

# Backend send C2D message




# What to do ?

Develop a back-end application to send message to device via Azure IoT Hub









Open Visual Studio / Create C# Console App .NET Core / Name = backC2D


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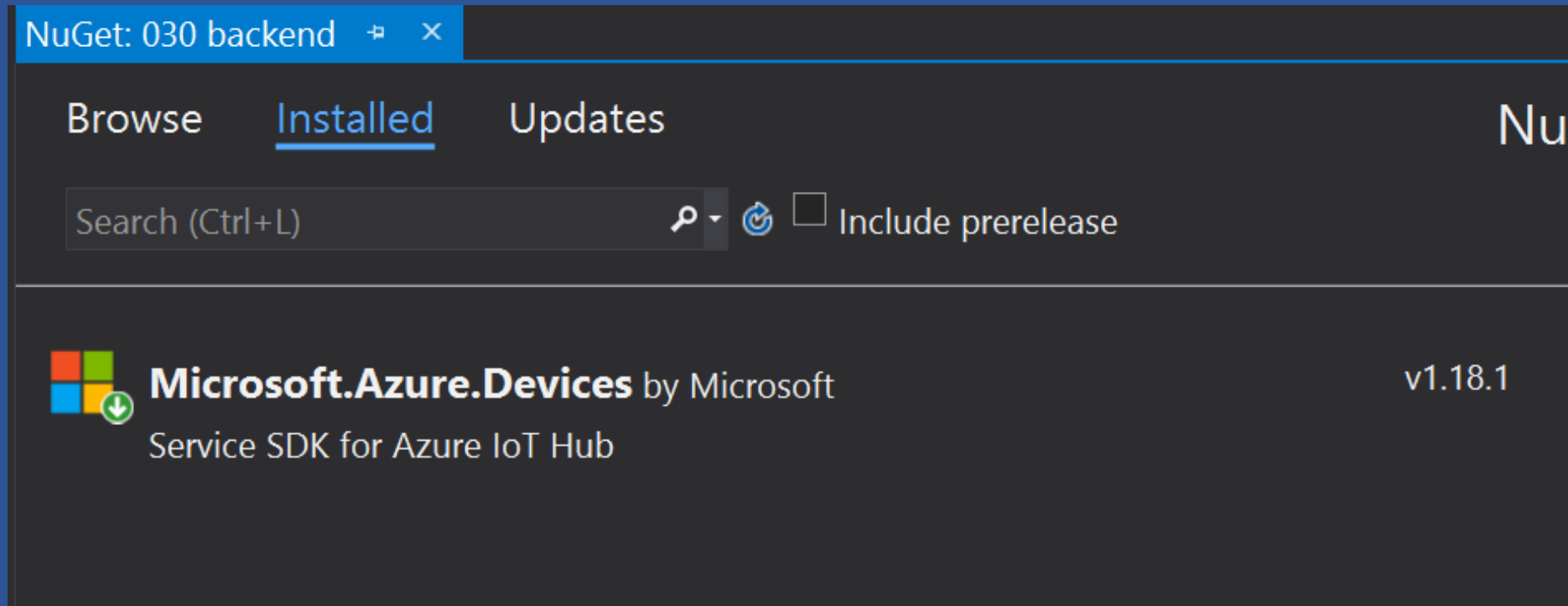
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 **Console App (.NET Framework)**  
A project for creating a command-line application  
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## NuGet Microsoft.Azure.Devices



## Add namespace

```
7  using Microsoft.Azure.Devices;  
8  using System;  
9  using System.Linq;  
10 using System.Text;  
11 using System.Threading.Tasks;
```

- Declare two class fields
- connectionString = Azure IoT connection string

```
17 static ServiceClient serviceClient;  
18 static string connectionString = "HostName=loyiothub1.a:  
19
```

- Add method SendCloudToDeviceMessageAsync()
- Change device ID at line 25

```
20 private async static Task SendCloudToDeviceMessageAsync()  
21 {  
22     var commandMessage = new  
23         Message(Encoding.ASCII.GetBytes(DateTime.Now + " Hello from backend"));  
24     commandMessage.Ack = DeliveryAcknowledgement.Full;  
25     await serviceClient.SendAsync("loy-iot-device-1", commandMessage);  
26 }
```

## Add method ReceiveFeedbackAsync()

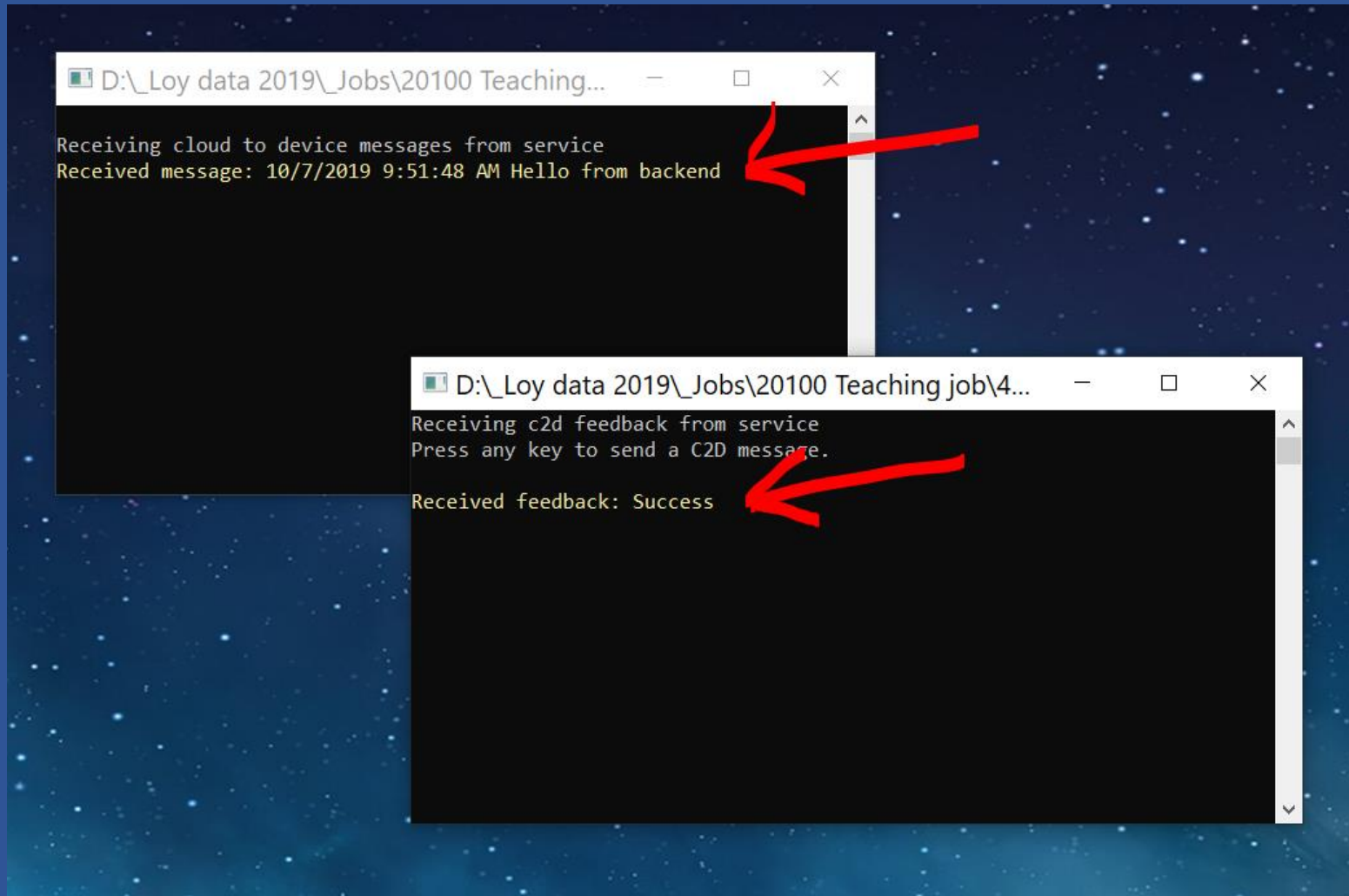
```
27 private async static void ReceiveFeedbackAsync()
28 {
29     var feedbackReceiver = serviceClient.GetFeedbackReceiver();
30
31     Console.WriteLine("Receiving c2d feedback from service");
32     while (true)
33     {
34         var feedbackBatch = await feedbackReceiver.ReceiveAsync();
35         if (feedbackBatch == null) continue;
36
37         Console.ForegroundColor = ConsoleColor.Yellow;
38         Console.WriteLine("Received feedback: {0}",
39             string.Join(", ", feedbackBatch.Records.Select(f => f.StatusCode)));
40         Console.ResetColor();
41
42         await feedbackReceiver.CompleteAsync(feedbackBatch);
43     }
44 }
```

## Add code to Main

```
45 static void Main(string[] args)
46 {
47     serviceClient = ServiceClient.CreateFromConnectionString(connectionString);
48     ReceiveFeedbackAsync();
49     Console.WriteLine("Press any key to send a C2D message.");
50     Console.ReadLine();
51     SendCloudToDeviceMessageAsync().Wait();
52     Console.ReadLine();
53 }
```



Run **this program** and run program **C2D**



The image shows two terminal windows against a starry background. The top window, titled 'D:\\_Loy data 2019\\_Jobs\20100 Teaching...', displays the text 'Receiving cloud to device messages from service' followed by 'Received message: 10/7/2019 9:51:48 AM Hello from backend'. A red arrow points to the received message. The bottom window, titled 'D:\\_Loy data 2019\\_Jobs\20100 Teaching job\4...', displays 'Receiving c2d feedback from service', 'Press any key to send a C2D message.', and 'Received feedback: Success'. A red arrow points to the 'Success' feedback message.

```
D:\_Loy data 2019\_Jobs\20100 Teaching...
Receiving cloud to device messages from service
Received message: 10/7/2019 9:51:48 AM Hello from backend

D:\_Loy data 2019\_Jobs\20100 Teaching job\4...
Receiving c2d feedback from service
Press any key to send a C2D message.
Received feedback: Success
```

# What's next?

