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## Glossary

- **1:1 Authentication**: The authentication process whereby a user's identity is verified. The verification performed involves a one-to-one comparison of the biometric information with previously enrolled Biometric template.
- **1:N Authentication**: The “One to Many” authentication process whereby a user Biometric is compared to a database. The authentication performed compares the biometric information of an individual with all the information registered on a database.
- **Access**: The act of accessing a particular zone or particular assets.
- **Access control**: The act of restricting unauthorized people from accessing the infrastructure and assets. Access made by authorized individuals is recorded in the [log](#).
- **Access Group**: A [user group](#) that has the right to access a specified [door/door group](#) during a scheduled period of time.
- **Access Level**: The right to access the [door](#) during a scheduled period of time.
- **Access on Card**: A card on which information about a user's ID, [credential](#), and [access group](#) is recorded.
- **Access Rule**: A rule concerning access to a certain [door/door group](#) during a scheduled period of time.
- **ACID**: The ACID represents four main properties that a transaction should have, the terminology stands for Atomicity, Consistency, Isolation and Durability. Atomicity, as the very basic operation unit, requires each transaction to be ‘all or nothing’, or simply all-success or all-fail. Consistency ensures any transaction to bring the database from one valid state to another. Isolation ensures the [transaction](#) in process must remain isolated from any other transactions. Durability ensures integrity that committed data is kept in the drive even in the event of failure for restructure.
- **Administrator**: The user who has full access to the configuration software.
- **AES (Advanced Encryption Standard)**: The Advanced Encryption Standard (AES) is a specification for the encryption of electronic data established by the U.S. National Institute of Standards and Technology (NIST).
- **Alarm**: Among events occurred in the system, the type of [event](#) that requires action without delay.
- **Alarm action**: The actions that automatically perform activities such as controlling the device and sending emails when an alarm or a certain event occurs.
- **Alert**: The act of displaying or forwarding in real time an [alarm](#) event occurred in the system.
- **Analog intercom**: An intercom telephone that consists of an analog switch and a network.

- **ANSI 378:** The fingerprint template standards defined by the American National Standards Institute (ANSI).
- **AP (Access Point):** A device for implementing a **Wireless LAN**. An access point creates a connection to a wireless network through a wired LAN.
- **APB (Anti-passback):** A structural method used to control access. This function uses access control devices installed both inside and outside the door, so that authentication is required for access to the zone. In the case of card-based access control systems, if a person enters a zone following the person in front without swiping their card on the reader, the door does not open when the person attempts to leave the zone, and subsequently an anti-passback event occurs. Anti-passback is categorized into hard APB and soft APB. If the anti-passback is violated, the anti-passback event is created immediately and hard APB does not permit access to the user while soft APB still permits access to the user.
- **API (Application Programming Interface):** An API is a set of protocols, tools, and instruction for implementing software applications. In case of web application development, the API specifies how the system should send requests and what kind of corresponding responses should be expected to receive. The API may include functions like file managements, window/video/character processing to ease the application development process for the 3rd party application developers.
- **Arm:** The act of monitoring a specific zone for the prevention of crime and accidents. 24-hour monitoring, alarm notifications, recordings, etc. are available through a security system.
- **Audit trail:** The data recorded on system changes. The audit trail makes it possible to search for information about unauthorized user activity, the processing of user activity, etc.
- **Authentication:** The act of verifying the **credentials** entered by a user to identify the user.
- **Authentication mode:** A combination of **credentials** required for **authentication**.
- **Backlight:** A light that emits from the back of the LCD of a device for readability.
- **Backlight timeout:** The duration of time the **backlight** remains on.
- **Batch enrollment:** The act of registering a multiple number of access cards on the BioStar server. Registered entry cards can be allocated to individual users.
- **Bifurcation:** A point where two fingerprint **ridges** meet or are separated.
- **Biometric authentication:** The act of determining whether the provided **biometric information** of an individual matches the information on the individual's Biometric characteristics previously enrolled.
- **Biometric information:** Information used to identify each individual. Information concerning the unique physical and behavioral characteristics of an individual, including the individual's fingerprint, signature, vein pattern, face, voice, iris, genes, etc.
- **Biometrics:** A technology that extracts and analyzes the physical and behavioral characteristics of individuals using an automated device for the identification of each individual.
- **Blacklist:** A list of cards that are denied for authentication on the BioStar device. When a card is lost or stolen, misuse can be prevented by registering the ID of the card in the blacklist.
- **Break:** A brief time taken off for rest during working hours. Each break is calculated as the time between the start and the end of the break.
- **Bypass card:** A card that enables access to a specific zone by bypassing the authentication process.

For example, people who possess this card can pass through the door without the need to go through a series of security (authentication) procedures.

- **Card**: A portable information medium in the form of a card. It stores information for identification.
- **Card ID**: A serial number given to a card according to the format defined by a company, organization, or department. A card ID can be either given by the card manufacturer or created in a format defined by a particular company or organization.
- **Card layout**: The data arrangement and structure inside a card.
- **Card mode**: A method for authenticating cardholders. There are two card modes, **Card ID** mode and Template-on-Card mode. The Card ID mode compares the user ID that is stored on the device with fingerprint information, in reference to the card ID stored on the card. Whereas the Template-on-Card mode identifies a user by checking whether the fingerprint entered by the user matches the fingerprint information on the card.
- **Client**: Entity that requests service from the **server** through a network.
- **Controller**: A device that examines access rights based on **credential** information obtained from a reader and controls the input and output of the reader.
- **Credential**: Data used to identify users. Digital signatures, smart cards, biometric data, user names, passwords, etc. are common examples of credentials.
- **CSN (Card Serial Number)**: A serial number given to a card by the manufacturer.
- **Daisy Chain**: A daisy chain is a wiring scheme in which hardware devices are connected together in sequence.
- **DBMS (Database Management System)**: A DBMS is a software that controls and manages database, and interacts with a user or an application to access data in the database.
- **Device**: An access control device that can be controlled in the BioStar.
- **Device ID**: A unique number given to identify each hardware device in the BioStar.
- **DHCP**: A communication protocol used for the automatic allocation and management of settings required for TCP/IP communication.
- **DIP switch**: A DIP switch is an On/Off switch that is used to control the behavior of a device circuit board without hardware alteration.
- **Disarm**: The act of suspending the operation of an alarm system activated for a specific zone.
- **Door**: A place in which a physical device for access control is installed. A spatial concept that forms the basis for access control.
- **Door group**: A group of **doors** created for ease of management. **Events** can be monitored by the door group. A component of an **access group**.
- **Door sensor**: A sensor that detects the state of the door. There are various types of states such as open, closed, held open, and forced open that can be checked.
- **Double mode**: An authentication method where the credentials of two different individuals are entered in sequence in a limited amount of time.
- **Duress finger**: A fingerprint chosen to generate a certain event upon fingerprint registration. If a

user authenticates himself/herself with such a fingerprint, the authentication gets recorded in a [log](#) as duress fingerprint authentication. The system [administrator](#) can set a separate alarm using the log.

- **EER (Equal Error Rate)**: As an indicator of Biometric Performance, an ERR(Equal Error Rate) is a point where [FAR \(False Acceptance Rate\)](#) and [FRR \(False Rejection Rate\)](#) intersects. A device with lower EER is regarded to be more accurate.
- **Encryption**: The act of transforming information so that it is impossible to recognize its original meaning. Storing or transferring information in encrypted form is a way of protecting the information.
- **Enrollment**: A series of steps used to record the biometric information of users in a biometrics system. It involves sampling, template creation, storing, etc.
- **Event**: An interaction between a user, the device, and the door. Events are recorded in a log on the BioStar server. They include authentication successes and failures and changes to the status of the door, alarms, etc.
- **Exit button**: A button used to open the [door](#). Pressing this button opens the door. The button can be used for doors and zones that do not require separate authentication.
- **Export**: An operation performed by a program that uses a particular data format. It is the act of storing data in a format that is compatible with other programs.
- **Face detection**: A function that, after a user's credential has been verified, takes a picture of the user's face before granting them access so that the event and an image of the user's face can be stored together. Authentication fails if the user's face is not detected. When an image of a user's face has been stored, if necessary, it is possible to identify the user by comparing the image of the face with the user ID that was recorded when the event occurred.
- **Face recognition**: A technology and authentication system that identifies people based on their facial features.
- **Fake fingerprint**: A fake fingerprint made from paper, silicone, rubber, etc. to emulate another individual's fingerprint.
- **FAR (False Acceptance Rate)**: Criteria used when comparing the accuracy of different biometric systems. It represents the probability of incorrectly recognizing a non-registered person as a registered person.
- **FastCGI**: FastCGI is a web-server plugin program which allows one process to handle multiple CGI(Common gateway interface) requests at once with faster speed.
- **Fingerprint**: The curved patterns observed on the fingertips.
- **Fingerprint recognition**: A technology and authentication system that recognizes people based on the image information of fingerprints that are unique to individuals.
- **Fingerprint scanner**: A device that scans users' [fingerprints](#) to register them on the database.
- **Fingerprint sensor**: In fingerprint recognition technology, the image input device that obtains the image information of fingerprints that each represent the unique characteristics of an individual or the area on which a finger is placed, so that the [fingerprint scanner](#) can read the fingerprint.
- **Fingerprint template**: A collection of fingerprint information that consists of a series of [minutiae](#), such as the [bifurcations](#) and the end points of [ridges](#) observed in fingerprint images. Fingerprint

templates are used for the identification of fingerprints, which is carried out by comparing the locations and number of minutiae.

- **Firmware:** A micro program or file stored on a ROM to control the hardware of the product.
- **Forced open:** A status in which the opening of the **door** has been detected by the door sensor without the occurrence of a normal door open event, such as user authentication or use of the exit button.
- **FRR (False Rejection Rate):** A criterion used when comparing the accuracy of different biometrics systems. It represents the probability of mistakenly recognizing a registered person as a non-registered person.
- **Grace:** Allowable time for time and attendance rules. For instance, if you set the work start time to 9:00 and the allowable time to 10 minutes, personnel who have arrived between 9:00 and 9:10 are not deemed to have been late for work.
- **Held open:** A status in which the **door** has remained open longer than maximum set time. Can trigger an **alarm**.
- **I/O device:** A device that performs an information input/output function.
- **Import:** The act of transferring data from one computer into its own system.
- **Intelligent reader:** A **device** that can read **credentials** and grant access to users based on their user information and access control rules. It acts as a [Reader + Controller].
- **Intercom:** A communication system that is generally installed in a building or institution by using a Private Branch eXchange (PBX).
- **ISO 19749-2:** An international standard published by ISO that defines the fingerprint format information using the minutiae of fingerprints.
- **JSON:** JSON is a form of data representation that uses characters, parentheses, and symbols to transmit data objects. It can be used in various programming languages such as PHP, C#, Python, etc.
- **Kernel:** A core component of an operating system. It manages important resources such as the memory and processes. It is loaded onto the memory at boot time to provide various basic services.
- **LAN (Local Area Network):** A network system with communication lines that connects computers, printers, and other devices in a limited area such as in a building, so they can interact with each other.
- **Leave:** The act of taking a leave of absence from work with a pre-specified reason/permission or the period of leave itself.
- **Lock:** An electro-mechanical device that connects to the access control system to be used for locking the door. It refers to all electronic devices either built into or fitted to the door.
- **Log:** The records of all **events** occurred in the system, network, device, door, etc.
- **LSB (Least Significant Bit):** The bit at the lowest position of binary data (the right-most bit) or its content. It is the opposite of the **Most Significant Bit (MSB)**.
- **Master device:** Among the devices that are connected through **RS-485**, the device that plays the role of a controller. It processes data by periodically monitoring the **slave device**. It is also called a host device.

- **Matching timeout:** The time limit given to device matching or server matching. Matching fails if the matching does not get completed within the time limit.
- **Message timeout:** The duration of time a message is displayed when there is no user interaction.
- **Minutiae:** The specific details in the **ridges** of a fingerprint used to recognize the fingerprint.
- **Model number:** A generic number given to a **device** by the manufacturer in order to identify its type.
- **MSB (Most Significant Bit):** The bit at the highest position of binary data (the left-most bit) or its content. It is the opposite of the **Least Significant Bit (LSB)**.
- **MTU (Maximum Transmission Unit):** The maximum amount of packets that can be transmitted through the network.
- **NC (Normally Closed):** An action where the **relay** remains closed in normal status but opens when the device operates. The current flows through the connected circuit because the relay remained closed earlier.
- **NO (Normally Open):** An action where the **relay** remains open in normal status but closes when the device operates. The current does not flow through the circuit because the relay remained open earlier.
- **Noise:** The electrical signals that obscure or make it difficult to identify signals.
- **Optical fingerprint sensor:** A sensor that extract fingerprint information using light.
- **Overtime:** The time worked that is more than the daily working hours set by the Labor Standards Act or the company regulations. Overtime may include early work, extra work, holiday work, etc.
- **Password:** A string that an individual uses together with their **user ID** for authentication.
- **PIN (Personal Identification Number):** A serial number given to an individual for their identification.
- **Port number:** The port number used for intercommunication in TCP/UDP. Its range is from 0 to 65535.
- **Private authentication:** An authentication method where user authentication is performed according to the combination of credentials specified by the administrator. This method takes precedence over other authentication methods.
- **Punch:** An **event** that indicates the start time or the end time of work.
- **Punch in:** The act of recording the time of arrival at the workplace.
- **Punch out:** The act of recording the time of departure from the workplace.
- **Relay:** A control device that auto-executes the opening and closing of the electric circuit according to changes in the current, voltage, frequency, etc. of another electric circuit.
- **Reset:** The act of restoring the settings of hardware, software, etc. to the specified default values.
- **REST (Representational State Transfer):** REST is an architectural style for distributed systems such as Web. REST interfaces with external systems using HTTP URI, and communicate with HTTP verbs (GET, POST, PUT, DELETE and etc).
- **Restart:** The act of switching off and on by force due to an error related to program execution during device operation.

- **Ridge**: A ridge is a curve that represents a fingerprint, consisting of a continuous curve, an end point where the ridge is cut midway through, and a **bifurcation** where two ridges meet, which are called **minutiae**.
- **RS-485**: A standard protocol for serial communication that supports home networking. RS-232 has a low transfer rate and a short transmission range while RS485 enables all devices to transmit/receive data on the same line.
- **Scan**: The act of putting a finger on the surface of the sensor or moving a finger at regular speed for the conversion of fingerprint information into digital data.
- **Scan timeout**: The time limit for entering fingerprint information.
- **Security level**: The accuracy of fingerprint matching level required to identify users. At a higher security level, the **False Rejection Rate (FRR)** can also be higher.
- **Semiconductor fingerprint sensor**: A multiple number of sensors arranged on a semiconductor that electrically detect fingerprint information.
- **Sensor sensitivity**: The level of accuracy in detecting fingerprint images. With higher sensitivity, it is easier to get fingerprint images, but, because noise sensitivity increases also, it may be more difficult to perform accurate image detection.
- **Serial communication**: A communication method that transmits multiple bits in sequence. RS-232 and **RS-485** are popular examples.
- **Server**: A computer program that provides services to other programs, or a computer on which a server program runs.
- **Server matching**: A function that compares the **credential** information stored on the server and the credential information entered by a user.
- **Slave device**: Among devices connected through **RS-485**, the device that only performs the input and output functions. It does not contain user information and is controlled by the **master device**.
- **Suprema template**: A fingerprint template type defined by Suprema.
- **SDK (Software Development Kit)**: A SDK is a set of software development tools that allows software developers to create applications for a certain software package, software framework, hardware platform, computer system, or similar development environment platform.
- **Synchronization**: The act of precisely matching time, information, etc. between different systems or networks.
- **T&A (Time and Attendance)**: A control function that collects and traces information about employees and their working hours, such as attendance and absences.
- **T&A event**: An event that indicates the T&A (Time and Attendance) status of employees. It records the entry and exit times of employees and calculates how many hours they worked in a certain period of time.
- **T&A rule**: The rule defined by the administrator in order to assess and manage the hours worked by employees.
- **Tamper**: A method for monitoring the device status. A tamper can be set so that, if the device is dislocated from the bracket on which it is installed due to external factors, an alarm is activated, or the event is recorded on the server.



- **TCP/IP**: Abbreviation of Transmission Control Protocol/Internet Protocol. It is a protocol for communication between computers and a combination of TCP and IP.
- **Template**: The stored data created from extracting and then encoding biometric features. It is used to identify a user by comparing it with the bio sample entered by the user in a biometrics system or on a biometrics device.
- **Template-on-Card**: A method used to store the user information and fingerprint **template** on a smart card.
- **Time sync**: A function that synchronizes the time between different devices or different systems on a network.
- **Time zone**: A geographical zone that uses the same time standard. It can be used to set the time of the device or BioStar for controlling access.
- **Transaction**: A transaction is a unit of work that consists of data retrieval, updates, and other operations. In order to prevent using temporarily unmatched data from updates, a transaction is processed all at once. **ACID** Properties should be satisfied when a transaction is used.
- **Triggered action**: The actions that automatically perform activities such as controlling the device and sending emails when an alarm or a certain event occurs.
- **Upgrade**: The act of enhancing the performance of hardware or software by replacing the existing product with a newer or improved version.
- **User**: An individual that uses the Suprema device.
- **User group**: A group of **users** that is created for ease of management. A component of the **access group**.
- **User ID**: An identification code comprised of the alphabet, numbers, or a combination of both used to identify a certain user.
- **User synchronization**: The act of automatically sending to the device the user information that has been modified on the BioStar server.
- **Voice prompt**: A function that introduces available options to users using the recorded voice.
- **VoIP**: A communication technology that provides a voice call service based on an Internet Protocol (IP) network.
- **Wiegand**: A method that transfers a small amount of data using D0 and D1. Generally it is used as a method of communication between the reader and controller of an access control device.
- **Wireless LAN**: A local area network that uses Radio Frequency (RF) technology. With a terminal fitted with a WLAN card, people can use a communication network within a certain distance from the place where an **access point (AP)** is installed.
- **Zone**: A device group that is subject to access rules. It is used to monitor events.

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