Appendix_5

FZ760_Bridge Mode Details

Version 0.1.0

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1. Bridge Mode

The Bridge Mode is a mode in which a device carries out the Bridging function by wirelessly transmitting the data it received wirelessly.

To carry out the Bridging function, the device has to know the 16bit Network Address of the transmitting device as well as the 16bit Network Address of the receiving device.
Ex) Device B that performs the Bridging function in the **"Device A -> Device B -> Device C" structure** has to know the 16bit Network Address of the transmitting device A as well as the 16bit Network Address of the receiving device C.

To perform the Bridging function, the device has to use a Unicast Address that is unique in the network, not the Broadcast Address(FFFF).

The bridging device outputs wirelessly received data serially or in other forms, and resends (bridges) the data to its Bridge 1 Address or the Bridge 2 Address.

The bridging device does not use the Low Power Mode. (It uses the Low Power Mode 0.)

The Bridge Option in the bridging device has to be set to 1 (Enable).

2. Settings for Bridging Devices

To bridge data that is input to Device A to Device C through Device B and bridge data that is input to Device C to Device A through Device B, the address settings for Device A,B and C have to be made as follows.

2-1. Address Setting for Device A

(1) Set the Local Device Address of Device A to 0000.
(2) Set the Target Device Address of Device A to 0001.

The user data input to Device A is transmitted to the device having the Local Device Address of 0001.

2-2. Address and Other Settings for Device B

(1) Set the Local Device Address of Device B to 0001.
(2) Set the Bridge 1 Address of Device B to 0000.
(3) Set the Bridge 2 Address of Device B to 0002.
(4) Set the Bridge Option of Device B to 1.
(5) Set the Target Device Address of Device B to 0000.

Device B checks wirelessly received data and bridges it to Device C (0002), if it is received from Device A (0000).
Device B checks wirelessly received data and bridges it to Device A (0000), if it is received from Device C (0002).

User data input to Device B is transmitted to the device having the Local Device Address of 0000.

2-3. Address Setting for Device C

(1) Set the Local Device Address of Device C to 0002.
(2) Set the Target Device Address of Device C to 0001.

User data input to Device C is transmitted to the device having the Local Device Address of 0001.

3. Dataflow between Bridging Devices

Dataflow between Device A, B and C having set addresses as above is as flows.

3-1. A -> B -> C

(1) User data is input to Device A.

(2) Device A transmits the data to Device B having the Target Device Address. (0000 -> 0001)

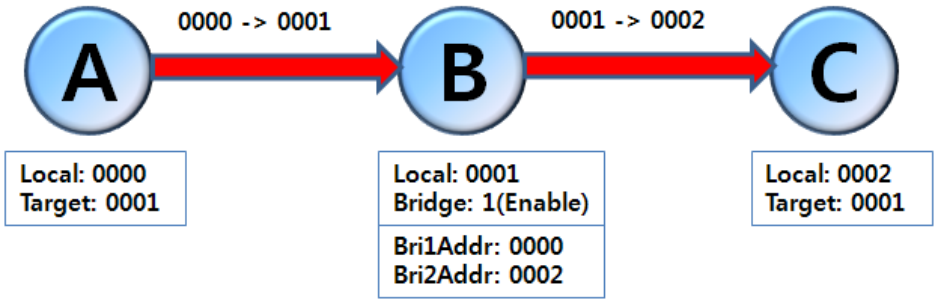
(3) Device B serially outputs the received data wirelessly.

(4) Device B checks the address of the transmitting device received wirelessly.

(5) If the transmitting device's address in the data received wirelessly matches Bri1Addr, Device B sets the Target Device Address to Bri2Addr, and if it matches Bri2Addr then sets the Target Device Address to Bri1Addr.

(6) Device B resends (bridges) the received data wirelessly to Device C. (0001 -> 0002)

(7) Device C serially outputs received data wirelessly.



3-2. C -> B -> A

(1) User data is input to Device C.

(2) Device C transmits the data to Device B having the Target Device Address. (0002 -> 0001)

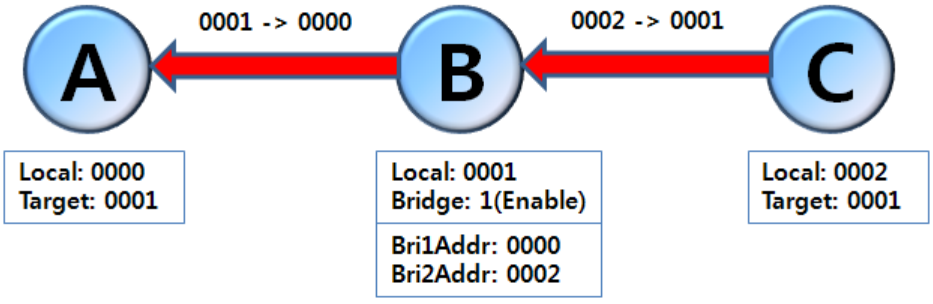
(3) Device B serially outputs the wirelessly received data.

(4) Device B checks the address of the transmitting device received wirelessly.

(5) If the transmitting device's address of the data received wirelessly matches Bri1Addr, Device B sets the Target Device Address to Bri2Addr, and if it matches Bri2Addr then sets the Target Device Address to Bri1Addr.

(6) Device B transmits (bridges) the received data wirelessly to Device A again. (0001 -> 0000)

(7) Device A outputs received data wirelessly serially.



4. Dataflow in the Device Carrying Out More Than Two Bridging functions

To bridge data that is input to Device A to Device C through Device B and bridge it to Device D and to bridge data that is input to Device D to Device B through C and bridge it to Device A, the address settings for Devices A/B/C/D have to be made as follows.

4-1. Address Setting for Device A

(1) Set the Local Device Address of Device A to 0000.

(2) Set the Target Device Address of Device A to 0001.

4-2. Address and Other Settings for Device B

(1) Set the Local Device Address of Device B to 0001.

(2) Set the Bridge 1 Address of Device B to 0000.

(3) Set the Bridge 2 Address of Device B to 0002.

(4) Set the Bridge Option of Device B to 1.

(5) Set the Target Device Address of Device B to 0000.

4-3. Address Setting for Device C

(1) Set the Local Device Address of Device C to 0002.

(2) Set the Bridge 1 Address of Device C to 0001.

(3) Set the Bridge 2 Address of Device C to 0003.

(4) Set the Bridge Option of Device C to 1.

(5) Set the Target Device Address of Device C to 0002.

4-4. Address Setting For Device D

(1) Set the Local Device Address of Device D to 0003.

(2) Set the Target Device Address of Device D to 0002.

4-5. Dataflow

4-5-1. A -> B -> C -> D

(1) User data is input to Device A.

(2) Device A transmits the data to Device B having the Target Device Address. (0000 -> 0001)

(3) Device B serially outputs the wirelessly received data.

(4) Device B checks the address of the transmitting device received wirelessly.

(5) If the transmitting device's address of the data received wirelessly matches Bri1Addr, Device B sets the Target Device Address to Bri2Addr, and if it matches Bri2Addr then sets the Target Device Address to Bri21ddr.

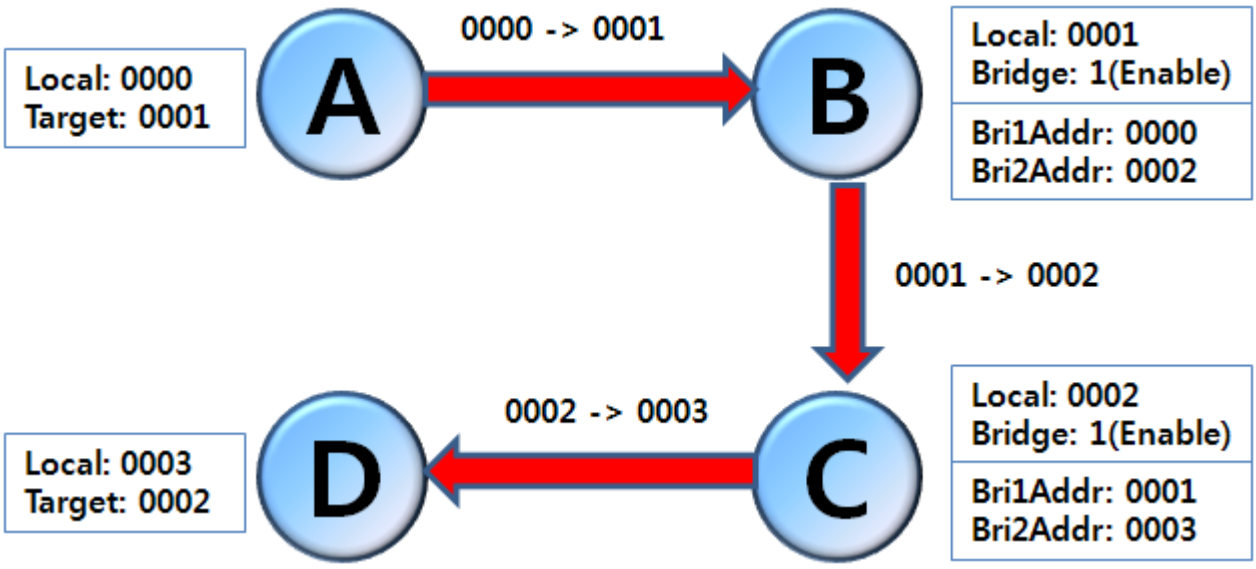
(6) Device B resends (bridges) the received data wirelessly to Device C. (0001 -> 0002)

(7) Device C serially outputs received data wirelessly.

(8) Device C checks the address of the transmitting device received wirelessly.

(9) If the transmitting device's address of the data received wirelessly matches Bri1Addr, Device C sets the Target Device Address to Bri2Addr, and if it matches Bri2Addr then sets the Target Device Address to Bri1Addr.

(10) Device C resends (bridges) the received data wirelessly to Device D. (0002 -> 0003)



4-5-2. D -> C -> B -> A

(1) User data is input to Device D.

(2) Device D transmits the data to Device C set as the Target Device Address. (0003 -> 0002)

(3) Device C serially outputs the wirelessly received data.

(4) Device C checks the address of the transmitting device received wirelessly.

(5) If the transmitting device's address of the data received wirelessly matches Bri1Addr, Device C sets the Target Device Address to Bri2Addr, and if it matches Bri2Addr then sets the Target Device Address to Bri1Addr.

(6) Device B resends (bridges) the received data wirelessly to Device A. (0002 -> 0001)

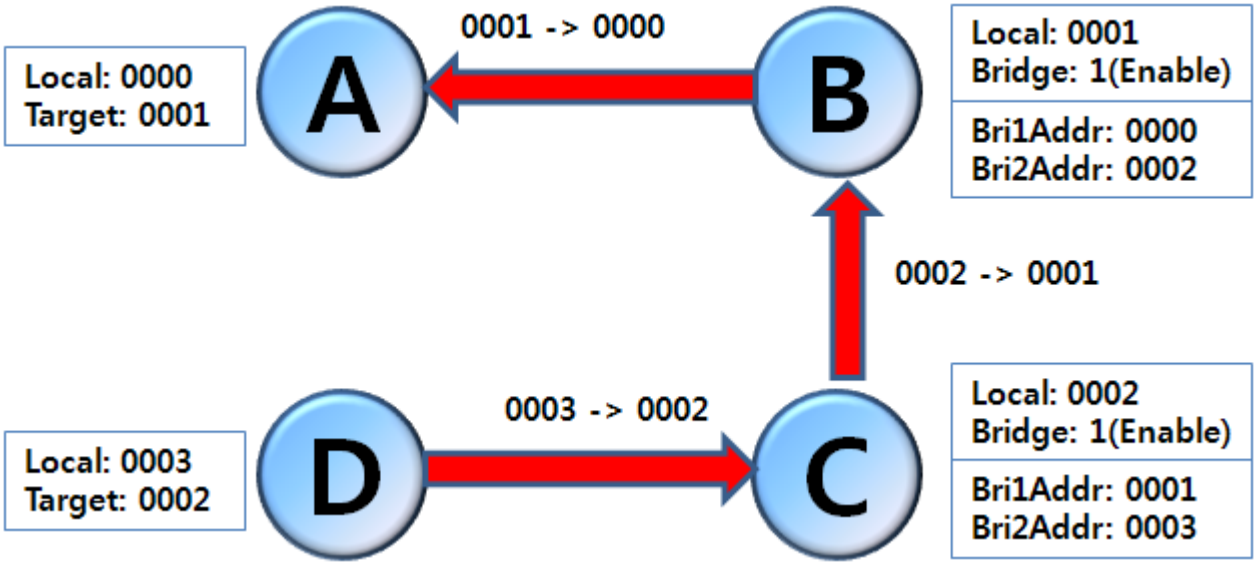
(7) Device C serially outputs received data wirelessly.

(8) Device B checks the address of the transmitting device received wirelessly.

(9) If the transmitting device's address of the data received wirelessly matches Bri1Addr, Device B sets the Target Device Address to Bri2Addr, and if it matches Bri2Addr then sets the Target Device Address to Bri1Addr.

(10) Device B resends (bridges) the received data wirelessly to Device A. (0001 -> 0000)

(11) Device A serially outputs the wirelessly received data.



※ If there are many transmitting devices or the data transmission interval is short, the network traffic increases preventing smooth data transmission.

※ The greater the number of data receiving devices and the longer the interval between data transmissions, the smoother the data communication.