

WatchBP Home Blood Pressure Monitor API Documentation

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1. WatchBPHomeHid class

This class enables you to communicate with WatchBP Home devices over USB.

1.1. Inheritance Hierarchy

WatchBPHome.WatchBPHomeHid

Namespace: WatchBPHome

1.2. Properties

Name	Description
CanCommunication	Gets a value indicating whether the device can communicate or not.

1.3. Methods

Name	Parameters	Description
RegisterHandle (IntPtr)	<i>Handle</i> Type: System.IntPtr	Registers the application to let it be notified for the device events.
ParseMessages (ref Message)	<i>m</i> Type: System.Windows.Forms.Message	Filters the messages that are passed for the device change messages only. And parse them to take appropriate action.
InitWatchBPSDK(string)	<i>key</i> Type: System.String	Registers this SDK to let all APIs be available. If the input key is not valid, an exception will occur.
WriteCmd (CmdEnum)	<i>commandType</i> Type: WatchBPHomeHid.CmdEnum The type of command you want to write to the device.	Writes command to the device and returns a byte array that read from the device.
SendPCDateTime	none	Sets the device's date and time and returns a value indicating whether the

		action is successful or not. (27h)
SendIDAndClearData (string, bool, bool)	<i>ID</i> Type: System.String <i>clearUsuData</i> Type: System.Boolean true to clear usual data; otherwise, false . <i>clearDiagData</i> Type: System.Boolean true to clear diagnostic data; otherwise, false .	Clears memory and sets the device's ID. Returns a value indicating whether the action is successful or not. (23h)

1.4. Events

Name	Description
SpecifiedDeviceRemoved	Occurs when a usbhid device with vid: 0x04B4 and pid: 0x5500 is removed.
SpecifiedDeviceArrived	Occurs when a usbhid device with vid: 0x04B4 and pid: 0x5500 is plugged in.

1.5. Enumerations

1.5.1. CmdEnum Enumeration

Name	Value	Description
None	0	
ReadID	1	Read ID string from the device (24h)
RequestDeviceVer	2	Request for the version of the BPM (3Eh)
ReadUsualData	3	Read usual mode memory (28h)
ReadDiagnosticData	4	Read diagnostic mode memory (29h)
ReadDeviceDateTime	5	Read the device's date and time (26h)

1.6. Examples

1.6.1 Create WatchBPHomeHid class

The following example shows how to Create **WatchBPHomeHid** and handle the SpecifiedDeviceRemoved and SpecifiedDeviceArrived events.

```
using WatchBPHome;
class MainFrm:Form
{
    private WatchBPHomeHid watchBPHomeHid;
    public MainFrm()
    {
        ...
        watchBPHomeHid = new WatchBPHomeHid();
        // key: a specific string to register this SDK
        watchBPHomeHid.InitWatchBPSDK("key");
        watchBPHomeHid.SpecifiedDeviceRemoved+=watchBPHome_OnspecifiedD
eviceRemoved;
        watchBPHomeHid.SpecifiedDeviceArrived+=watchBPHome_OnspecifiedD
eviceArrived;
    }
    protected override void OnHandleCreated(EventArgs e)
    {
        base.OnHandleCreated(e);
        watchBPHomeHid.RegisterHandle(Handle);
    }
    protected override void WndProc(ref Message m)
    {
        base.WndProc(ref m);
        watchBPHomeHid.ParseMessages(ref m);
    }
    private void watchBPHome_OnspecifiedDeviceRemoved(object sender,
EventArgs e)
    { ... }
    private void watchBPHome_OnspecifiedDeviceArrived(object sender,
EventArgs e)
    { ... }
}
```

1.6.2. Request the device's version

The following example shows how to get the raw data of the 3Eh command (request the device's version).

```
byte[] versionByteArray =  
watchBPHomeHid.WriteCmd(WatchBPHomeHid.CmdEnum.RequestDeviceVer);
```

1.6.3. Read the device's date and time

The following example shows how to get the raw data of the 26h command (read the device's date and time).

```
byte[] dateTimeByteArray =  
watchBPHomeHid.WriteCmd(WatchBPHomeHid.CmdEnum.ReadDeviceDateTime);
```

1.6.4. Set the device's date and time

The following example shows how to set up the device's date and time.

```
if (watchBPHomeHid.CanCommunication)  
{  
    if (watchBPHomeHid.SendPCDateTime())  
        MessageBox.Show("Set up the device successfully!");  
}
```

1.6.5. Read usual mode memory

The following example shows how to get the raw data of the 28h command (read usual mode memory).

```
byte[] usualDataByteArray =  
watchBPHomeHid.WriteCmd(WatchBPHomeHid.CmdEnum.ReadUsualData);
```

1.6.6. Read diagnostic mode memory

The following example shows how to get the raw data of the 29h command (read diagnostic mode memory).

```
byte[] diagnosticDataByteArray =  
watchBPHomeHid.WriteCmd(WatchBPHomeHid.CmdEnum.ReadDiagnosticData);
```

1.6.7. Set device's ID

The following example shows how to set device's ID.

```
if (watchBPHomeHid.CanCommunication)
{
    if (watchBPHomeHid.SendIDAndClearData("1001", false, false))
        MessageBox.Show("Set up the device successfully!");
}
```

1.6.8. Read the device's ID

The following example shows how to get the raw data of the 24h command (read ID string from the device).

```
byte[] idByteArray = watchBPHomeHid.WriteCmd(WatchBPHomeHid.CmdEnum.ReadID);
```

1.6.9. Clear the device's usual data

The following example shows how to clear device's usual data. The device's ID should be get previously.

```
if (watchBPOHomeHid.CanCommunication)
{
    if (watchBPHomeHid.SendIDAndClearData("1001", true, false))
        MessageBox.Show("Set up the device successfully!");
}
```

1.6.10. Clear the device's diagnostic data

The following example shows how to clear device's diagnostic data. The device's ID should be get previously.

```
if (watchBPHomeHid.CanCommunication)
{
    if (watchBPHomeHid.SendIDAndClearData("1001", false, true))
        MessageBox.Show("Set up the device successfully!");
}
```

1.6.11. Clear the device's all data

The following example shows how to clear device's all data. The device's ID should be get previously.


```
if (watchBPHomeHid.CanCommunication)
{
    if (watchBPHomeHid.SendIDAndClearData("1001",true,true))
        MessageBox.Show("Set up the device successfully!");
}
```

2. Device class

This class stores whole device's configurations.

2.1. Inheritance Hierarchy

WatchBPHome.Decode.Device

Namespace: WatchBPHome.Decode

2.2. Properties

Name	Properties
ID	Gets or sets the device's ID.
DeviceDateTime	Gets or sets the device's date and time.
DeviceName	Gets or sets the device's name.

3. Data class

This class stores whole records of data.

3.1. Inheritance Hierarchy

WatchBPHome.Decode.Data

Namespace: WatchBPHome.Decode

3.2. Properties

Name	Descriptions
ID	Gets or sets the ID of the data.
MeasureDateTime	Gets or sets the measurement date and time of the data.
Systole	Gets or sets the systole of the data.
Diastole	Gets or sets the diastole of the data.
Pulse	Gets or sets the pulse of the data.
Comments	Gets or sets the comments string of the data.
Arr	Gets or sets the arrhythmia type of the data.
Ampm	Gets or sets am or pm of the data.
DataType	Gets or sets the datatype of the data.

3.3. Enumerations

3.3.1. AMPM Enumeration

Name	Value
none	0
am	1
pm	2

3.3.2. DataTypeEnum Enumeration

Name	Value
none	0
all	1
usual	2
diagnostic	3

3.4. Global Enumerations (WatchBPHome.Decode)

3.4.1. ArrhythmiaEnum Enumeration

Name	Value
noArr	0
PAD	1
AFIB	2

4. DeviceInfoParser class

This class converts the byte representation of raw data to their real data (Device class).

4.1. Inheritance Hierarchy

WatchBPHome.Decode.DeviceInfoParser

Namespace: WatchBPHome.Decode

4.2. Extension Methods

Name	Parameters	Description
ParseDeviceID(byte[], out string)	<i>dataAry</i> Type: System.Byte[] <i>deviceID</i> Type: System.String	Converts the byte array to the string and returns it. Returns a value indicating whether the checksum is correct or not.
ParseDeviceName(byte[], out string)	<i>dataAry</i> Type: System.Byte[] <i>deviceName</i> Type: System.String	Converts the byte array to the string and returns it. Returns a value indicating whether the checksum is correct or not.
ParseDeviceDateTime(byte[], out string)	<i>dataAry</i> Type: System.Byte[] <i>deviceDateTime</i> Type: System.String	Converts the byte array to the string and returns it. Returns a value indicating whether the checksum is correct or not.

4.3. Examples

4.3.1. Parse the raw data of device's name

The following example shows how to parse the raw data of device's name.

```
using WatchBPHome.Decode;
...
byte[] dataAry;      // raw data received from the device
...
string deviceName;
if (DeviceInfoParser.ParseDeviceName(dataAry, out deviceName))
    MessageBox.Show("The device's version is {0}",deviceName);
```

4.3.2. Parse the raw data of device's ID

The following example shows how to parse the raw data of device's ID.

```
using WatchBPHome.Decode;
...
byte[] dataAry;      // raw data received from the device
...
string id;
if (DeviceInfoParser.ParseDeviceID(dataAry, out id))
    MessageBox.Show("The device's ID is {0}",id);
```

4.3.3. Parse the raw data of device's date and time

The following example shows how to parse the raw data of device's date and time.

```
using WatchBPHome.Decode;
...
byte[] dataAry;      // raw data received from the device
...
string deviceDateTime;
if (DeviceInfoParser.ParseDeviceDateTime(dataAry, out
deviceDateTime))
    MessageBox.Show("The device's datetime is {0}",deviceDateTime);
```

5. DataParser class

This class converts the byte representation of raw data to their real data (Data class).

5.1. Inheritance Hierarchy

WatchBPHome.Decode.DataParser

Namespace: WatchBPHome.Decode

5.2. Extension Methods

Name	Parameters	Description
ParseUsuData(byte[], out List<Data>)	<i>dataAry</i> Type: System.Byte[] <i>usualData</i> Type: System.Collections.Generic.List<Data>	Converts the byte array to the List<Data> and returns it. Returns a value indicating whether the checksum is correct or not.
ParseDiagData(byte[], out List<Data>)	<i>dataAry</i> Type: System.Byte[] <i>diagData</i> Type: System.Collections.Generic.List<Data>	Converts the byte array to the List<Data> and returns it. Returns a value indicating whether the checksum is correct or not.

5.3. Examples

5.3.1. Parse the raw data of device's usual data

The following example shows how to parse the raw data of device's usual data.

```
using WatchBPHome.Decode;

...

byte[] dataAry;           // raw data received from the device
...
List<Data> usualData;
if (DataParser.ParseUsuData(dataAry, out usualData))
{
    for (int i = 0; i < usualData.Count; i++)
    {
        string usualDataStr = string.Format(
            "MeasureDatetime: {0}, DataType: {1}, Sys: {2}, Dia: {3},
            Pulse: {4}", usualData[i].MeasureDateTime, usualData[i].DataType,
            usualData[i].Systole, usualData[i].Diastole, usualData[i].Pulse
        );
        listBox.Items.Add(usualDataStr);
    }
}
```


5.3.2. Parse the raw data of device's diagnostic data

The following example shows how to parse the raw data of device's diagnostic data.

```
using WatchBPHome.Decode;

...

byte[] dataAry;          // raw data received from the device
...
List<Data> diagnosticData;
if (DataParser.ParseDiagData(dataAry, out diagnosticData))
{
    for (int i = 0; i < diagnosticData.Count; i++)
    {
        string diagDataStr = string.Format(
            "MeasureDatetime: {0}, DataType: {1}, Sys: {2}, Dia: {3},
            Pulse: {4}", diagnosticData[i].MeasureDateTime,
            diagnosticData[i].DataType, diagnosticData[i].Systole,
            diagnosticData[i].Diastole, diagnosticData[i].Pulse
        );
        listBox.Items.Add(diagDataStr);
    }
}
```