Bluetooth Authentication - Authorisation - Encryption

Bluetooth is a short-range radio link intended to replace the cables (wires) connecting portable and/or fixed electronic devices.

**General**

Bluetooth Security

- **Security mode**
  - Bluetooth Security Attributes: The Bluetooth Security Attributes are a set of access control and authentication mechanisms used in the Bluetooth protocol.
  - Security mode (service level enforced security)
    - The Bluetooth Security Attributes are a set of access control and authentication mechanisms used in the Bluetooth protocol.

**Authentication and Authorisation**

- **Authentication**
  - Authentication is the process of verifying the identity of a user or device. In Bluetooth, authentication is performed using the following mechanisms:
  - **Kmaster**
    - Kmaster is a special key used in Bluetooth authentication. It is used to verify the authenticity of a device.
  - **Private user key**
    - A private user key is a secret key that is used to authenticate a device.
  - **Encryption**
    - Encryption is the process of converting plaintext into ciphertext using a key. In Bluetooth, encryption is used to protect sensitive data from being intercepted.

**Encryption key size negotiation**

- Each Bluetooth device represents its own encryption key size, which is a parameter defining the maximum size of the encryption key used. In Bluetooth, the default encryption key size is 128 bits, but this can be modified to any value between 128 and 256 bits.

**Security mode (service level enforced security)**

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**Security model**

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**Notes**

1. The Bluetooth Specification includes several security features, such as encryption, authentication, and key management, which are used to protect data and prevent unauthorized access.
2. The Bluetooth Low Energy (BLE) standard includes several security features, such as encryption, authentication, and key management, which are used to protect data and prevent unauthorized access.
3. Bluetooth Security Attributes: The Bluetooth Security Attributes are a set of access control and authentication mechanisms used in the Bluetooth protocol.

**List of Acronyms and Abbreviations**

- **Bluetooth Device Address (BD_ADDR)**
  - BD_ADDR is a unique identifier used in Bluetooth to identify a device.

**References**

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**Diagram**

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