



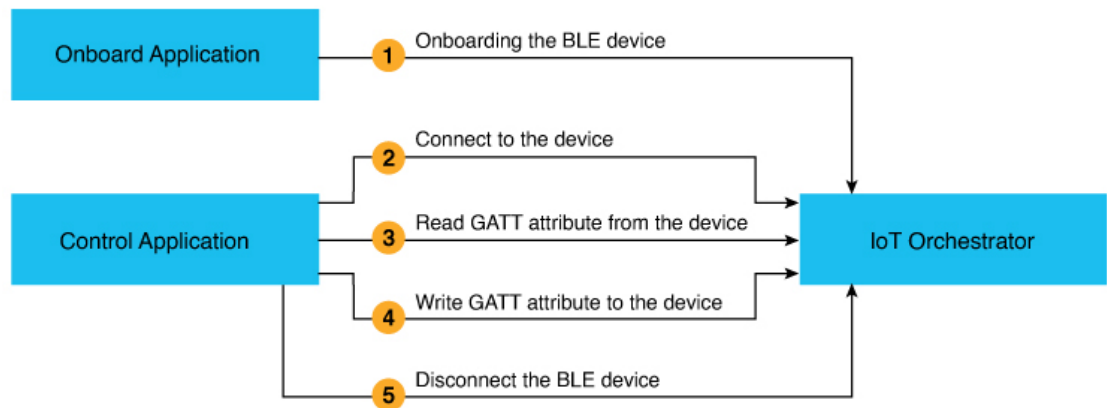
Use Case 2 - Remote Patient Health Monitoring

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Use Case 2 - Remote Patient Health Monitoring (requiring BLE connection, reading, and writing)

In this use case, you can:

1. Onboard a device.
2. Connect to the device.
3. Perform service discovery.
4. Write a characteristic.
5. Read the characteristic.
6. Disconnect from the device.



The following workflow covers the sequence of operations:

1. [Onboarding a Device.](#)
2. [Connecting to a Device.](#)
3. [Writing a Characteristic to the Device.](#)
4. [Reading a Characteristic to the Device.](#)
5. [Disconnecting the Device.](#)

Onboarding a Device

API Definition

API	Description
POST /scim/v2/Devices	This is the API for onboarding a device.

Request Format for Onboarding the Device without Pairing

```

curl -k --location 'https://10.195.78.33:8081/scim/v2/Devices' \
--header 'x-api-key: 5a9095d0457f24518bba93c50d69efe5' \
--header 'Content-Type: application/json' \
--data '
{
  "schemas": [
    "urn:ietf:params:scim:schemas:core:2.0:Device",
    "urn:ietf:params:scim:schemas:extension:ble:2.0:Device",
    "urn:ietf:params:scim:schemas:extension:endpointapps:2.0:Device"
  ],
  "deviceDisplayName": "BLE Heart Monitor",
  "adminState": true,
  "urn:ietf:params:scim:schemas:extension:ble:2.0:Device": {
    "versionSupport": [
      "5.3"
    ],
  },
  "deviceMacAddress": "EF:00:00:00:00:00",
}
  
```

```

"isRandom": false,
"mobility": false,
"pairingMethods": [
  "urn:ietf:params:scim:schemas:extension:pairingNull:2.0:Device"
],
"urn:ietf:params:scim:schemas:extension:pairingNull:2.0:Device": null
},
"urn:ietf:params:scim:schemas:extension:endpointAppsExt:2.0:Device": {
  "onboardingUrl": "onboardApplication",
  "deviceControlUrl": [
    "controlApplication"
  ],
  "dataReceiverUrl": []
}
}
'

```

Response Format for Onboarding the Device without Pairing

```

{
  "schemas": [
    "urn:ietf:params:scim:schemas:core:2.0:Device",
    "urn:ietf:params:scim:schemas:extension:ble:2.0:Device",
    "urn:ietf:params:scim:schemas:extension:endpointapps:2.0:Device"
  ],
  "id": "f837c89a-e1dd-4b90-a446-06016c0d2b75",
  "deviceDisplayName": "BLE Heart Monitor",
  "adminState": true,
  "urn:ietf:params:scim:schemas:extension:ble:2.0:Device": {
    "versionSupport": [
      "5.3"
    ],
    "deviceMacAddress": "CA:2B:5C:EC:95:46",
    "isRandom": false,
    "pairingMethods": [
      "urn:ietf:params:scim:schemas:extension:pairingNull:2.0:Device"
    ],
    "mobility": false,
    "urn:ietf:params:scim:schemas:extension:pairingNull:2.0:Device": null
  },
  "urn:ietf:params:scim:schemas:extension:endpointAppsExt:2.0:Device": {
    "onboardingUrl": "onboardApplication",
    "deviceControlUrl": [
      "controlApplication"
    ],
    "dataReceiverUrl": []
  }
}

```

Request Format for Onboarding the Device with Pairing

```

{
  "schemas": [
    "urn:ietf:params:scim:schemas:core:2.0:Device",
    "urn:ietf:params:scim:schemas:extension:ble:2.0:Device",
    "urn:ietf:params:scim:schemas:extension:endpointapps:2.0:Device"
  ],
  "deviceDisplayName": "BLE Heart Monitor",
  "adminState": true,
  "urn:ietf:params:scim:schemas:extension:ble:2.0:Device": {
    "versionSupport": [

```

```

"5.3"
],
"deviceMacAddress": "CA:2B:5C:EC:95:46",
"isRandom": false,
"mobility": true,
"pairingMethods": [
"urn:ietf:params:scim:schemas:extension:pairingJustWorks:2.0:Device"
],
"urn:ietf:params:scim:schemas:extension:pairingJustWorks:2.0:Device": {
"key": null
}
},
"urn:ietf:params:scim:schemas:extension:endpointAppsExt:2.0:Device": {
"onboardingUrl": "onboardApplication",
"deviceControlUrl": [
"controlApplication"
],
"dataReceiverUrl": []
}
}

```

Response Format for Onboarding the Device with Pairing

```

{
"schemas": [
"urn:ietf:params:scim:schemas:core:2.0:Device",
"urn:ietf:params:scim:schemas:extension:ble:2.0:Device",
"urn:ietf:params:scim:schemas:extension:endpointapps:2.0:Device"
],
"id": "f837c89a-e1dd-4b90-a446-06016c0d2b75",
"deviceDisplayName": "BLE Heart Monitor",
"adminState": true,
"urn:ietf:params:scim:schemas:extension:ble:2.0:Device": {
"versionSupport": [
"5.3"
],
"deviceMacAddress": "CA:2B:5C:EC:95:46",
"isRandom": false,
"pairingMethods": [
"urn:ietf:params:scim:schemas:extension:pairingJustWorks:2.0:Device"
],
"mobility": true,
"urn:ietf:params:scim:schemas:extension:pairingJustWorks:2.0:Device": {
"key": null
}
},
"urn:ietf:params:scim:schemas:extension:endpointAppsExt:2.0:Device": {
"onboardingUrl": "onboardApplication",
"deviceControlUrl": [
"controlApplication"
],
"dataReceiverUrl": []
}
}

```

Connecting to a Device

To connect to a BLE device and discover its services, perform the following:

1. Use the Device ID:

The device ID is "f837c89a-e1dd-4b90-a446-06016c0d2b75".

2. Connect the BLE device from the AP:

Use the device ID to establish a connection with the BLE device from the AP.

3. Discover Services:

Discover the services with the following service UUIDs:

- 1800
- 2002
- 1822
- 180F

API Definition

API	Description
/control/connectivity/connect	This API is used to connect to a device.

Request Format

```
{
  "technology": "ble",
  "id": "f837c89a-e1dd-4b90-a446-06016c0d2b75",
  "ble": {
    "services": [
      {
        "serviceID": "1800"
      },
      {
        "serviceID": "2022"
      },
      {
        "serviceID": "1822"
      },
      {
        "serviceID": "180F"
      }
    ]
  },
  "controlApp": "controlApplication"
}
```

Response Format

```
{
  "status": "SUCCESS",
  "id": "f837c89a-e1dd-4b90-a446-06016c0d2b75",
  "requestID": "75310f89-79c6-4e7b-93cb-f58a8f18fc57",
  "services": [
    {
      "serviceID": "1800",
      "characteristics": [
```

```

{
  "characteristicID": "3443",
  "descriptors": [
    {
      "descriptorID": "9059"
    }
  ],
  "flags": [
    "read",
    "write",
    "notify"
  ]
}
},
{
  "serviceID": "2022",
  "handle": 1,
  "characteristics": [
    {
      "characteristicID": "8065",
      "descriptors": [
        {
          "descriptorID": "9620"
        }
      ],
      "flags": [
        "read",
        "write",
        "notify"
      ]
    }
  ],
},
{
  "serviceID": "1822",
  "handle": 2,
  "characteristics": [
    {
      "characteristicID": "8912",
      "descriptors": [
        {
          "descriptorID": "1554"
        }
      ],
      "flags": [
        "read",
        "write",
        "notify"
      ]
    }
  ],
},
{
  "serviceID": "180F",
  "handle": 3,
  "characteristics": [
    {
      "characteristicID": "2810",
      "descriptors": [
        {
          "descriptorID": "1517"
        }
      ]
    }
  ],
}

```

```

"flags": [
  "read",
  "write",
  "notify"
]
}
]
}
]
}

```

Writing a Characteristic to the Device

API Definition

API	Description
/control/data/write	This API is used to write a characteristic to the device.

Request Format

```

{
  "technology": "ble",
  "id": " f837c89a-e1dd-4b90-a446-06016c0d2b75",
  "value": "0001",
  "ble": {
    "serviceID": "1800",
    "characteristicID": "2A00"
  },
  "controlApp": "controlApplication"
}

```

Response Format

```

{
  "status": "SUCCESS",
  "id": " f837c89a-e1dd-4b90-a446-06016c0d2b75",
  "requestID": "191bc8f1-927f-4fb0-b0b5-7944ea5b34f0",
  "value": "0001"
}

```

Reading a Characteristic to the Device

API Definition

API	Description
/control/data/read	This API is used to read a characteristic to the device.

Request Format

```
{
  "technology": "ble",
  "id": " f837c89a-e1dd-4b90-a446-06016c0d2b75",
  "ble": {
    "serviceID": "1800",
    "characteristicID": "2A00"
  },
  "controlApp": "controlApplication"
}
```

Response Format

```
{
  "status": "SUCCESS",
  "id": " f837c89a-e1dd-4b90-a446-06016c0d2b75",
  "requestID": "8ba846aa-6133-4392-b911-9850a90791f2",
  "value": "2342432"
}
```

Disconnecting the Device

API Definition

API	Description
/control/connectivity/disconnect	This API is used to disconnect the device.

Request Format

```
{
  "technology": "ble",
  "id": " f837c89a-e1dd-4b90-a446-06016c0d2b75",
  "controlApp": "controlApplication"
}
```

Response Format

```
{
  "status": "SUCCESS",
  "id": " f837c89a-e1dd-4b90-a446-06016c0d2b75",
  "requestID": "cb838a8d-775b-4e71-874d-1aa22e61f9af"
}
```