BendPro G2 V2 Supravision Interface Setup

Overview

This article describes how to setup a **BendPro G2 V2 Control** with a **Coordinate Measuring Machine (CMM).** BendPro G2's **Measuring Machine Interface** is used to facilitate the exchange of Supravision data files between BendPro G2 and the CMM in order to create a part exchange and bi-directional part data corrections loop. BendPro G2 works with third party applications that support Supravision Network protocol (SVNET), as well as with another desktop computer running BendPro G2 offline software

Requirements

1. BendPro G2 with Supravision Interface option enabled in the license key. This is a purchased option.
2. Coordinate Measuring Machine (CMM) that supports Supravision Network protocol (SVNET).
3. Network to which both machines are connected via Ethernet cables. See Appendix.

Hardware Configuration

The hardware configuration consists of a **BendPro G2** and a **Coordinate Measuring Machine (CMM)** networked together on a common local area network (LAN), typically via a router using standard CAT5 Ethernet cables or Wi-Fi. A shared network folder is used to exchange Supravision data files between BendPro G2 and the CMM. Multiple bender controls and CMMs can share this folder at once.

Shared Network Folder Setup

1. Connect the **BendPro G2 Control PC** and the **CMM PC** to a common local area network (LAN). Refer to the CMM's documentation or to the Appendix for basic information on Windows networking. Consult IT staff or the Internet for advanced Windows networking configurations.

2. Create a **shared network folder** on either the **BendPro G2 PC**, **CMM PC**, or on another PC on the network. This will be used as an exchange folder for Supravision data files. For example, you can name this folder "**SVTransfer**". Right-click on the folder and select **Properties**. Click the **Sharing tab** and enable the folder for sharing, making sure it has the necessary read/write permissions for each PC to access it.

Supravision CMM Software Setup

1. Make sure you have correctly networked your **CMM PC**.

2. Assign the bender a **Bender Number** in the **CMM software**. Refer to the CMM's documentation.

BendPro G2 Software Settings

1. Make sure you have correctly networked your **BendPro G2 PC**.

2. Start BendPro G2 and assign your **Bender Number** by clicking the **Machine Menu > Edit Machine Parameters > Options > BenderNumber**. You will assign this same bender number in your CMM software.

3. In BendPro G2, click **Utilities menu > Measuring Machine Interface > Supravision Interface tab.** If you do not see Measuring Machine Interface in the Utilities menu, it has not been purchased as part of your software license. Please contact Current Tech for purchasing information.

4. Checkmark **Enable Supravision Client Interface**.

5. Click the "**…**" button next to **Network Path** to set the path of your **shared network folder**. The path will be displayed in the Network Path field.

6. **Receive Y, B, C, & CLR** can be check marked to receive only Y, B, C, & CLR data from the CMM. Clear it to receive all part data.
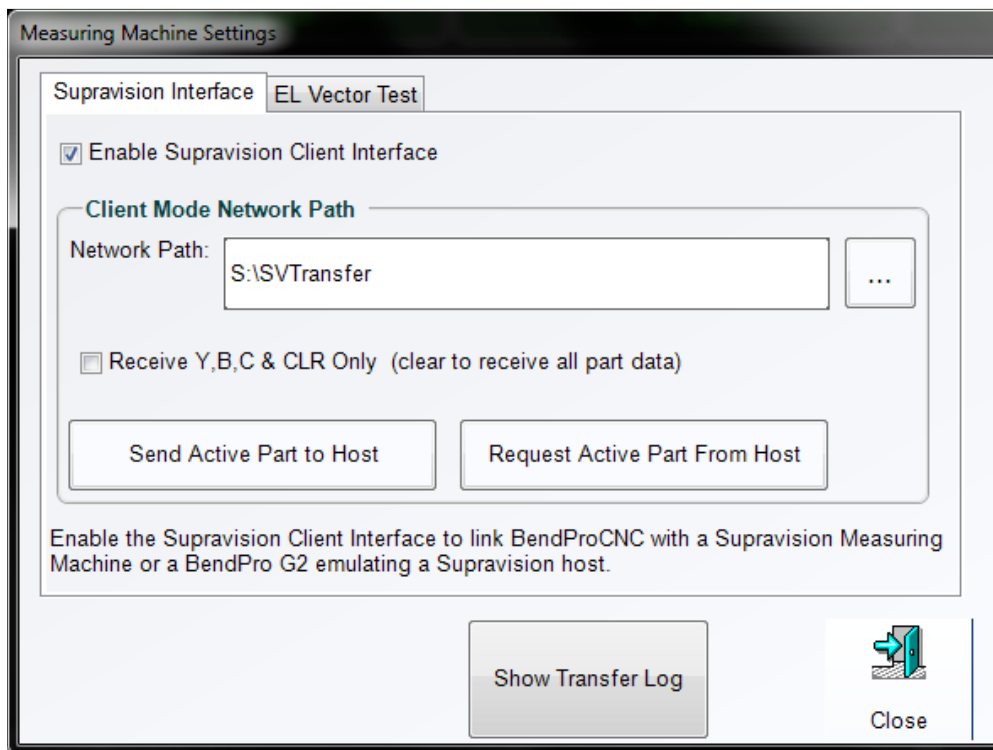
Send the Active Part to Host button sends the active part to the CMM.

Request Active Part from Host button requests the active part from the CMM. When the request is fulfilled, the part will be updated with the data stored on the CMM.

Show Transfer Log button displays the Transfer Log. BendPro G2 saves transfer data in its MMITransfer.log file located in C:\Users\Administrator\Documents\Current Tech\BendPro G2 V2 folder. It can also be opened with Notepad app and can be useful for testing or troubleshooting.

Testing the Interface

Basic Corrections Loop Objective

The corrections loop makes corrections to part file so that subsequent parts more closely resemble the true tube geometry data. For example, if you are making a tube with a 90° bend, but the bend is only 88° after measuring the bent part, the corrections loop would modify the part file so that the next time you bend the part, the bend will be closer to 90°.

Correction methods are beyond the scope of this article. For more information, refer to your CMM software manual.

Basic Corrections Loop Sequence

Part is bent → Part is measured by the CMM software → Part with corrections is sent to BendPro G2 → Part is bent again.

Send to Bender Test

1. Make sure you established a **shared network folder** (Example: SVTransfer) and set this path in the CMM software and BendPro G2 as per the above sections of this guide.

2. Using the CMM software, send a test part to BendPro G2.

3. BendPro G2 will display the following message verifying the part has been received and asking if you want to make it the active part. Click **Yes** to make it the active part. Clicking **No** will save the part as a .prt file in your BendPro G2 Parts folder.
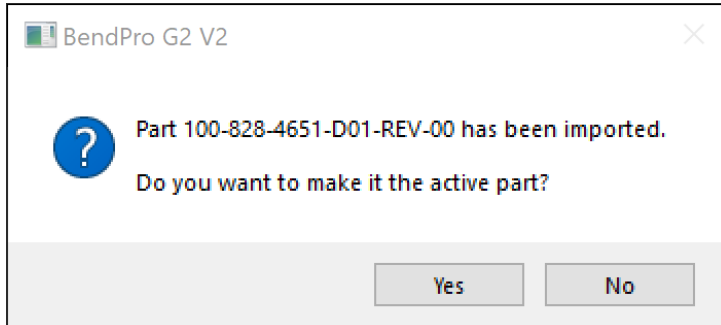
4. You can also verify the file was sent by opening your **shared network folder**. If the file was sent successfully, you should see a ***.S2B file** appear in the folder.

5. Use the **BendPro G2 Supravision Client Interface** to test sending a file from the bender to the CMM by clicking the **Send Active Part to Host** button.

6. If the file was sent successfully, the **Transfer Log** will display the following messages: "**Sending part", followed by "Part sent successfully**".

7. Verify the file was sent by opening your shared network folder. If the file was sent successfully, you should see a ***.B2S file** appear in the folder.

8. Once you have verified that the files can be sent bi-directionally, you can open a part in BendPro G2, readying it for either sending to the CMM or for receiving corrected data. When corrected data is sent, BendPro G2 automatically applies it to the fields on the Bend Data YBC page.

Supravision Network Protocol (SVNET) Summary

Supravision Network Protocol (SVNET) uses a local network connection linking the **BendPro G2 Control PC** and the **CMM PC**. The protocol requires both PCs to have access to a **shared network folder** with read/write permissions to exchange data files. This folder can be located on either the BendPro G2 PC, the CMM PC, or on another PC on the network.

The shared network folder is used to exchange the following files:

- **SVFILEXX.B2S** - file sent from the Bender to Supravision.
- **SVFILEXX.S2B** - file sent from Supravision to the Bender that contains the corrected YBC (LRA) data.

- **RECALLXX.B2S** - file request from the Bender to recall a part from Supravision.
- **RECALLXX.S2B** - file request from Supravision to recall a part from the Bender.
  (XX = bender number)

SVFILEXX.*
These files contain part data in Supravision format. This data is in the same format as stored Supravision .$$$ files on the SV CMM PC. Supravision sends Master XYZ, corrected LRA, tube diameter, cut length, and bend radii to the bender.

RECALLXX.*
These files contain only a single, newline-terminated line with the part name to be recalled.

Bender Number
In the examples above "XX" is the bender number. Supravision files from both the CMM software and BendPro G2 get coded with this number based on what number you assign in each application. See more below.

Examples:
- SVFILE01.S2B means the file is for Bender # 1 (01) and was sent from the Supravision to the Bender (S2B).
- SVFILE01.B2S means that the file is from Bender # 1 (01) and was sent from the Bender to Supravision (B2S).

Bender Recalls
(Assumed Bender Number = 1)

- When using the bender to recall a part from the SV CMM (Clicking **Request Active Part** *from Host in BendPro*), the bender creates the file **RECALL01.B2S** which contains only a single, newline-terminated line with the part name ($pnum) to be recalled.
- The SV CMM detects the presence of the **RECALL01.B2S** file, then creates the **SVFILE01.S2B** file, and deletes the **RECALL01.B2S** file.
- The bender loads the part data from the file **SVFILE01.S2B** and deletes it. If the procedure times out, the bender deletes the recall file and displays an error.

Supravision Recalls
(Assumed Bender Number = 1)

- When using the SV CMM to recall a part from the bender, the SV CMM creates the file **RECALL01.S2B** which contains only a single, newline-terminated line with the part name ($pnum) to be recalled.
- The bender detects the presence of the **RECALL01.S2B** file, then creates the **SVFILE01.B2S** file, and deletes the **RECALL01.S2B** file.
- The SV CMM loads the part data from the file **SVFILE01.B2S** and deletes it. If the procedure times out, the SV CMM deletes the recall file and displays an error.

Sequence of operations
(Assumed Bender Number = 1)

Bender initiates SEND to SV CMM (Clicking **Send Active Part** *from Host in BendPro*)
1. Bender#1: Creates the file SVFILE01.B2S
2. SV CMM: Checks for the presence of the file SVFILE01.B2S
3. SV CMM: If found, loads the part data from the file SVFILE01.B2S and deletes it.

SV CMM initiates SEND to Bender
1. SV CMM: Creates the file SVFILE01.S2B
2. Bender#1: Detects the presence of the file SVFILE01.S2B
3. Bender#1: If found, loads the part data from the file SVFILE01.S2B and deletes it.

Bender initiates RECEIVE from SV CMM (Clicking **Request Active Part** *from Host in BendPro*)
1. Bender#1: Creates the file RECALL01.B2S
2. Bender#1: Waits for the file SVFILE01.S2B
3. Bender#1: If request times out, then bender deletes RECALL01.B2S and displays error
4. SV CMM: Detects the presence of the file RECALL01.B2S
5. SV CMM: Deletes the file RECALL01.B2S
6. SV CMM: Creates the file SVFILE01.S2B
7. Bender#1: If found, loads the part data from the file SVFILE01.S2B and deletes it.

SV CMM initiates RECEIVE from Bender
1. SV CMM: Creates for the file RECALL01.S2B
2. SV CMM: Waits for the file SVFILE01.B2S
3. SV CMM: If request times out, then SV CMM deletes RECALL01.S2B and displays error
4. Bender#1: Detects the presence of the file RECALL01.S2B
5. Bender#1: Deletes the file RECALL01.S2B
6. Bender#1: Creates the file SVFILE01.B2S
7. SV CMM: If found, loads the part data from the file SVFILE01.B2S and deletes it.

Troubleshooting

BendPro G2 MMI Transfer.log file

BendPro G2 saves transfer data in its MMITransfer.log file located in C:\Users\Administrator\Documents\Current Tech\BendPro G2 V2 folder. It can be opened with Notepad app and can be useful for testing or troubleshooting.

Issue: No communication or can't receive part in BendPro G2.
Solutions:

- Make sure the BenderNumber parameter in BendPro G2 is set to the same number as the Bndr# in the Vector Laservision software.
- Make sure the shared network folder has the correct read/write user permissions.
- Make sure the shared network folder is the same in both BendPro G2 and the CMM software.
- Make sure the shared network folder hasn't been accidently deleted.
- Make sure the network server is still running if you are using a server location for the shared transfer folder

Issue: The Receive Y, B, C, & CLR Only checkbox becomes randomly disabled in BendPro G2 V2.
Solution: Update your build of BendPro G2 V2.

Appendix

Basic Windows Networking

This section describes a basic method other networking a Windows 7 Pro-based BendPro G2 Control PC to a domain with the goal of establishing a shared network folder for Supravision file exchange. Windows can be configured in multiple ways to achieve the same result and details can be determined by end-user IT or network administrators. There are also many web resources available.

By default, the Windows user is configured as the Administrator. Whenever possible, we recommend keeping this Administrator user for standard operation unless your network security policy requires otherwise. If another user is created, it must have administrator privileges in order for BendPro G2 to run properly.

1. **BendPro G2 PC Ethernet Port**

   Connect the BendPro G2 PC to the LAN using the Ethernet port labeled **LAN 2–NETWORK** only. Alternatively, you can use a Wi-Fi device plugged into a USB port. <u>Do not</u> use LAN 1-IO port since this is used to communicate with the bender's I/O system.

   For basic networking, LAN 2's default settings can be used. By default, LAN 2 is configured to Obtain an IP address automatically. If networking requires a static IP address, go to Control Panel > Network and Sharing Center > Change Adapter Settings > right-click LAN 2 adapter > select Properties > select TCP/IPv4 > click Properties button and set the IP address and subnet mask. Otherwise, leave at Obtain an IP address automatically.
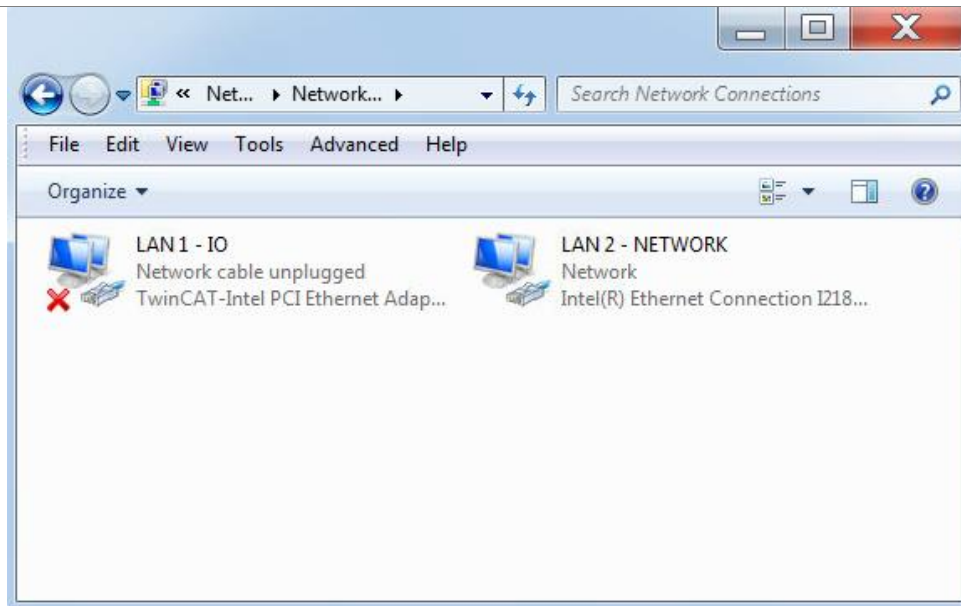
BendPro G2 PC's Ethernet Adapters.

2. Usernames and Passwords

Here are some of the relevant credentials needed when networking a Windows 7-based BendPro G2 Control PC.

Windows Computer Name
Computer Name is set to the PC serial number by default. This can be changed by the end-user if necessary.

Windows User Credentials
Username is set to "Administrator" by default. This can be changed by the end-user if necessary.
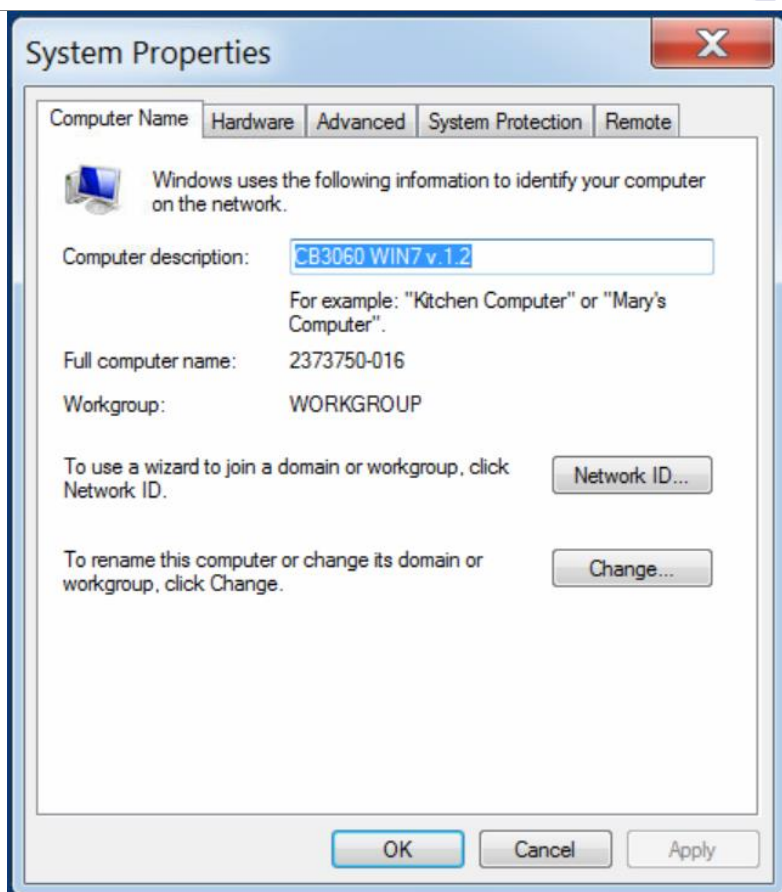Password is set to "57" by default. This can be changed by the end-user if necessary.

Domain Credentials
Username is determined by the end-user network administrator.
Password is determined by the end-user network administrator.

3. Joining a Domain

    a.   In Windows, click **Start** button, go to **Control Panel** and click the **System icon**.

    b.   In the **System** window, click **Advance System Settings** on the lefthand side of the window.

    c.   Under the **Computer Name tab**, click the **Change** button.

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d. In the **Computer Name/Domain Change** window, enter the name of the **Domain** you want to join and click **OK**. Alternatively, a Workgroup can be used without credentials if network policy permits.
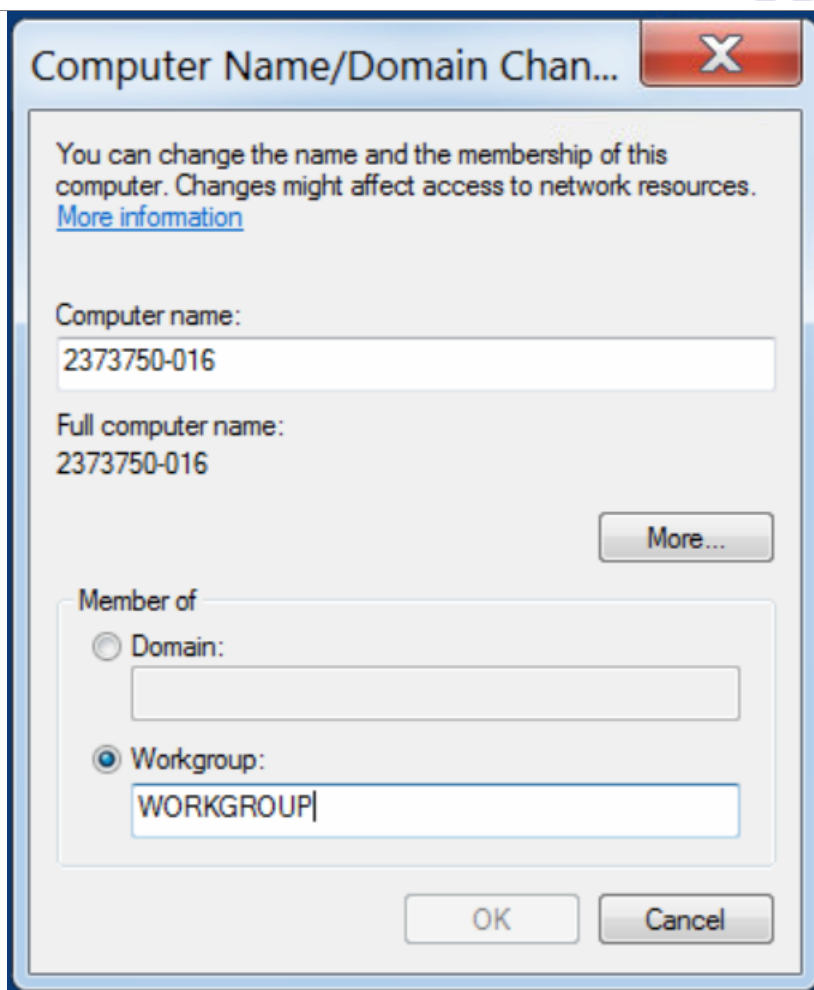
e. You will be asked to enter the domain **username** and **password**. (This assumes that the network administrator has already added the BendPro G2 PC Windows Username and Password to the domain controller.)

f. Once you are successfully joined to the domain, you will be prompted to restart your computer. You must restart your computer before the changes take effect. Once the computer restarts, you should now be joined to the domain.

4. **Connecting to and Mapping a Shared Folder on the Domain**

   Shared folders can be located on the CMM PC or other PC on the domain.

   a. Start **Windows Explorer**.

   b. On the **Tools** menu, click **Map Network Drive**.

   c. In the **Drive** box, click the **drive letter** that you want to use for this mapped drive. You cannot use any of the drive letters that your computer currently uses.

   d. In the **Folder** box, type the name of the share to which you want to connect by using Universal Naming Convention (UNC) format, where **ComputerName** is the name of the computer to which you are trying to connect, and **ShareName** is the name of the shared folder on that computer:

      \\ComputerName\ShareName

You can also map drives to subfolders of the shared folder. For example:

\\ComputerName\ShareName\SubfolderName

Or, you can click Browse, and then locate the computer to which you want to connect, the share on that computer, and optionally the subfolder in that share.

e. Check mark the **Reconnect at Logon** check box.

f. Click **Finish**. If prompted, type the username and password that you have to use to gain access to the domain computer. The contents of the shared folder are displayed. By default, you are connected to the remote computer using the logon credentials that you are currently using. If you want to use other credentials, click Connect using a different username, and then type the appropriate username and password to connect. The mapped drive that you create is visible in the Folders pane in Windows Explorer, and so are all the other drives on your computer. You can access the files in the shared folder through any program, including BendPro G2, on your computer by using the mapped drive letter.