

FR5000 and UC-FR5000 Programming

DROP LINK FUNCTION

Introduction

When there are two independent systems that need to be connected to each other, but there is a lack of IP availability, an RF link, or Drop Link, can be used to connect them. A Drop Link creates a RF communication path instead of an IP connection.

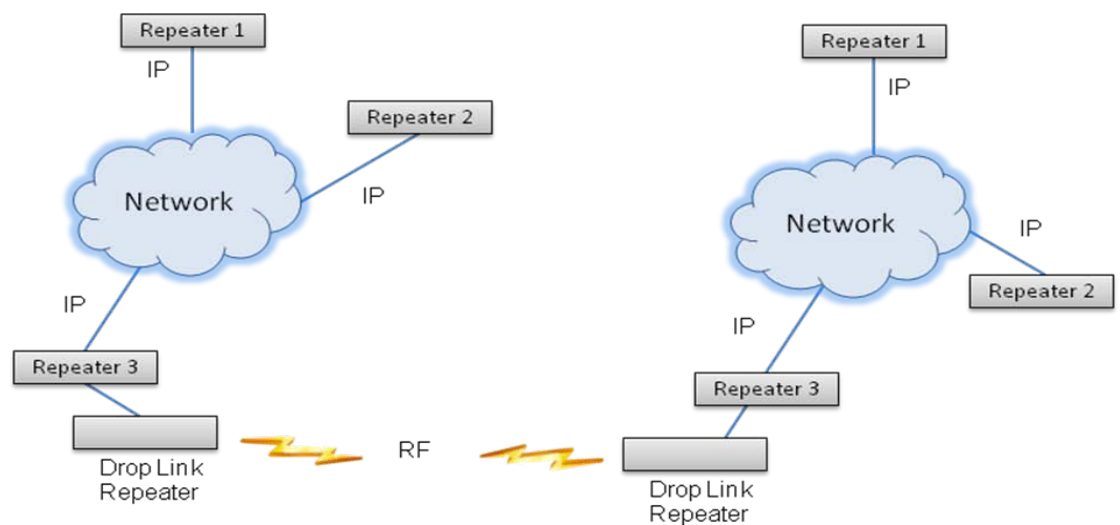
For example:

System #1 voice traffic is transferred to the Drop Link repeater where it is transmitted. System #2 also has a Drop Link repeater that has frequencies that are the inverse of System #1's Drop Link repeater. Drop Link #2 receives the traffic from System #1 and transfers this traffic to System 2 through its network connection.

The following paragraphs describe how to set up the drop link repeater(s), as added to an IDAS Multi-site Conventional site. It is assumed that the MultiSite Conventional system is already setup and operating normally.

System 1

System 2



Prerequisites

- Properly configured and operating independent systems.
- Reliable IP system that is being monitored via IP monitoring software.
- Repeater Hardware/UC Cards/ Subscribers should have updated firmware. Version 2.1 or greater for the UC-FR5000 Firmware. Use version 2.0 or greater for the CF-FR5000 Firmware. All firmware must match for proper functionality.
- One FR5000/FR6000 (or UC-FR5000) repeater as the Drop Link unit per system
- One UC-FR5000 Controller Board installed in the Drop Link repeater per system
- One CF-FR5000 Compact Flash Card installed in each Drop Link UC-FR5000 per system.

Notes

- Drop Link is for Conventional systems only. Drop Links do not function in trunking applications.
- Drop Links can be permanent or temporary. They can be enabled or disabled by accessing the UC-FR5000 remotely over IP, if the network is configured to allow it. This allows independent systems to communicate with other systems only when desired.
- The Drop Link repeater communicates via IP with its own system (System 1 in the example), but transmits system voice traffic to System 2 using compatible RF frequencies with System 2's Drop Link repeater.
- Repeaters and Control Cards configured as Drop Links will not repeat received RF traffic. It's only function is to transmit traffic via RF that has been received over its system IP connection.

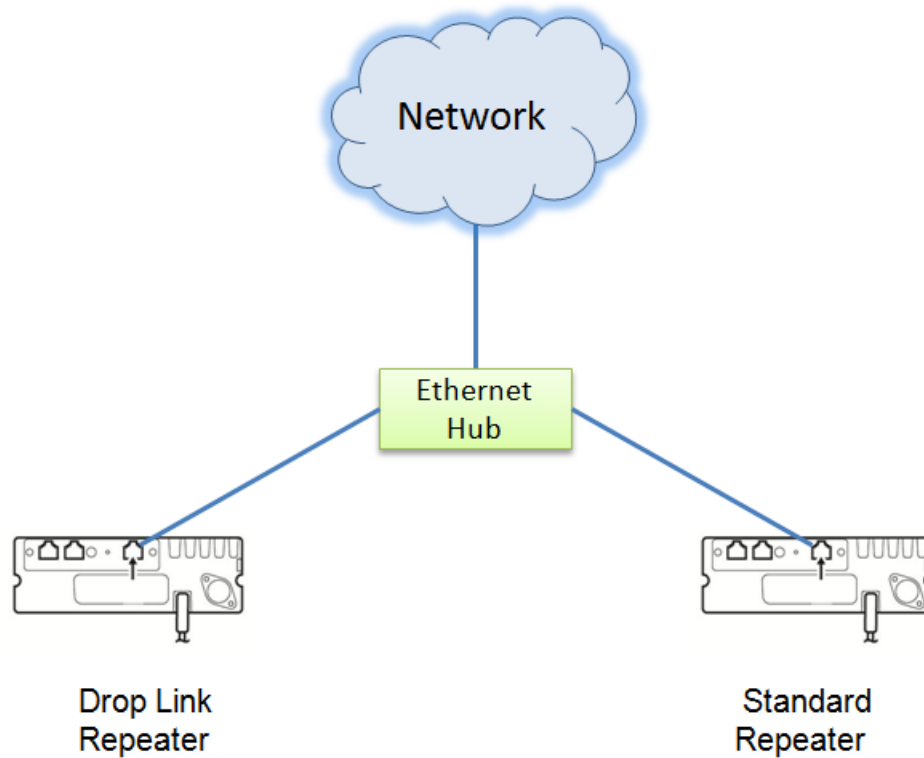
Before You Begin Programming

When setting up the Drop Link function, you need the following:

- Compatible RAN codes in the repeater Multiple Tables for both systems
- Version 2.1 or greater for the UC-FR5000 Firmware
- Version 2.0 or greater for the CF-FR5000 Firmware

Common Drop Link Site Configuration

To add a Drop Link repeater to a site, you will need to add a simple commercial quality switch (hub) between a repeater in the Conventional system and the repeater programmed as the Drop Link repeater. The connection is a simple CAT 5 cable between the LAN/WAN ports of the Controller cards.



Drop Link Repeater Programming

When a repeater is programmed as a Drop Link repeater, because it does not repeat *received* traffic via RF, the **Operation Mode** needs to be set to **Full Duplex** for the Drop Link function.

The screenshot shows the LMR programming interface. On the left is a tree view with folders for Memory CH, DTMF, Continuous Tone, SCAN, 5Tone, Multiple Table, CW, and External I/O. The 'Memory CH' folder is expanded, and a specific 'Memory CH' entry is highlighted with a red box. On the right is a table titled 'Memory CH' with columns for CH, Atr, Inh, Operation Mode, RX, TX, and TX Inh. The 'Operation Mode' column for the first row (CH 1-1) is highlighted with a red box and contains the text 'Full-Duplex'. The RX and TX columns for this row contain the values 464.100000 and 464.900000 respectively.

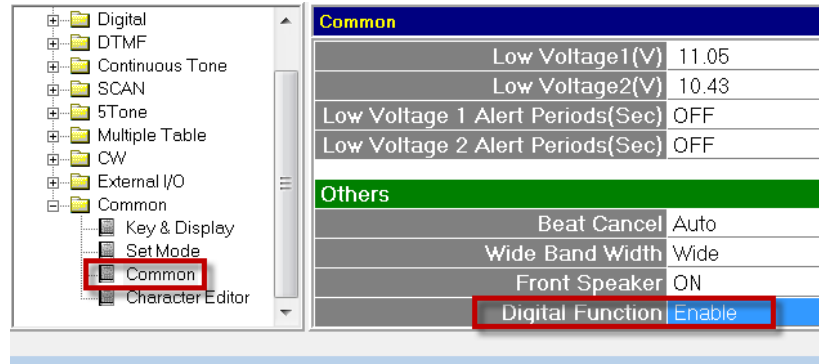
Memory CH						
Frequency (MHz)						
CH	Atr	Inh	Operation Mode	RX	TX	TX Inh
1- 1	AB		Full-Duplex	464.100000	464.900000	
1- 2						

1. Go to **Memory CH** and set **Operation Mode** to **Full-Duplex**.

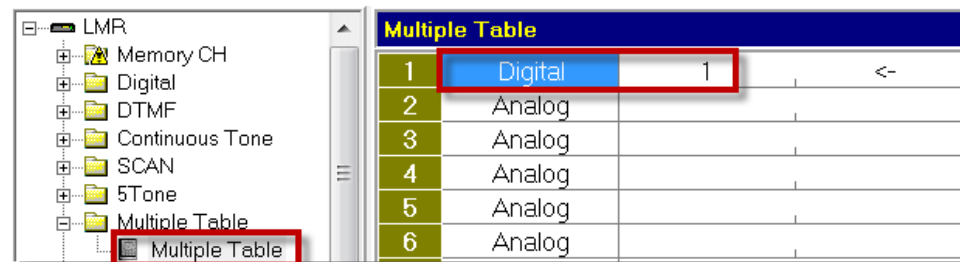
Note: The repeater connected to the Drop Link repeater should have this set to **Repeat**.

2. Enter frequencies. (The other system's Drop Link repeater will have opposite frequencies.)

- Go to **Common/Common** and set **Digital Function** to **Enable**.

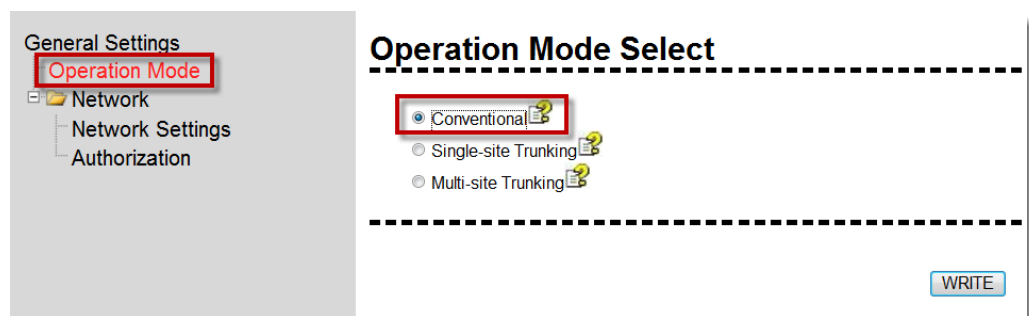


- Go to **Multiple Table** and assign proper RAN codes.

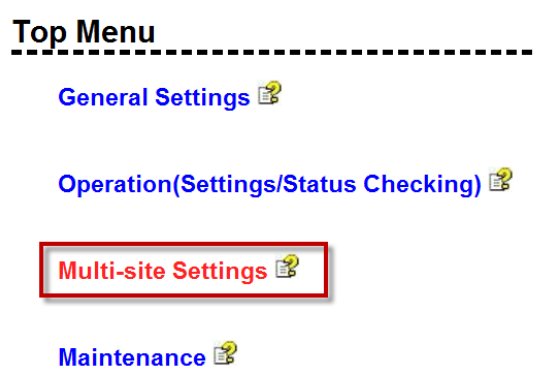


Controller Programming

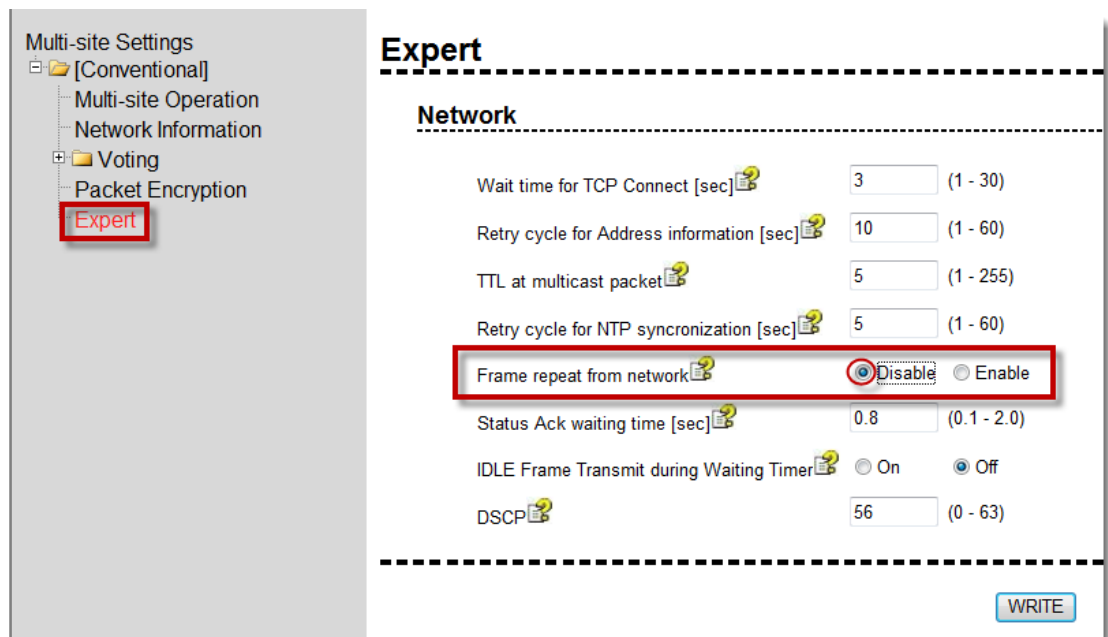
- Open your Internet Browser and enter the IP address of the Drop Link FR5000/FR6000 UC (Controller) card.
- Go to **Operation Mode** and Select **Conventional**.



3. Go to **Multi Site Settings**.



1. Click **Expert**.



2. Set the **Frame repeat from network** to **Disable**. This allows the full duplex Drop Link repeater to receive and transmit through IP. If set to **Enable**, the Drop Link functionality will not work.

Note: Conventional repeaters in this scenario must have the **Frame Repeat from Network** set to **Enable**. *Only Drop Link repeaters* are set to **Disable**.

3. Click **WRITE**.