# Data Storage in ChatterBox

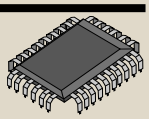
## Storage Options

Several options for data storage are supported by the firmware. The same level of at-rest encryption is used, regardless of how you store your data.

### Micro SD Card


- Highly recommended for T-Deck
- Preferred for Nodes
- For T-Deck, functions as a SIM card, and is easily transferable between T-Decks (v1.9+)
- **Not all SD cards are compatible,** see list at: chatters.io/support
- Easily backup by creating copies of the card

### Onboard Flash



- Less preferred for T-Deck
- OK for Nodes, but less preferred
- Very convenient, but your data is then locked to a particular device
- Over time, wear leveling could cause data loss
- No way to back up your device

| | *Micro SD* | *Flash* |
|---|---|---|
| **T-Deck & Variants**  | ✓ | ✓ |
| **T-Beam Supreme**  | ✓ | ✓ |
| **T3S3 E-Paper**  | ✓ | ✓ |
| **T3S3 (sx1262)**  | ✓ | ✓ |
| **Heltec Vision e290**  | ✗ | ✓ |

## What ChatterBox Stores

| Data Type | Description | Encrypted | Volatile |
|---|---|---|---|
| **Device Settings** | Name, Private Keys, ... | Yes | No |
| **Known Clusters** | Cluster names, keys, configs | Yes | No |
| **Public Keys** | Trusted *public* keys | No | No |
| **RF Packets** | Packets to/from this device | Yes | Yes |
| **Mesh Packets** | Mesh cache packets | Yes | No |
| **Messages** | Sent/received messages | Yes | Configurable |
| **Location Data** | Location & movement for on-cluster devices | Yes | Configurable |
| **Pings** | Most recent ping times/RSSI from devices | No | Depends |
| **Mesh Graph** | Connectivity ratings between all devices | No | Depends |
| **Additional Settings** | WiFi Configs, ... | Yes | No |

***Volatile**: Encrypted using a randomly-generated in-memory key that is lost when the device restarts (effectively losing the data between restarts).*

## Encryption Options


You may choose to set a password on your device (in settings). If you choose to do so, that password will be required any time your device powers up or wakes up.

**No Password**: Stored data is encrypted using a key that is automatically calculated for your device.

**Password**: Stored data is encrypted using your password as a symmetric key. This key / password is *never* stored, and never recoverable...so don't forget it if you set one!

## Storage Format

ChatterBox stores data in a proprietary format designed for reduced IO, high portability & stability, pluggable encryption, and high fault tolerance

The ChatterBox storage layer runs entirely in memory, only flushing to physical storage occasionally.

ChatterBox can use SPIFFs + Flash, FAT + SD, or raw storage, such as FRAM (no file system).

ALTWARE DEVELOPMENT