TMcraft Tutorial

Define Node Output Type

Original Instructions

Document version: 1.00

Release date: 2024-10-18

TECHMAN ROBOT INC.

TECHMAN ROBOT INC.
5F., No. 58-2, Huaya 2nd Rd., Guishan Dist., Taoyuan City, 333411 , Taiwan

Table of Contents

TECHMAN ROBOT INC.
5F., No. 58-2, Huaya 2nd Rd., Guishan Dist., Taoyuan City, 333411 , Taiwan

Revision History

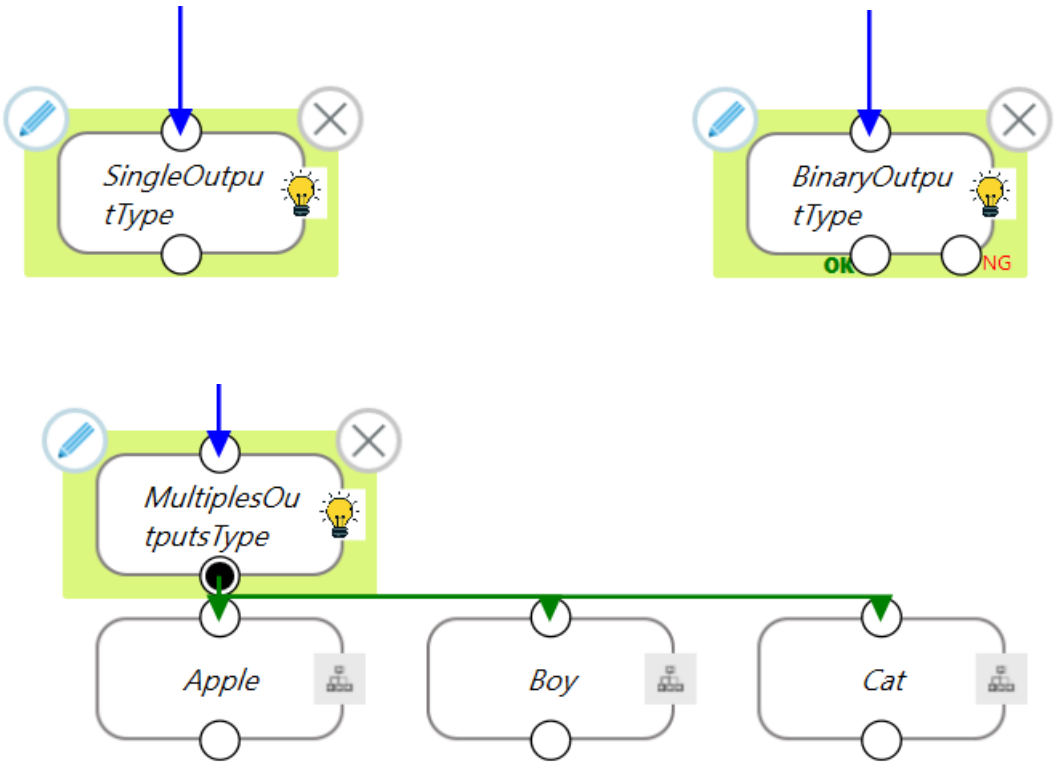
Revision	Date	Description
1.00	2024-10-18	Original release

TECHMAN ROBOT INC.
5F., No. 58-2, Huaya 2nd Rd., Guishan Dist., Taoyuan City, 333411 , Taiwan

1. Introduction

TMcraft Node has been limited to having only a single input and single output since launching. Now, it can support different output types, i.e., single output, binary outputs, and multiple outputs. This enhancement can reduce redundancy, and offer better ways to handle branching logic and errors; thus, improving the overall user experience.

This tutorial will guide users through defining the output type of a TMcraft Node based on TMcraft API 1.20.



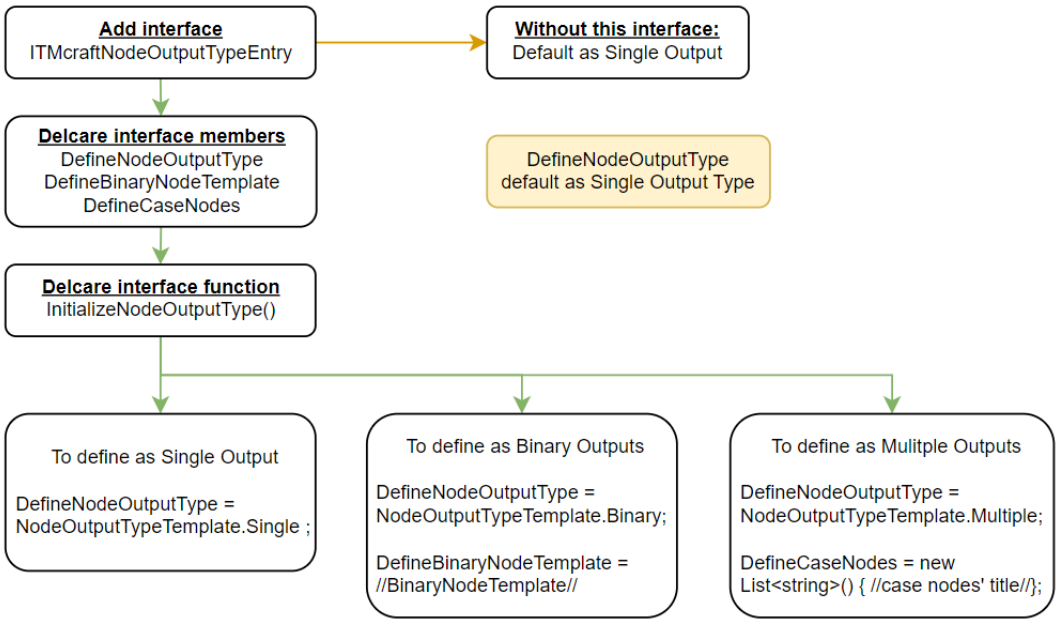
Readers must meet these prerequisites:

- Basic knowledge on programming C# and WPF
- Have read *TMcraft Tutorial: Basic Development of TMcraft Node*
- Have read *TMcraft Node API Function Manual_1.20*
- Have read *TMcraft Toolbar API Function Manual*

2. Concept

Since version 1.20, the TMcraft APIs package has added a new dll file called TMcraftNodeType.dll. This library has the functionalities to define the output type of the TMcraft Node, which includes:

ITMcraftNodeOutputTypeEntry	The interface that defines the output type.
NodeOutputTypeTemplate NodeOutputTypeTemplate	A member of the interface, which represents the output type.
BinaryNodeTemplate DefineBinaryNodeTemplate	A member of the interface, which represents the node template. Note that this member is significant if and only if the node is a binary output type.
List<string> DefineCaseNodes	A member of the interface, which represents the name of the case node. Note that this member is significant if and only if the node is a multiple output type.
void InitializeNodeOutputType()	A member function of the interface to which the program should assign the interface members.

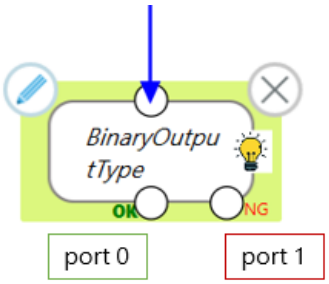


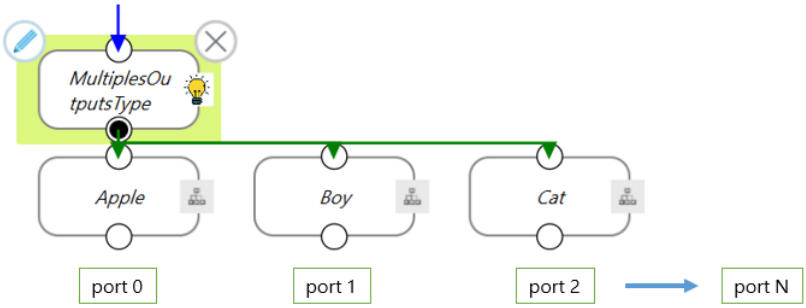
First, implement the interface ITMcraftNodeOutputTypeEntry, declare the interface members, and then assign their values within the member function InitializeNodeOutputType (). If the output type is binary, further define the binary node template. Otherwise, if the output type is multiple, define the cases node with a list of strings.

For binary type or multiple type, it is necessary to define the logic for which output ports should the node

should exit. To do this, implement TMscript function return into the script written for the flow project. Here are the rules:

Output Type	Method
Single	● Simply not to have a return on the script, or ● Add a return at the point where the script logic determines to leave the node
Binary	● Add a return(int port) at the point where the script logic determines to leave the node ● 0 represents the left port while 1 represents the right port, i.e. ● 0 → OK, Pass, Yes ● 1 → NG, Fail, No
Multiple	● add return(int port) at the point where the script logic determines to leave the node ● port number starts with 0 and ascends from left to right





IMPORTANT

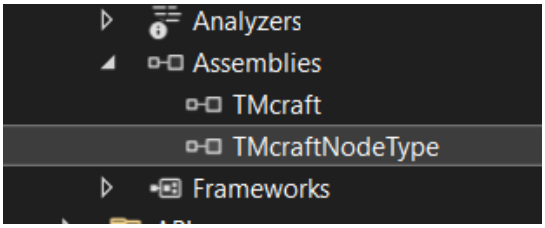
IMPORTANT:
This feature is supported by TMflow 2.20 or above.

TECHMAN ROBOT INC.
5F., No. 58-2, Huaya 2nd Rd., Guishan Dist., Taoyuan City, 333411 , Taiwan

3. Sample Code

This section discusses the fundamental parts of the example source code (*NodeOutputTypeDemo_220*).

Step 1. Add TMcraftNodeType.dll as a reference, along with TMcraft.dll. Declare the namespace.




```
using System.Windows.Navigation;
using System.Windows.Shapes;
using TMcraft;
using TMcraftNodeType;
```

Step 2. Implement the interface and declare the members.

```
public partial class MainPage : UserControl,ITMcraftNodeEntry,
  ITMcraftNodeOutputTypeEntry
{
    TMcraftNodeAPI NodeUI;
    string outputPort = "0";
    string script;

    0 references
    public BinaryNodeTemplate DefineBinaryNodeTemplate { get; set; }
    1 reference
    public NodeOutputTypeTemplate DefineNodeOutputType { get; set; }
    0 references
    public List<string> DefineCaseNodes { get; set; }
```

Step 3. Declare the member function and assign the interface members according to requirement.

```
public void InitializeNodeOutputType()
{
    //Set as Single Output Type
    DefineNodeOutputType = NodeOutputTypeTemplate.Single;
}
```

```
public void InitializeNodeOutputType()
{
    //Set as Binary Outputs Type
    DefineNodeOutputType = NodeOutputTypeTemplate.Binary;
    DefineBinaryNodeTemplate = BinaryNodeTemplate.OK_NG;
}
0 references
```

```
public void InitializeNodeOutputType()
{
    //Set as Multiple Outputs Type
    DefineNodeOutputType = NodeOutputTypeTemplate.Multi;
    DefineCaseNodes = new List<string>() { "Apple", "Boy", "Cat" };
}
```

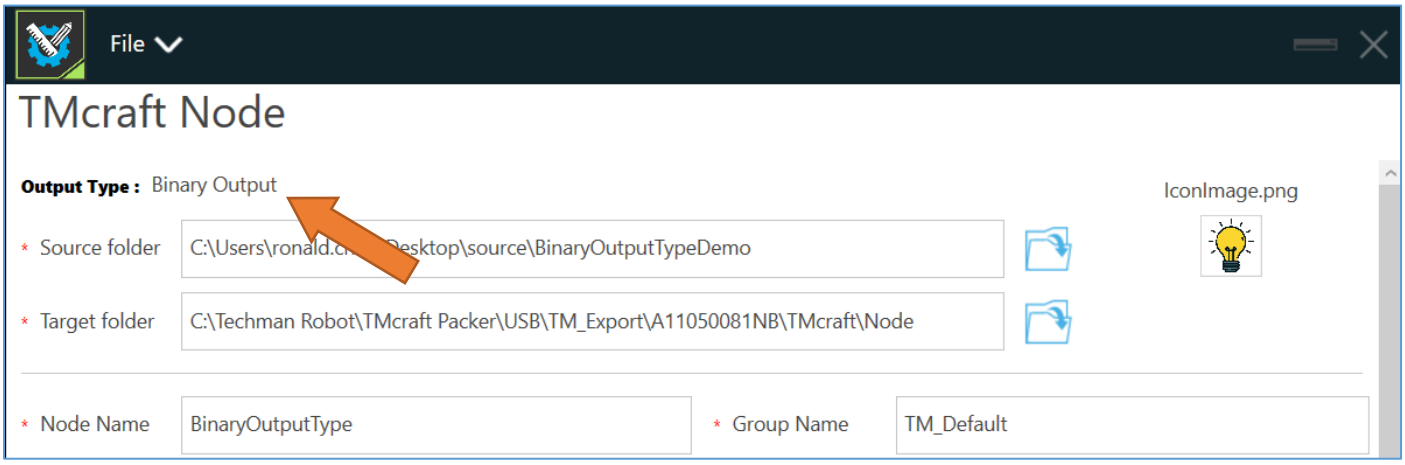
Step 4. Add the return script to the TMcraft Node script

```
private void Btn_Close_Click(object sender, RoutedEventArgs e)
{
    //Single type
    script = "return";
    MessageBox.Show(script);
    NodeUI.Close();
}
```

```
private void Btn_Close_Click(object sender, RoutedEventArgs e)
{
    //Binary type or Multiple Outputs type
    outputPort = ComboBox_port.Text;
    script = "return(" + outputPort + ")";
    MessageBox.Show(script);
    NodeUI.Close();
}
```

```
public void InscribeScript(ScriptWriteProvider scriptWriter)
{
    scriptWriter.AppendScript(script);
}
```

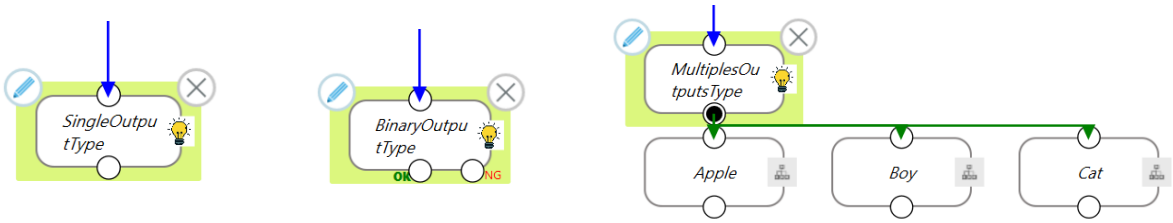
Step 5. Package with the TMcraft Packer. If successful, it updates the output type label.



TECHMAN ROBOT INC.
5F., No. 58-2, Huaya 2nd Rd., Guishan Dist., Taoyuan City, 333411 , Taiwan

IMPORTANT:
Users must package the TMcraft plugin using TMcraft Packer version 1.20.1200 or higher to support this feature.

Step 6. Import and enable the TMcraft node in TMflow, and users will see the node type shown as defined.



TECHMAN ROBOT INC.
5F., No. 58-2, Huaya 2nd Rd., Guishan Dist., Taoyuan City, 333411 , Taiwan


TECHMAN ROBOT INC.