

## greenerthumb ICD

- Timestamps are 8-byte unix timestamps.
- Checksums are cyclic sums of all of a message's bytes excluding the checksum.
- Multi-byte fields are big-endian.

### Air Status Message (pub/sub)

| Byte | Name        | Type  |
|------|-------------|-------|
| 1    | ID (0x00)   | Byte  |
| 2    | Timestamp   | Long  |
| 10   | Temperature | Float |
| 14   | Checksum    | Byte  |

- Temperature is in degrees fahrenheit.

### Soil Status Message (pub/sub)

| Byte | Name      | Type  |
|------|-----------|-------|
| 1    | ID (0x01) | Byte  |
| 2    | Timestamp | Long  |
| 10   | Moisture  | Float |
| 14   | Checksum  | Byte  |

- Moisture is the ratio of water to soil.

### Disclosure Message (Broadcast)

| Byte              | Name                    | Type          |
|-------------------|-------------------------|---------------|
| 1                 | ID (0x02)               | Byte          |
| 2                 | Timestamp               | Long          |
| 3                 | Device Name Length (l)  | Byte          |
| 4                 | Device Name             | Byte Sequence |
| 4 + l             | Publish Host Length (m) | Byte          |
| 4 + l + 1         | Publish Host            | Byte Sequence |
| 4 + l + 1 + m     | Command Host Length (n) | Byte          |
| 4 + l + 1 + m + 1 | Command Host            | Byte Sequence |

| Byte                  | Name     | Type |
|-----------------------|----------|------|
| 4 + 1 + 1 + m + 1 + n | Checksum | Byte |

- Device name is the name of the device.
- Publish host is the host the device publishes to.
- Command host is the host the device receives commands from.

## JSON

JSON is used for internal messaging. Every message has a corresponding JSON format with the structure:

```
{
  "name": <message_name>,
  "timestamp": <timestamp>,
  <name>: <value>, ...
}
```

IDs are swapped with names for friendlier use in applications. Checksums are excluded since the messages don't need to be sent over a network. Names and values correspond to the non-ID, non-time, and non-checksum fields in the messages.