

filament 1. A threadlike fiber or structure, such as a thin wire. 2. A cathode, within a thermionic tube, which is directly connected to a source of current. Such a cathode, usually in the form of a wire or ribbon, becomes heated as current passes through it, and emits electrons when sufficiently heated. Also called **filament cathode**, **filamentary cathode**, **filament-type cathode**, or **directly-heated cathode**. 3. A filament (1), within an incandescent lamp, which emits light when heated. Such a filament is often made of tungsten or carbon.

filament battery A battery which supplies current to a filament (2). Also known as **A battery**.

filament cathode Same as filament (2).

filament circuit The circuit through which the filament current flows.

filament current The current which is supplied to a filament (2).

filament emission The emission of electrons by a heated filament (2).

filament power supply The source power of utilized to heat a filament (2). Also called **filament supply**.

filament saturation For a thermionic electron tube at a given anode voltage, the condition in which the anodic current can not be further increased with increases in cathode temperature. This is due to a space charge near the cathode. Also called **temperature saturation**, or **saturation** (7).

filament supply Same as filament power supply.

filament transformer A transformer utilized to provide a filament current.

filament-type cathode Same as filament (2).

filament voltage The voltage applied to a filament (2).

filament winding Within a power transformer, the winding providing the source of power utilized to heat a filament (2).

filamentary cathode Same as filament (2).

file A collection of information which is stored as a unit. Files may be retrieved, modified, stored, deleted, or transferred. Each type of file requires the appropriate software for the proper handling of its contents. There are many file types, including data files, program files, system files, and multimedia files. Also called **computer file**.

file allocation table Its abbreviation is **FAT**. In some operating systems, a table that is utilized to locate files stored on a disk. Since data may be stored in non-contiguous areas of a disk, a FAT is needed to string together all the pieces of a file. A FAT also keeps track of available disk space, and notes bad sectors to avoid their use.

file and record locking A technique employed to help maintain data integrity in a multiuser environment. When a user accesses any file or record, all other users are blocked from doing so. Once the accessed file or record is updated, it again becomes freely available.

file association The linking of a given type of file to a specific application, usually by using a file extension, such as .xyz. It is utilized to alert an operating system to the need to start the necessary application for the desired file.

file attachment A file that is appended to an email. Such a file may be a document, an image, a video, a program, and so on. Certain types of attachments are encoded, thus requiring the recipient to have the appropriate email software to decode it. Also called **email attachment**, **enclosure** (3), or **attachment**.

file attribute A characteristic of a file that imposes restrictions on its availability or use. For instance, a file may be read-only, or hidden. Also called **attribute** (3).

file compression The encoding of a file so that it occupies less space and/or bandwidth. There are many algorithms used for compression, and depending on the information being encoded, space savings can range from under 10% to over 99%.

file control block A block of computer memory that contains information used for purposes of controlling a file. For example, it may hold its location on a disk. Its abbreviation is **FCB**.

file conversion The process of changing a computer file from one form to another. For instance, to convert a file from a given word processor format to ASCII.

file directory A special kind of file which is used for indexing and organizing other files. It provides information such as the name, type, and size for each listed file. File directories that branch into other directories are called root directories, while those located within a root directory are called subdirectories. In GUIs, the term **folder** is preferred. Also called **directory**.

file download To receive one or more files from a remote computer in a network. This contrasts with a **file upload**, where files are sent to a remote computer in a network.

file exporting The conversion of a file or data in one format, into another format required for use by another application or environment, using the appropriate filters. In **file importing**, the conversion occurs after files or data are accepted, while in file exporting the conversion occurs before said files or data are moved or saved.

file extension Same as **filename extension**.

file folder A special kind of file which is used for indexing and organizing other files. It provides information such as the name, type, and size for each listed file. File folders that contain other folders are called root folders, while those located within a root folder are called subfolders. In non-graphical user interfaces, the term **file directory** is used. Also called **folder**.

file format The coding of a file which defines what content it has, how it is organized, how it is to be encoded, displayed, and so on. There are many such formats, including those associated with word-processing applications, graphics, and databases.

file fragmentation Same as **fragmentation** (1).

file gap On a storage medium, such as a magnetic tape or disk drive, an unused physical space between files.

file handle A temporary designation an operating system assigns to an opened file during any given session.

file header An information unit found at the beginning of a file, such as that stored on a tape or disk, which serves to identify it and describe the contained information.

file identification A code, name, label, or the such which serves to identify a file. Also, The assigning of such an identification.

file importing The conversion of a file or data in one format, into another format required for use by the receiving application or environment, using the appropriate filters. In file importing the conversion occurs after files or data are accepted, while in **file exporting** the conversion occurs before said files or data are moved or saved.

file label A record appearing at the beginning of a file, containing information such as its name, size, type, and so on. Also called **header label**.

file layout The manner in which the content of a file is distributed. It consists of the arrangement of the records it contains. Also, a description of such a layout.

file locking 1. A technique employed to help maintain data integrity in a multiuser environment. When a user accesses any file, all other users are blocked from doing so. Once the accessed file is updated, it again becomes freely available. 2. The enabling of a security feature, such as a password, to block access to a file.

file maintenance 1. The updating of master files, based on changes in the data contained in transaction files. 2. Any activity which helps maintain files current and/or optimally accessible. Such activities include the addition, modification, or deletion of contained information, copying or archiving files, or the defragmentation of a disk.

file management system A program, or a part of a program, which performs functions such as the organization, copying, renaming, transferring, viewing, and retrieving of files. An operating system incorporates a file management system, but there are also specialized programs which provide more flexibility and ease of use. Also called **file manager**.

file manager Same as **file management system**.

file name Same as **filename**.

file processing The use of a file. This includes, saving, updating, and manipulating information within it.

file protection 1. Measures taken to prevent the accidental erasure of files, or parts of files. Such protection may be logical or physical. Logical protection, for instance, may involve designating a file as read-only, while physical protection might entail the moving of a tab. 2. Same as **file security**.

file recovery Procedures utilized to restore files, or parts of files, which have been lost due to accidental erasure, software and/or hardware failure, misplacement, and so on. Although there are utility programs that can help in this capacity, the best restoration method is to access a backup copy.

file recovery program Same as **file recovery software**.

file recovery software A program or utility employed for **file recovery**. Also called **file recovery utility**, or **file recovery program**.

file recovery utility Same as **file recovery software**.

file retrieval The accessing of a file, or a part of a file, from a storage location.

file search 1. To look for specific content within a file. 2. To look for a specific file within a file server, database, directory, and so on.

file security The safeguarding of files against loss, damage, unwanted modification, or unauthorized access. Such safeguards may be administrative, physical, or technical. Also called **file protection** (2).

file server In a communications network, a server which manages files and serves as a remote storage location for a workstation. For example, a file server helps insure that multiple requests for files are handled in an orderly manner.

file sharing The accessing of files by multiple users in a network. This may or not occur simultaneously. The files are available from a central computer, such as a file server, which takes care of tasks such as file locking.

file sharing protocol A communications protocol which governs the sharing of files over a network.

file size The length of a file, usually expressed in bytes or a multiple of bytes such as megabytes.

file spec Same as **full path**. Abbreviation of **file specification**.

file specification Same as **full path**.

file system Within a operating system, the manner in which files are named, renamed, organized, copied, transferred, stored, and retrieved.

file transfer The movement, without alteration, of a file from one location to another. This may be, for instance, from one computer to another within a network, or between file directories.

File Transfer, Access, and Management A communications protocol intended to facilitate the access, management, and transfer of files between different computer environments. Its abbreviation is **FTAM**.

file transfer program A program designed to simply, quickly, and safely transfer files between computers, such as those linked via a parallel or USB cable. Its abbreviation is **FTP**.

file transfer protocol A protocol utilized for transferring files over a TCP/IP network, such as the Internet. It incorporates functions such as conversions between character codes, and accepts commands, such as directory listing. Its abbreviation is **FTP**.

file type The kind of information contained in a file, and the format in which it is stored. For instance, an operating system will use this information to select the appropriate application to open when a given file is selected. The file type is usually indicated by a filename extension.

file upload To send one or more files to a remote computer in a network. This contrasts with a **file download**, where files are received from a remote computer in a network.

file viewer A separate application which is called upon to interpret and view files, including those with multimedia content, which could otherwise not be seen by the current application. For instance, a Web browser plug-in utilized to display a video file that is in a format not currently supported.

FileMaker A popular database program.

filename One or more alphanumeric characters utilized to designate a file. Each operating system has restrictions on filenames, such as length, or the inability to use certain characters and/or symbols. Many operating systems support extensions at the end of a filename, which indicate the file type. Also spelled **file name**.

filename extension A set of characters appearing at the end of a filename, indicating the file type. For example, in the filename *notepad.exe*, the *.exe* portion is the extension, and in this case specifies an executable program. Also called **file extension**, or **extension** (2).

filespec Abbreviation of **file specification**. Same as **full path**.

fill 1. That which serves to occupy a space or enclosure. For example, the fill of a gas tube, or the fill between spaces in hard-solder. Also to add such a substance to a space or enclosure. 2. To occupy a virtual space. For instance, the filling of a polygon on a computer screen with a given pattern

or color, or to place numbers. sheet cell.

filled band 1. A band which energy band which is occupied orbital has its maximum of two

filter That which serves to **filter**.

film A thin, or very thin layer thinner than one femtometer films, anode films, epitaxial f

film capacitor A capacitor in usually aluminum, are alternately usually a plastic, to form a suited, for instance, for use frequencies. When the dielectric plastic-film capacitor.

film chain A device which is slides or that of motion picture film or slide projector, a n Used, for instance, to televise Also called **telecine**.

film IC Abbreviation of **film i** elements are films formed up

film integrated circuit Same as

film recorder 1. A device v computer file or displayed on photographic film, such a put is an electronic signal, at film.

film resistor A resistor who carbon, is a thin layer deposited such as ceramic. Used, for tions.

FILO Acronym for first-in, l data in which the first item retrieved. This is the same as l

filter 1. That which serves to energy to pass, remain, be t electric circuit or device whjects signals in one or more transmitted intervals are cal intervals are called stopband active components, such as t not, it is passive. A capacit passive filter, because it blocfied as falling within one o low-pass, high-pass, bandp many examples of filters, worth, and loop filters. Also trical-wave filter. 3. A c sounds of certain frequencfected. Also called **acousti** element or device, such as z which selectively blocks or frequencies of electromagnetic optical properties of the ele frequencies pass, and whic called **optical filter**, or r computers, a program, functio data from one format to an may convert a document fr essing application to that of gram, function, or process rates data or items. For exa

filter attenuation The loss passing through a filter, at pressed in decibels.

filter attenuation band Sam

filter bank A set of filters i instance, to increase frequetiple bands.