

Link Installation: The RADWIN Manager

This chapter explains how to use the RADWIN Manager to install a radio link.

Installing the RADWIN Manager Application

Minimum System Requirements

The RADWIN Manager application is distributed on a CD. Operating system specific PC resources required by the application are set out in [table 4-1](#) below:

Table 4-1: PC Requirements for the RADWIN Manager Application

	Windows 2000	Windows XP Pro	Windows Vista
Memory	128 MB	512 MB	1 GB
Processor	P III	P IV	P IV Dual Core

Requirements common to all systems are:

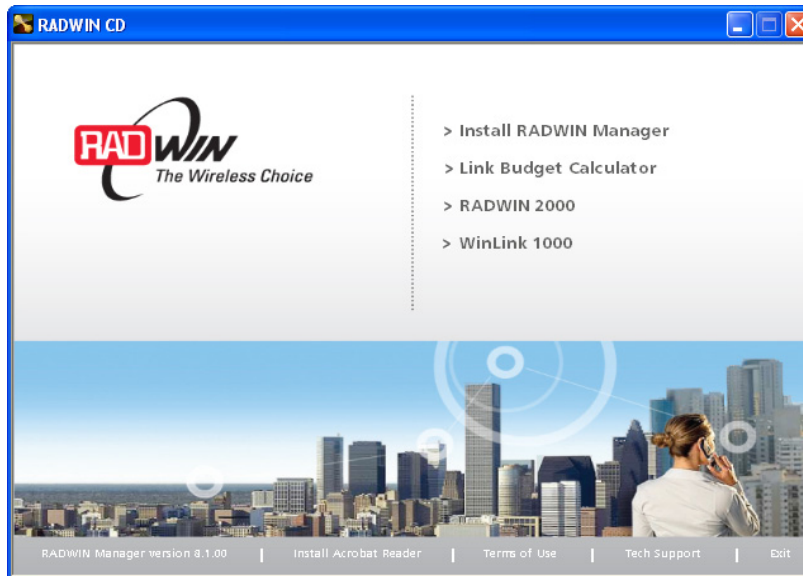
- Hard disk: 1 GB free space
- Network: 10/100BaseT NIC
- Graphics: 1024x768 screen resolution with 16 bit color
- Microsoft Explorer version 5.01 or later

Installing the Software

➤ **To install the RADWIN Manager application:**

1. Insert the CD into the CD/DVD drive of your computer.

The CD opening screen appears:



2. Choose **Install** RADWIN Manager and follow the on-screen instructions of the installation wizard to complete the setup of the RADWIN Manager application.

If the installation program fails to start, browse to your CD/DVD drive, chose the setup.exe program and run it.

Any PC running the RADWIN Manager application can be used to configure a RADWIN 1000/2000 link.

Starting the RADWIN Manager

➤ To start the RADWIN Manager:

1. Connect the managing computer to one of the two LAN ports as shown in **figure 4-1** below:



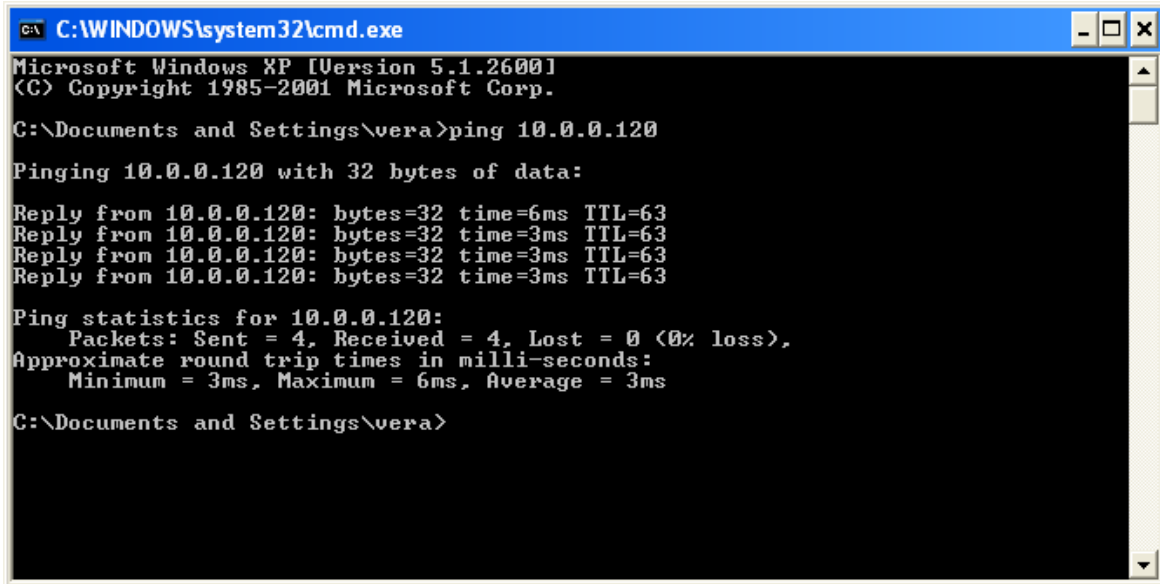
Figure 4-1: LAN ports on the front panel of the IDU-C

If you are not using a direct connection as above, ensure that you have IDU to managing computer connectivity (e.g. through a LAN).

2. Check that you have connectivity to the ODU. You can do this by opening up a command line session (**Start | Run** and then type, **cmd**). At the command prompt, type

ping 10.0.0.120

You should see something like this:



```

C:\WINDOWS\system32\cmd.exe
Microsoft Windows XP [Version 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.

C:\Documents and Settings\vera>ping 10.0.0.120

Pinging 10.0.0.120 with 32 bytes of data:

Reply from 10.0.0.120: bytes=32 time=6ms TTL=63
Reply from 10.0.0.120: bytes=32 time=3ms TTL=63
Reply from 10.0.0.120: bytes=32 time=3ms TTL=63
Reply from 10.0.0.120: bytes=32 time=3ms TTL=63

Ping statistics for 10.0.0.120:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 3ms, Maximum = 6ms, Average = 3ms

C:\Documents and Settings\vera>

```

Figure 4-2: Pinging an uninstalled and unconfigured link

Any other response from ping means that the ODU is not responding. Check your Ethernet connection and that both the the IDU and ODU are switched on and then try again. If you do not succeed, seek assistance from RADWIN Customer Support.

3. Dismiss the command line session.
4. Double-click the RADWIN Manager icon on the desktop, or click **Start | Programs | RADWIN Manager | RADWIN Manager**.

The Login dialog box appears.

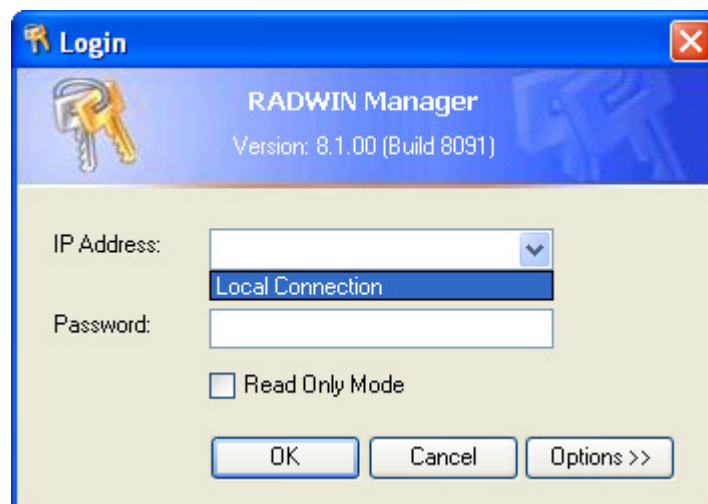


Figure 4-3: Login Screen

5. Type an IP address for the ODU (if you connect through a network), or click Local Connection (if you are connected directly to the IDU port).



1. If you log in on Local Connection, but your physical connection is **not** local (i.e. anything other than a direct connection between the managing computer and the IDU), then any configuration you carry out may affect other links in the network.
2. If you log in via an over-the-air IP address, you will receive a warning. If you reset the site to which you are connected to factory settings, you can lock yourself out of the Link.
3. Network login (IP address to the ODU) is recommended.



The default IP address for the ODU is 10.0.0.120. The subnet mask is 255.0.0.0.

The actual IP address is defined during link configuration (see [Site Management: IP Address and VLAN](#) on page 6-4).

6. Enter the password



The default password is **admin** (see [Changing the Log On Password](#) on page 4-7).

7. If you are a user with Read-Write permission, click Options to enter the Community options.



RADWIN 1000/2000 is protected with Community passwords. A user may be defined with read-only permission or with read-write permission (see [page 6-14](#) for more details).

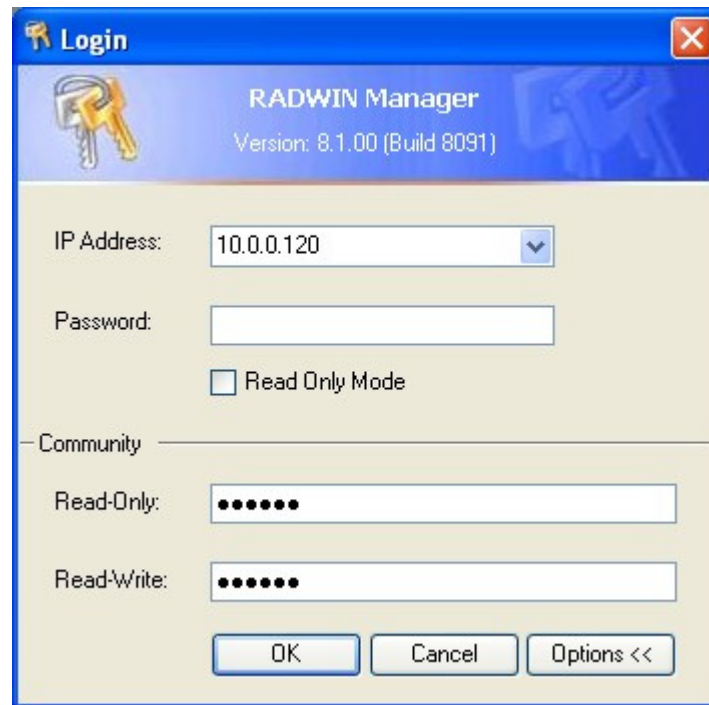


Figure 4-4: Login Screen with Community options visible

- If you are using the system for the first time, leave the default Community passwords, **netman** for read-write, and **public** for read-only.
- If Community values were previously defined, enter them under Community in the Read-Only or Read-Write boxes.
- If you are a user with read-only permission, click the Read Only Mode check box.

The RADWIN Manager main window is displayed (see [figure 4-7](#)).

Login Errors

Unsupported Device

Attempting to connect to an unsupported device will result in the following error message:

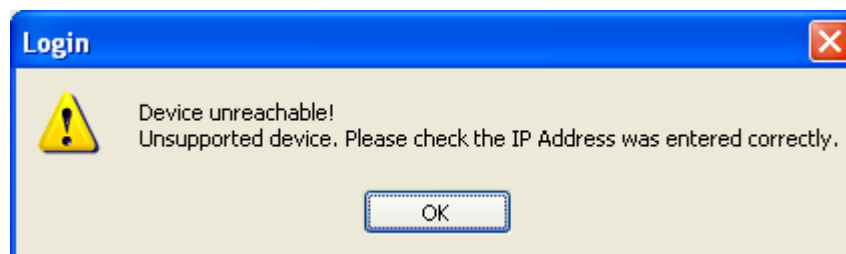



Figure 4-5: Unsupported device message

Incorrect IP Address


If the IP address chosen is invalid or the link is unreachable, the following error message will be displayed:



Figure 4-6: Unreachable device message

In both of the above situations, you will see a warning graphic  alongside the IP Address field.

Incorrect Password

If you type an incorrect password in the Login screen, you will see a warning graphic  alongside the password field.

Continuing without an IP Address

The RADWIN Manager provides limited “offline” functionality when there is no accessible IDU/ODU. It is primarily for setting managing computer related parameters and running the Link Budget Calculator. The offline functionality is shown in [table 4-2](#) below. The table does not show menu items grayed out.

Table 4-2: RADWIN Manager: Offline Functionality

Menu level			Function	Reference
Top	+1	+2		
File				
		Log Off	Return to Log On dialog. Same as Log Off button	
		Exit	Exit the RADWIN Manager. Same as Exit button	
Tools				
		Change Password	Change the Log On password dialog	page 4-7
		Events Log		page 7-10
			Clear Events	Clear local events log
			Save to File	Save events log data to a file
Help				
		RADWIN Manager Help	View online help version of the User Manual	
		Link Budget Calculator	Calculator opened in default browser	Appendix D
		Get Diagnostics Information	Obtain system information	page 7-1
		About RADWIN Manager	RADWIN Manager build information	

Changing the Log On Password

➤ **To change the log on password:**

1. From the Tools menu, select **Change Password**.
The Change Password dialog box appears.
2. Enter the current password, and the new password.
3. Click **OK** to confirm.

Installing the Link: First steps

At this point the main window of the RADWIN Manager should be displayed:

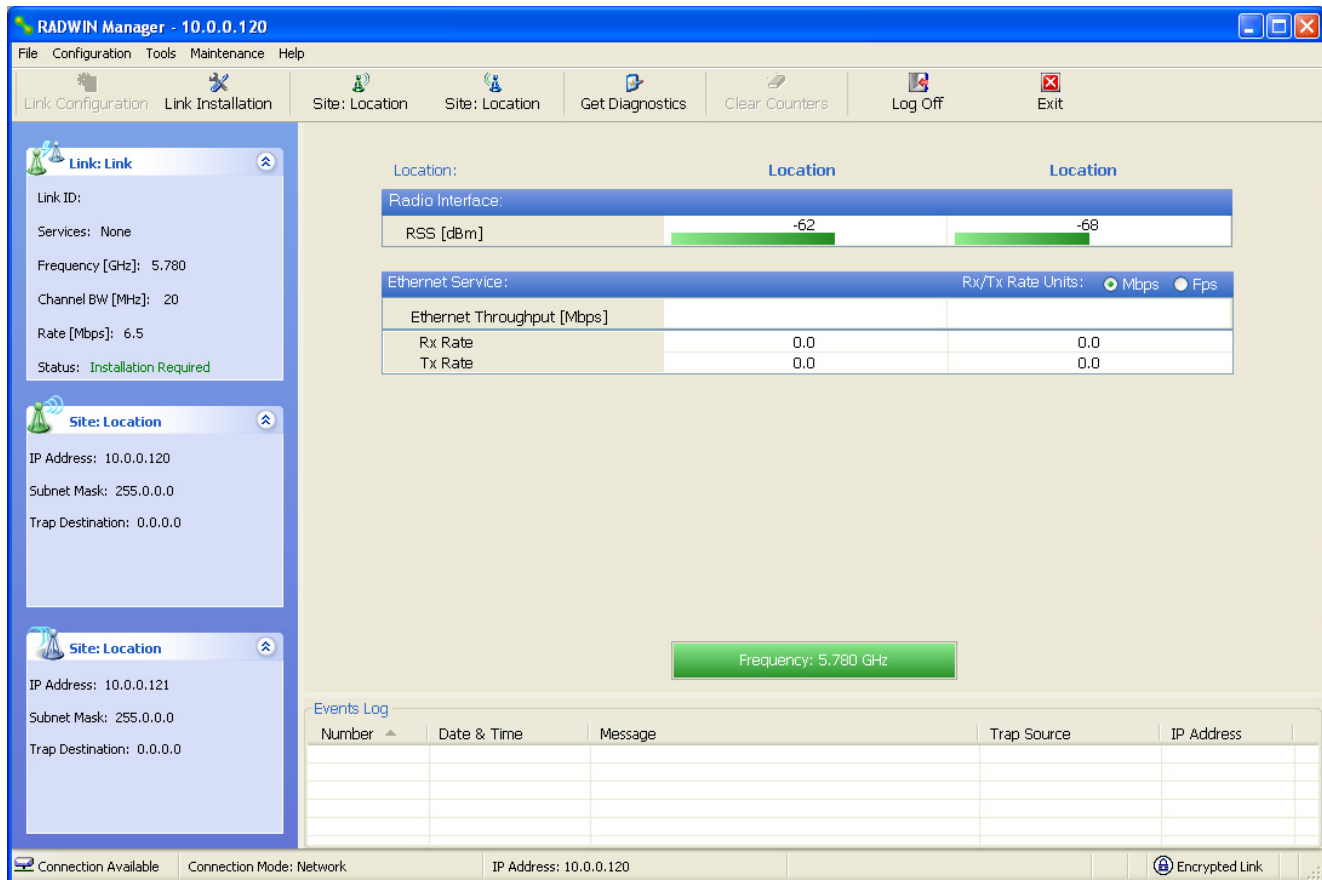


Figure 4-7: Opening RADWIN Manager window prior to installation

A detailed field by field description of the contents of the RADWIN Manager main window may be found in chapter 5.

The procedure required to make the link functional has three phases:

1. **Link Installation** - which we will detail below.

Installation actually gets the link operational by setting the link parameters. It uses a fixed channel at the lowest possible modulation, BPSK at 6.5Mbps and will work under the harsh interference condition.



During the installation procedure, the definition of all parameters is automatically applied to both sides of the link.

2. **Link Configuration** - described in chapter 5.

Configuration provides much the same functionality as Installation, but for a running link. A fallback to Installation mode is provided for situations which cannot be handled without resetting the link, such as antenna realignment and IDU or ODU replacement.

The Link Installation and Configuration phases are both carried out with Wizards, which “walk you through” the processes. The Wizards are visually quite similar and will be described in detail below.

3. **Site Configuration** - described in chapter 6.

Site specific configuration for each side of the link is available at any time - under a running link or under the restricted Installation mode.

Site Configuration consists of a set of panels, which may be invoked individually in any order, as needed.



Note

An installed and configured link can be returned to installation mode for re-installation and configuration from last settings or from factory settings.

- Reversion to installation mode requires a complete break in the link service
- Configuration mode may vary the service throughput and quality, but without a service break

Default Settings

The default settings of the RADWIN 1000/2000 configuration parameters are listed in [table 4-3](#) below:

Table 4-3: Default Settings

Parameter	Default Value
ODU IP Address	10.0.0.120
Subnet Mask	255.0.0.0
Trap destination	0.0.0.0
Manager Login password	admin
Link ID	Link
Site 1	Site
Site 2	Site
Link Password	wireless-bridge
Rate	Adaptive
Ethernet Configuration	Auto Detect
Radio Link Failure Actions	No action
Bridge or Hub mode	Hub Mode, Aging time = 300 sec
Community values	Read-write – netman Read-only – public

Front Panel LEDs on the IDU-C

The front panel LEDs on the IDU provide basic information about link status.

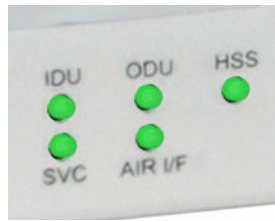


Figure 4-8: IDU-C Front Panel LEDs

The following table describes the indicators:

Table 4-4: Front Panel LEDs

Name	Color	Function
IDU With Ethernet only	Green	During power-up only
	Green	IDU operational
	Red	Failure
ODU	Green	ODU-to-IDU communication link is operating
	Red	ODU-to-IDU communication link is disrupted
AIR I/F	Green	Wireless link is synchronized
	Orange	During installation mode only
	Red	Wireless link lost synchronization
SVC		Off
HSS		Off

Installation Menu and Toolbar Functionality

The RADWIN Manager menu functionality is displayed in [table 4-5](#). The Toolbar buttons are detailed in [table 4-6](#).

Table 4-5: RADWIN Manager main menu functionality

Menu level			Function	Reference	
Top	+1	+2			
File					
	Log Off		Return to Log On dialog. Same as Log Off button		
	Exit		Exit the RADWIN Manager. Same as Exit button		
Configuration					
	Link Configuration		Run the Configuration Wizard. Not available in installation mode		
	1 Configure <Site 1 name>		Provides limited configuration for site. Has a path to return to installation mode		
	2 Configure <Site 2 name>		Provides limited configuration for site. Has a path to return to installation mode		
	Link Installation		Runs the Installation Wizard. Not available in configuration mode		
Tools					
	Performance Monitoring Report				
	Active Alarms				
		1 <Site 1 name>	Shows active alarms for <Site 1 name>		
		2 <Site 2 name>	Shows active alarms for <Site 1 name>		
	Change Password		Change the Log On password dialog	page 4-7	
	Events Log				page 7-10
			Clear Events	Clear local events log	
			Save to File	Save events log file	
Preferences		Local preferences dialog			

Table 4-5: RADWIN Manager main menu functionality (Continued)

Menu level			Function	Reference	
Top	+1	+2			
Maintenance					
		Clear counters	Disabled		
		Loopbacks	Disabled		
		Reset	1 <Site 1 name>	Reset <Site 1 name> ODU	
			2 <Site 2 name>	Reset <Site 2 name> ODU	
Help					
		RADWIN Manager Help	View online version of the User Manual		
		Link Budget Calculator	Calculator opened in default browser	Appendix D	
		Get Diagnostics Information	Obtain system information	page 7-1	
		About RADWIN Manager	Manager build and system information		

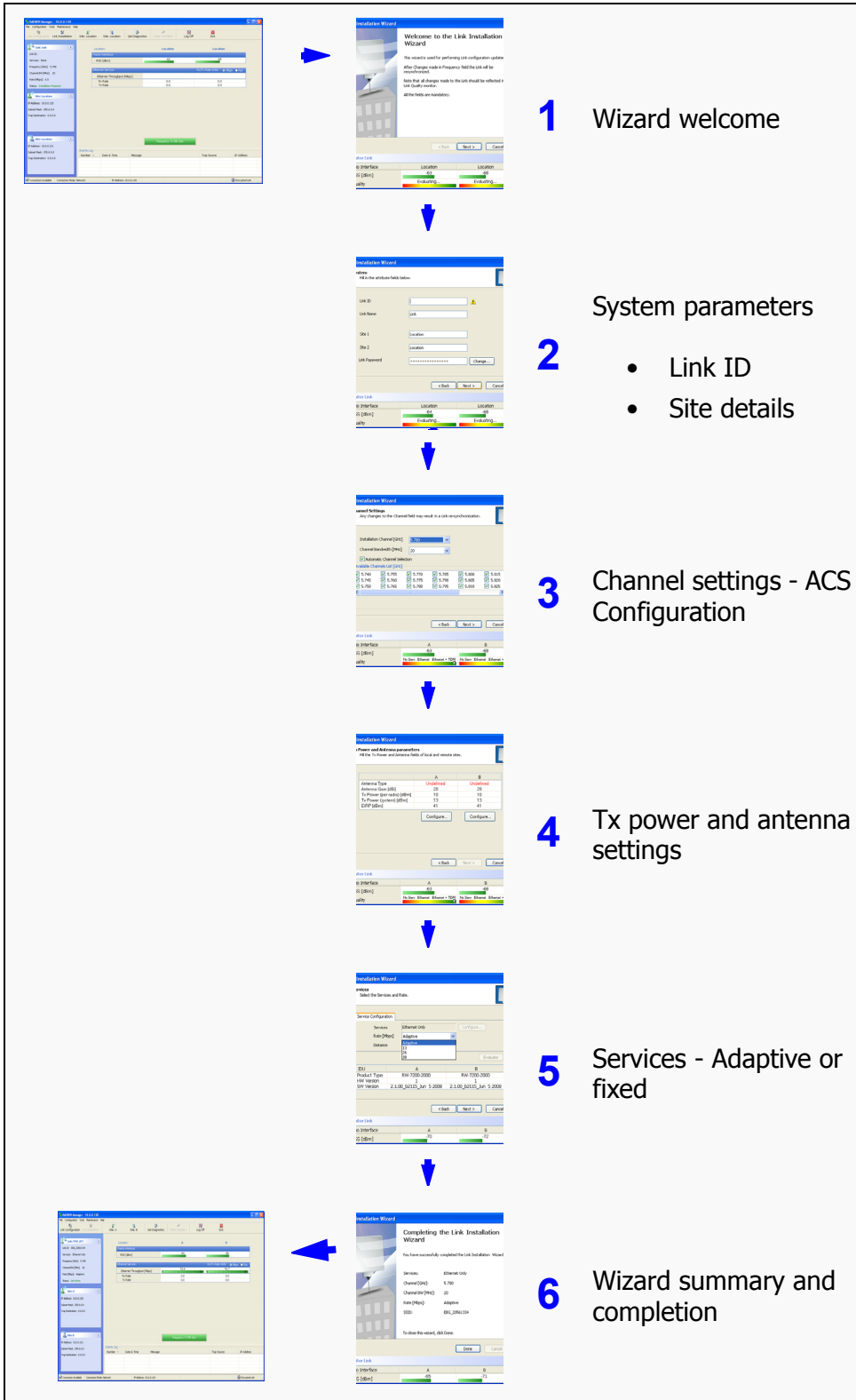
Table 4-6: RADWIN Manager Toolbar

Item	Description
Link Configuration	Changes configuration parameters of an operating wireless link; assigns text files for storing alarms, statistics and configuration data. This button is disabled until a link installation has been completed
Link Installation	Performs preliminary configuration of the system. This button is disabled after the link is installed
Site: <Site 1 name>	Opens the Site configuration dialog for Site A. Same as Configuration 1 Configure <Site 1 name>
Site: <Site 2 name>	Opens the Site configuration dialog for Site B. Same as Configuration 2 Configure <Site 2 name>
Get Diagnostics	Obtain system information
Clear Counters	Disabled
Log off	Closes the current session and logs off RADWIN Manager
Exit	Exits RADWIN Manager

Installing the Link: Overview

The Installation wizard has seven steps as shown in [table 4-7](#) below.

Table 4-7: Link Installation Wizard



Installing the Link: Step 1, Start the Wizard

In the tool bar of the RADWIN Manager main window, click the **Link Installation** button. The Link Installation button is only accessible if antennas are properly aligned. If this box is “grayed out”, you should align the antennas as set out in [Connecting and Aligning ODUs / Antennas](#) on [page 3-12](#).

The Installation Wizard opens:

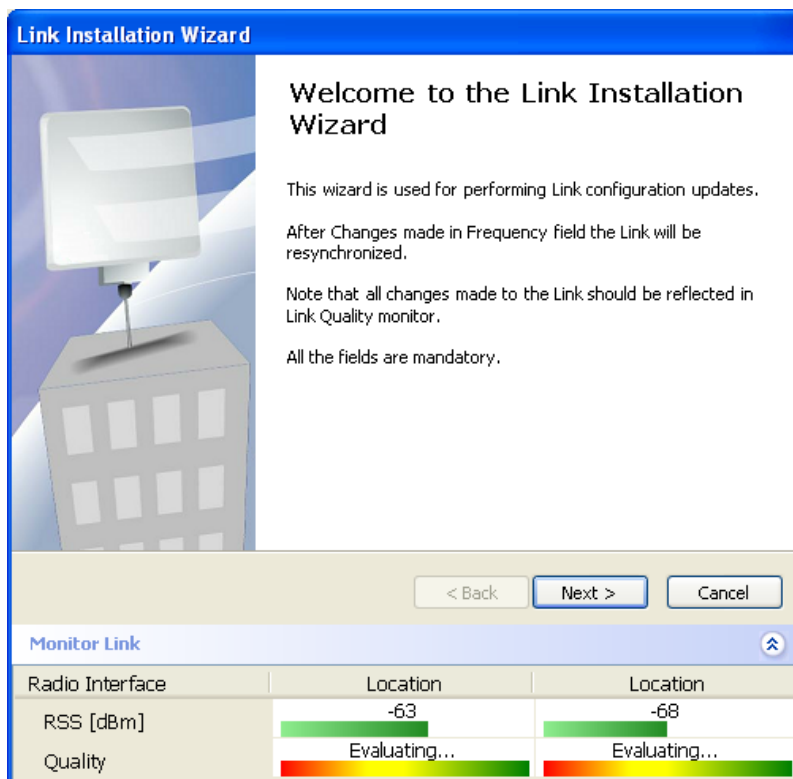


Figure 4-9: Link Installation Wizard

The bottom data area reproduces the corresponding data from the main window - which the above panel obscures. See [page 5-7](#) for a field by field description of this data area.

Click **Next** to proceed with the installation procedure.

Installing the Link: Step 2, System Parameters

The system dialog box opens:

Radio Interface	Location	Location
RSS [dBm]	-64	-68
Quality	Evaluating...	Evaluating...

Figure 4-10: : Installation Wizard, System dialog box

➤ **To complete Installation Step 2:**

1. Enter a Link ID. (Link ID - must be unique for each link in the area). The Link ID must include at least eight alphanumeric characters. Up to 24 characters are allowed. You should use a Link ID composed of both alphabetic and numeric characters.



Note

Both sides of a link must have the same Link ID.

2. Enter a Link Name for the link identification. The default name is "Link". You should change it.
3. Enter names for Site 1 and Site 2. The default names are both "Location". You should change them. Throughout this manual, we use A for Site 1 and B for Site 2.

4. Optionally enter a new Link Password.



If the Link Password is incorrect a link is established but configuration cannot be performed and no services are available. A new link password may be obtained from RADWIN Customer Support or use the alternative password supplied with the product. (see for more details).

The link password is peculiar to the link itself and should not be confused with the RADWIN Managerlog on password.

5. Click **Next**.

The default link with a rate of 6.5 Mbps is evaluated.

The Channel Setting dialog box appears. Proceed to [Installing the Link: Step 3, Channel Settings](#), below.

Changing the Link Password

The default password is **wireless-bridge**. Optionally, you can change the link password as explained here.

➤ **To change the link password:**

1. Click the Change button in the System dialog box.
The Change Link Password dialog box opens.



Use the Hide characters check box for maximum security

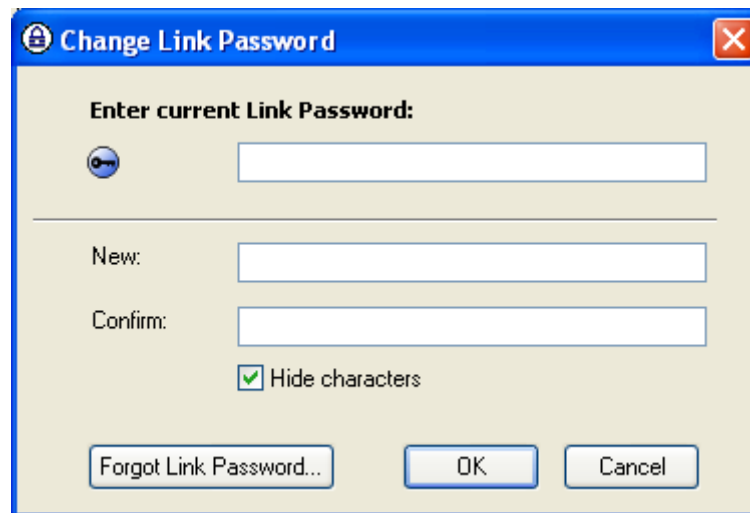


Figure 4-11: Change Link Password dialog box

2. Enter the current link password (The default link password for a new ODU is wireless-bridge).

If you have forgotten the Link Password, click the Forgotten Link Password button. The following window is displayed:

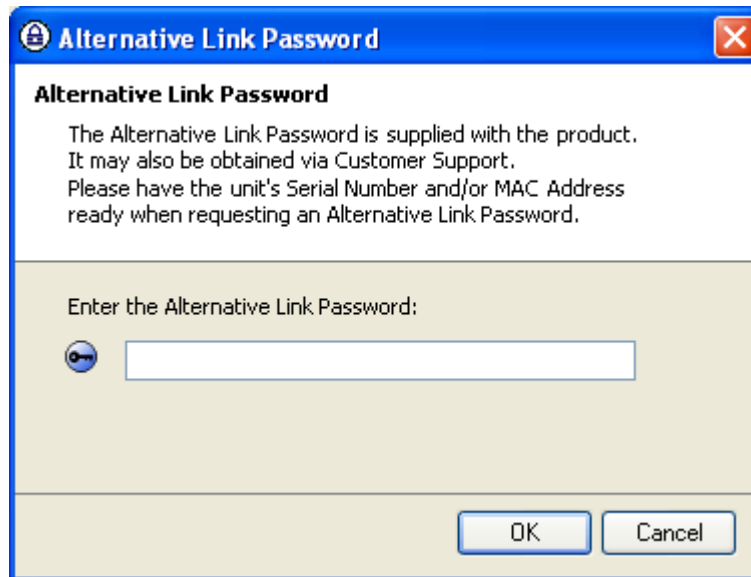


Figure 4-12: Lost or forgotten Link Password recovery

Follow the instructions to use the Alternative Link Password, and click **OK** to finish. You are returned to the window in [figure 4-11](#) above. Continue with the next step.

3. Enter a new password.
4. Retype the new password in the Confirm field.
5. Click **OK**.
6. Click **Yes** when asked if you want to change the link password.
7. Click OK at the Password changed success message.



- Restoring Factory Defaults returns the Link Password to **wireless-bridge**.
- If the link is inactive, then the link password may also be changed from the Site Configuration dialogs. See [page 6-14](#).

Installing the Link: Step 3, Channel Settings

RADWIN 1000/2000 systems have a feature called Automatic Channel Selection (ACS). In the event of sync loss, ACS chooses the first available channel in a list of monitored channels nominated in the Channel settings window of [figure 4-13](#) below. A channel switch takes place sufficiently fast as to ensure no loss of service.

Link Installation Wizard

Channel Settings
Any changes to the Channel field may result in a Link re-synchronization.

Installation Channel [GHz]

Channel Bandwidth [MHz]

Automatic Channel Selection

Available Channels List [GHz]

<input checked="" type="checkbox"/> 5.740	<input checked="" type="checkbox"/> 5.755	<input checked="" type="checkbox"/> 5.770	<input checked="" type="checkbox"/> 5.785	<input checked="" type="checkbox"/> 5.800	<input checked="" type="checkbox"/> 5.815
<input checked="" type="checkbox"/> 5.745	<input checked="" type="checkbox"/> 5.760	<input checked="" type="checkbox"/> 5.775	<input checked="" type="checkbox"/> 5.790	<input checked="" type="checkbox"/> 5.805	<input checked="" type="checkbox"/> 5.820
<input checked="" type="checkbox"/> 5.750	<input checked="" type="checkbox"/> 5.765	<input checked="" type="checkbox"/> 5.780	<input checked="" type="checkbox"/> 5.795	<input checked="" type="checkbox"/> 5.810	<input checked="" type="checkbox"/> 5.825

< Back Next > Cancel

Monitor Link

Radio Interface	A	B
RSS [dBm]	-63	-68
Quality	No Serv Ethernet Ethernet + TDM	No Serv Ethernet Ethernet + TDM

Figure 4-13: Channel Settings - Automatic Channel Selection

The default frequency for the product is shown.

➤ **To select channels to be used by the link:**

1. Select the main frequency from the Installation Channel box.

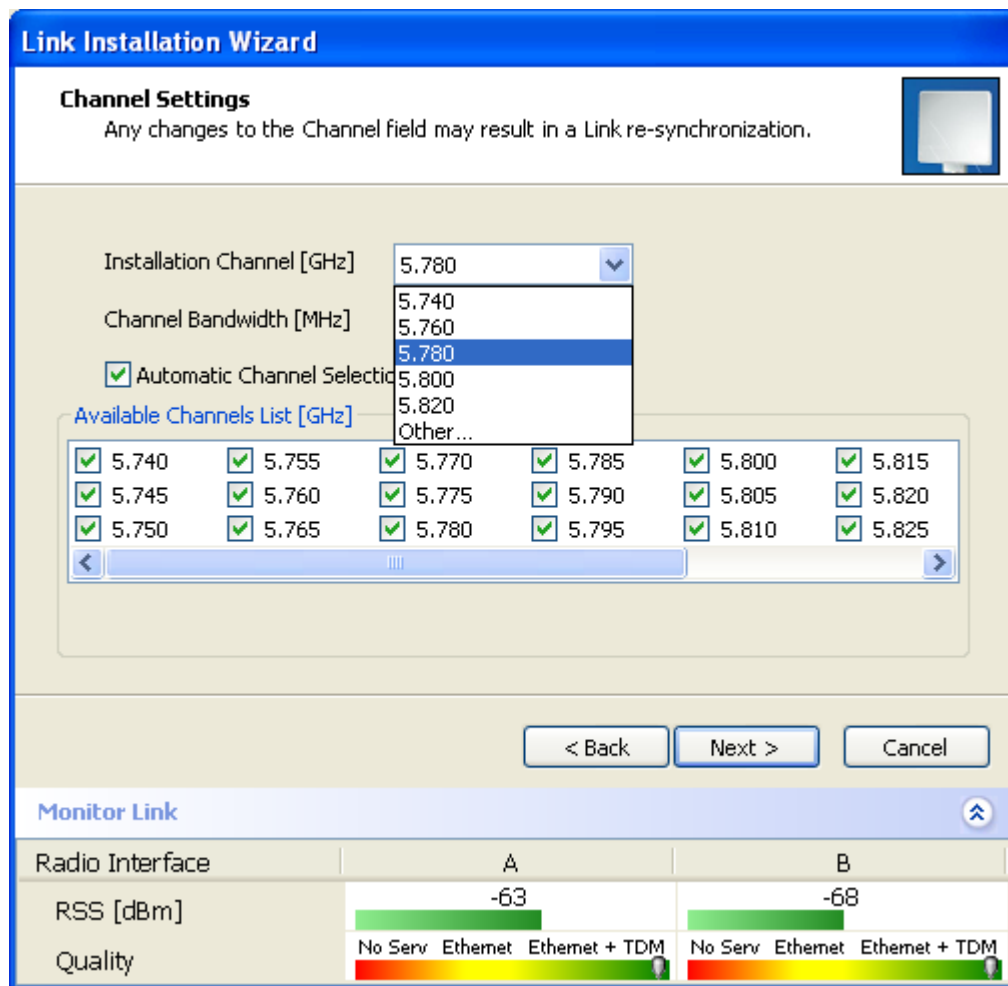


Figure 4-14: Channel Settings - Showing available installation rates



For version 2.1, channel bandwidth is set to 20 MHz and cannot be changed.

2. Click the check box if Automatic Channel Selection is required.
3. The Available Channels List contains all of the allowable channels for the link. Check the channels that can be automatically selected.

Selecting a new channel causes the system quality to change. The Quality bar provides an indication of the link quality from poor (red) to good (green) as shown in the bottom of [figure 4-13](#) above.

4. Click **Next**.

Installing the Link: Step 4, Tx Power and Antenna Settings

The Tx Power and Antenna Parameters dialog appears.

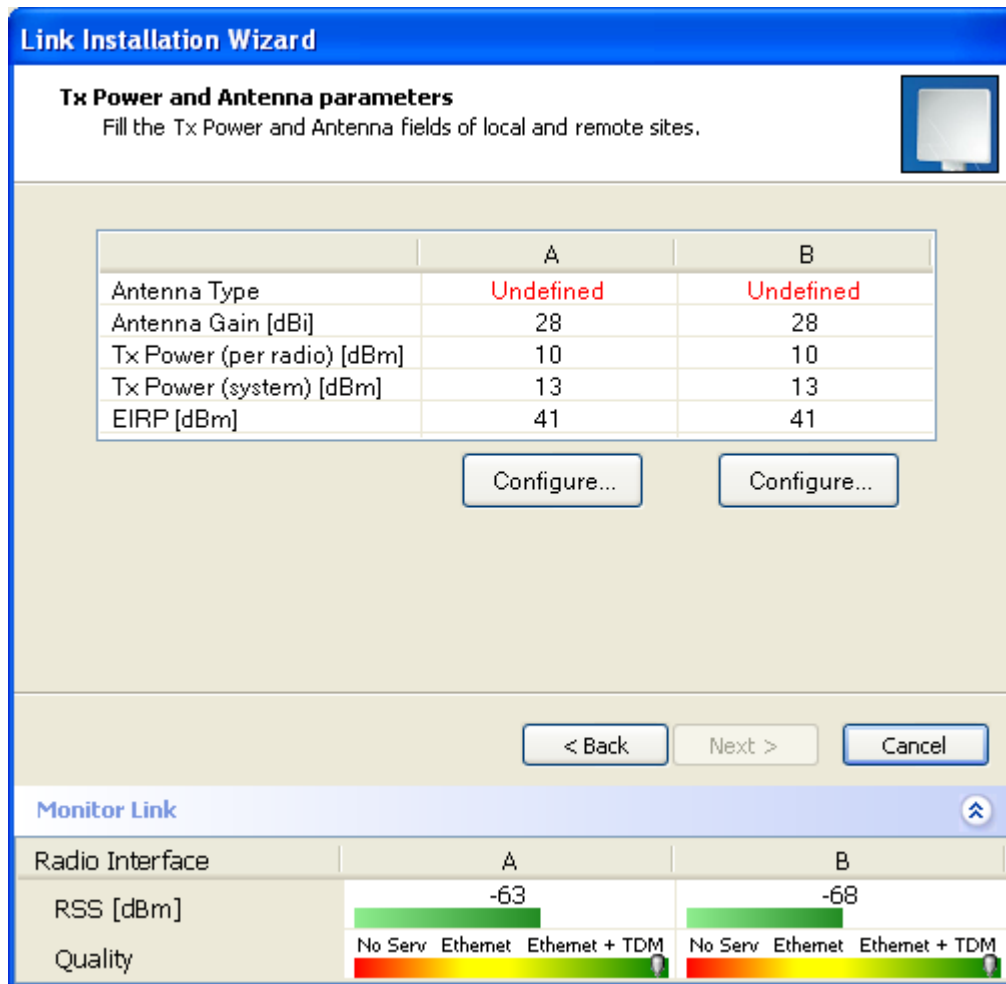


Figure 4-15: Transmission Power and Antenna Parameters

The choice of Tx power, antenna gain and cable loss determines the EIRP and is affected by such considerations as radio limitations and regulatory restrictions.

Before proceeding to antenna installation details, the following background information should be considered:

General

Each RADWIN 1000/2000 ODU is made of two radio transceivers (radios). The radios make use of algorithms that utilize both polarization and space diversity resulting in enhanced capacity, range and link availability. The number of antennas (i.e. radios) used is determined by user configuration and by automatic system decisions, explained below.

Dual Antennas at Both Sites

Using dual antennas at both sites (single bipolar antenna or two monopolar antennas) enables the use of MIMO technology. With MIMO the system doubles the link capacity. At the same time, it keeps the same rate and modulation per radio as was used with single antenna, thus increasing capacity, range and availability.

For example with a dual antenna RADWIN 1000/2000 can transmit at modulation of 64QAM and FEC of 0.83 and get an air rate of 130 Mbps, compared to 65 Mbps with single antenna.

To work in this mode, each antenna port must be connected to an antenna, the RSS level in both receivers should be balanced and a minimal separation between the antennas must be maintained. (For example, by using dual polarization antennas a cross polarization separation is attained).

Upon selecting Antenna Type as Dual, RADWIN 1000/2000 automatically doubles the air rates.

RADWIN Manager indicates a case of unbalanced RSS between the two antennas.

Single Antennas at Both Sites

By selecting a single antenna at both sites the ODUs operate with a single radio that is connected to the ANT 1 connector. The second radio is automatically shut down.

Single and Dual Antennas

In this mode one of the sites uses the ODU with a single antenna while the other site uses the ODU with a dual antenna.

The advantages in this mode in comparison to using a single antenna in both sites are doubled total Tx power and additional polarization and/or space diversity.

RADWIN 1000/2000 automatically switches to this mode if one of the ODUs is connected to a dual antenna or if the RSS at one of the ODU receivers is below minimal level.

The air rates used in this mode are same as when using single antennas in both sites.

The rates used by RADWIN 1000/2000 are shown in Table 4-5 below:

Table 4-8: RADWIN 1000/2000 Transmission rates

Radio	Modulation	FEC	Air-Rate [Mbps]
Single	BPSK	1/2	6.5
Single	QPSK	1/2	13
Single	QPSK	3/4	19.5
Single	16QAM	1/2	26
Single	16QAM	3/4	39
Single	64QAM	2/3	52
Single	64QAM	3/4	58.5
Single	64QAM	5/6	65
Dual	BPSK	1/2	13
Dual	QPSK	1/2	26
Dual	QPSK	3/4	39
Dual	16QAM	1/2	52
Dual	16QAM	3/4	78
Dual	64QAM	2/3	104
Dual	64QAM	3/4	117
Dual	64QAM	5/6	130

Considerations for Changing Antenna Parameters

Let:

maxAllowedTx Power denote the maximum Tx Power practically available from an ODU. It appears as **Tx Power per Radio** in [figure 4-16](#) below.

maxRegEIRP denote the maximum EIRP available by regulation. It will be determined by three factors:

- per band/regulation
- per channel bandwidth
- antenna gain

It appears in [figure 4-16](#) as **Max EIRP**.

maxRegTxPower denote the maximum regulatory Tx Power for the equipment, also having regard the above three points

maxODUTxPower denote the maximum Tx Power of the ODU, itself depending on the air rate used.

Then, the following relationship must be satisfied:

$$maxAllowedTxPower \leq \min(maxRegEIRP - AntennaGain + CableLoss, maxRegTxPower) \dots (*)$$

These parameters are controlled as follows:

➤ **To set Tx power and configure antennas:**

1. Click the Configure buttons in turn to configure the antennas on both sides of the link. Each one offers a dialog like this:

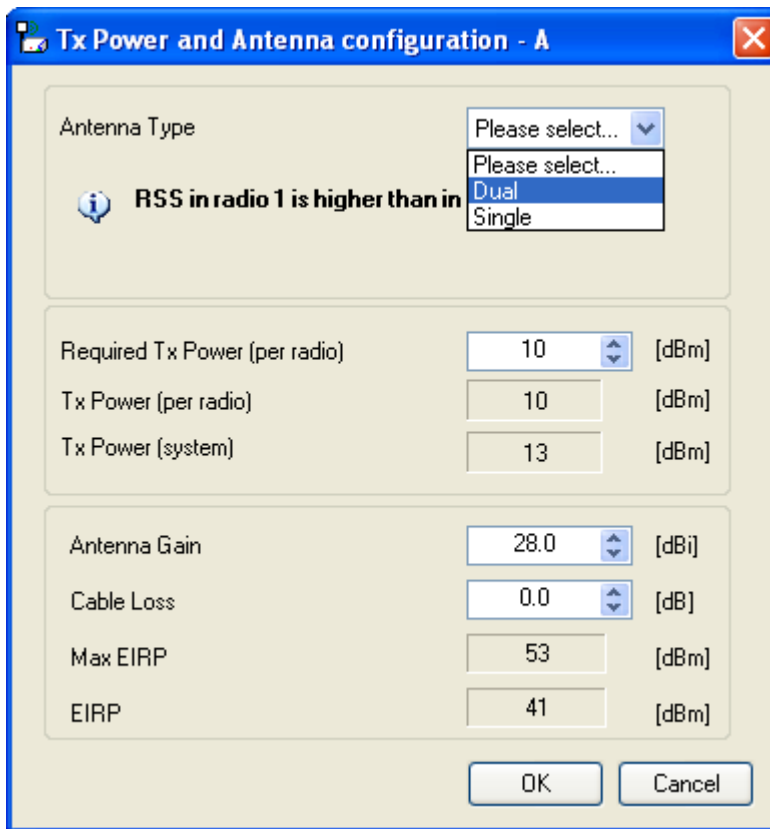


Figure 4-16: Antenna configuration dialog with opened type selection

2. Choose the antenna type and required transmission (Tx) power for the first site and click **OK**. Repeat the process for the second site.

The Tx power (per radio) indicates the power of each radio inside the ODU and is used for Link Budget Calculations. The Tx power (System) shows the total transmission power of the ODU and is used to calculate the EIRP according to regulations.



To see the relationship between Tx Power (radio) and TX Power (system), note that $dBm = 10 \times \log_{10} milliWatt$ so that if you double the power in milliWatts (for two radios) then dBm will increase by $10 \times \log_{10} 2 \approx 3$.

- Set the Antenna Gain and Cable Loss. If do this you will receive a warning message:

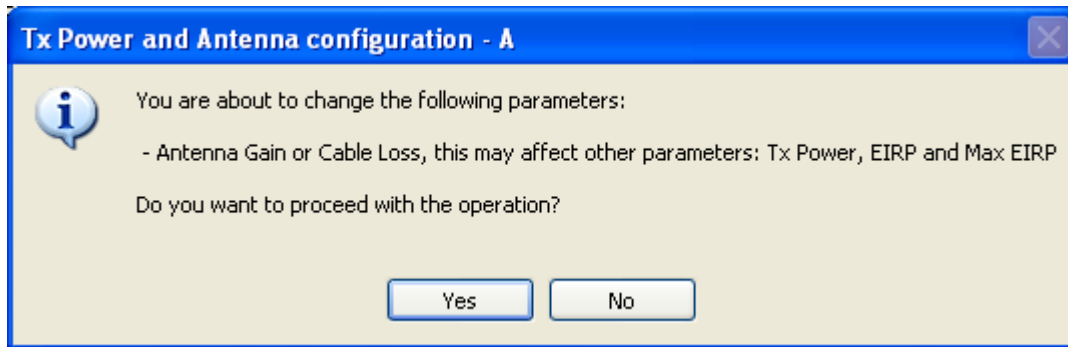


Figure 4-17: Antenna parameters change warning



- The Max EIRP level will be automatically set according to the selected band and regulation.
- The EIRP level is the sum of the System Tx power and the Antenna Gain minus the Cable Loss.

If inequality (*) above is violated, then the following warning window is displayed:

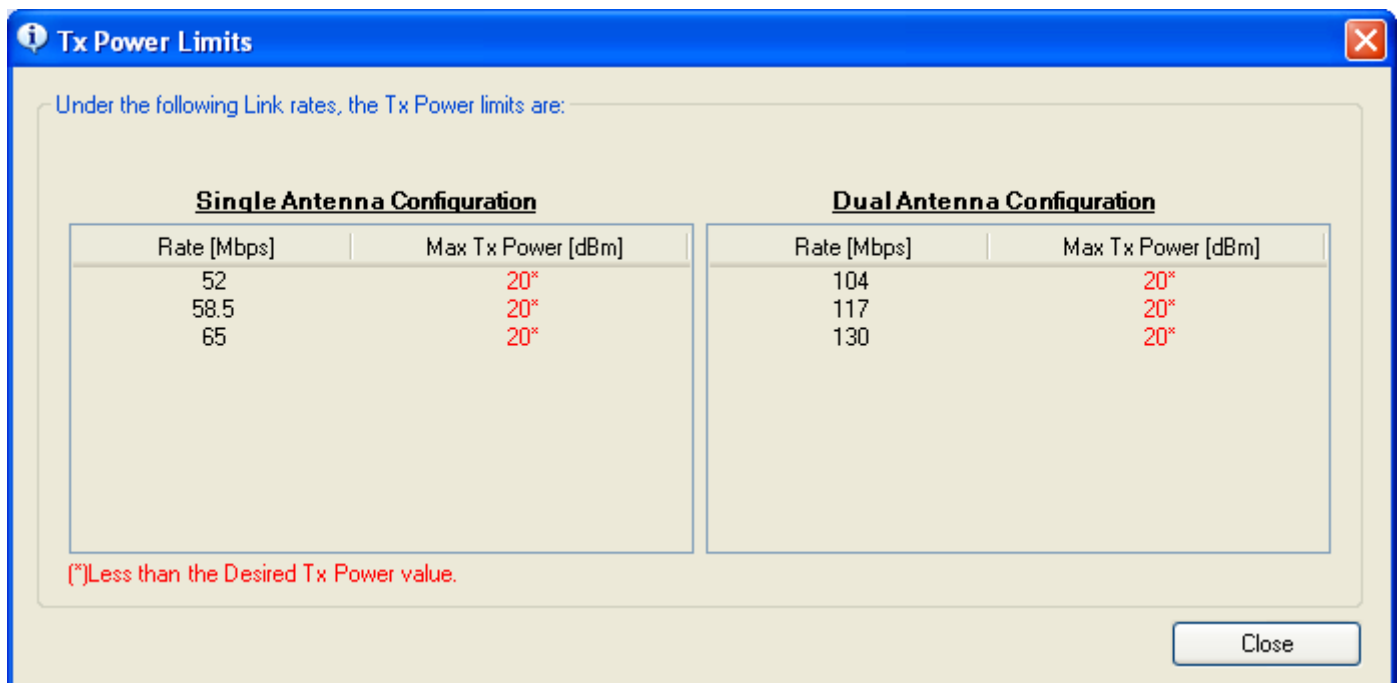


Figure 4-18: Tx Power Limits

The precise relationship between the items in inequality (*) and the window of figure 4-16 is follows:

- Required Tx Power (per radio) will be adjusted down to the lesser of the value entered and **maxAllowedTxPower**
- TxPower (system) is **maxAllowedTxPower + 3** (for 2 radios)
- Max EIRP is **maxRegEIRP**.
- EIRP is **maxAllowedTx Power + Antenna Gain - Cable Loss**

The table in **figure 4-18** only shows rates where the maximum Tx Power is the limitation, rather than regulations.



Recall that **maxAllowedPower** and **maxEIRP** are regulatory. In an unregulated environment, the only limit is **maxODUTxPower**.

When you close the window of **figure 4-18**, the change you requested will **not** be honored, and you will need to try again.

4. When you are finished with Tx Power configuration, Click **Next**.

Installing the Link: Step 5, Services

The Services dialog appears:

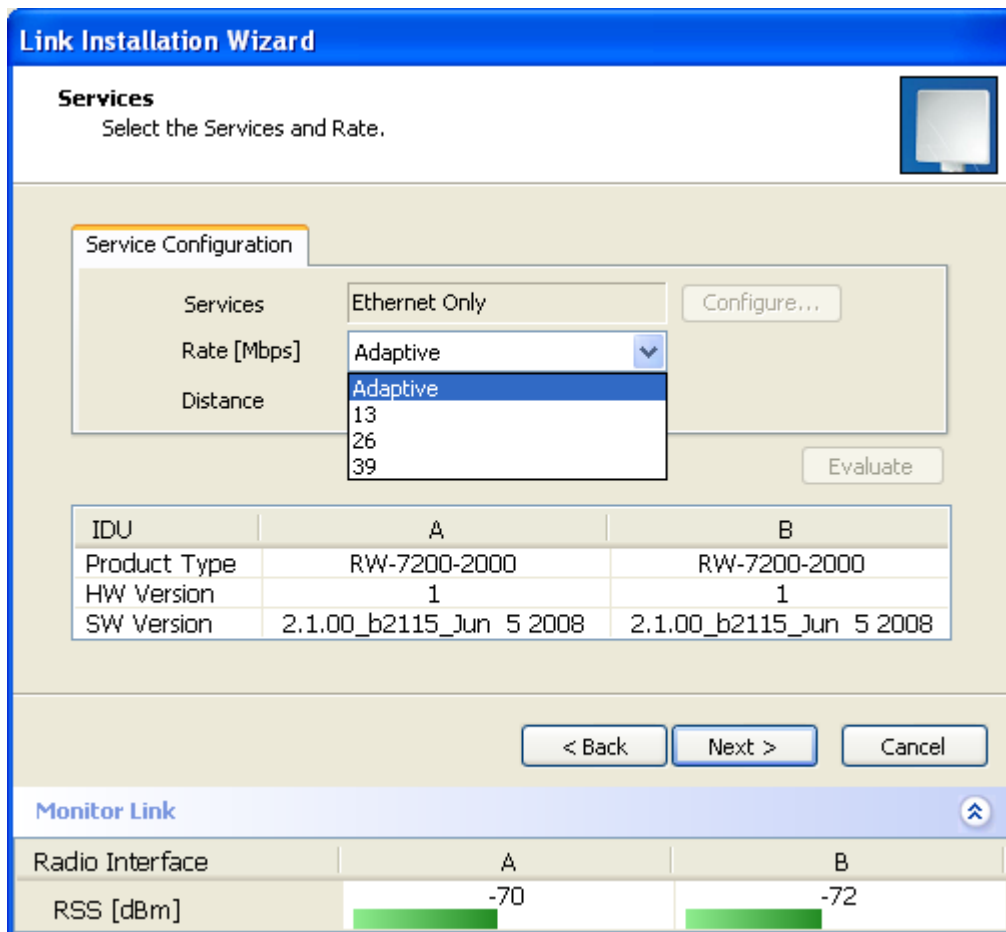


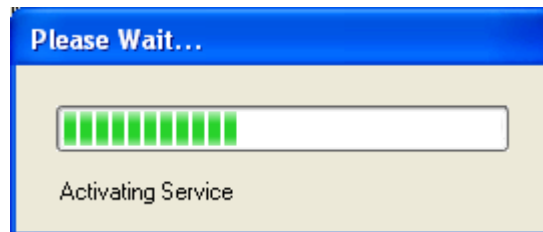
Figure 4-19: Services and Rates dialog

For version 2.1, Ethernet Only is the only available service. You may choose a specific modulation rate or use Adaptive.

➤ **To choose a modulation rate:**

1. Choose Adaptive or one of the available rate (see [page 1-3](#) for information about Automatic Adaptive Rate).
2. Click **Next** to continue.

The service is activated as show below:



Installing the Link: Step 6, Installation Summary and Exit

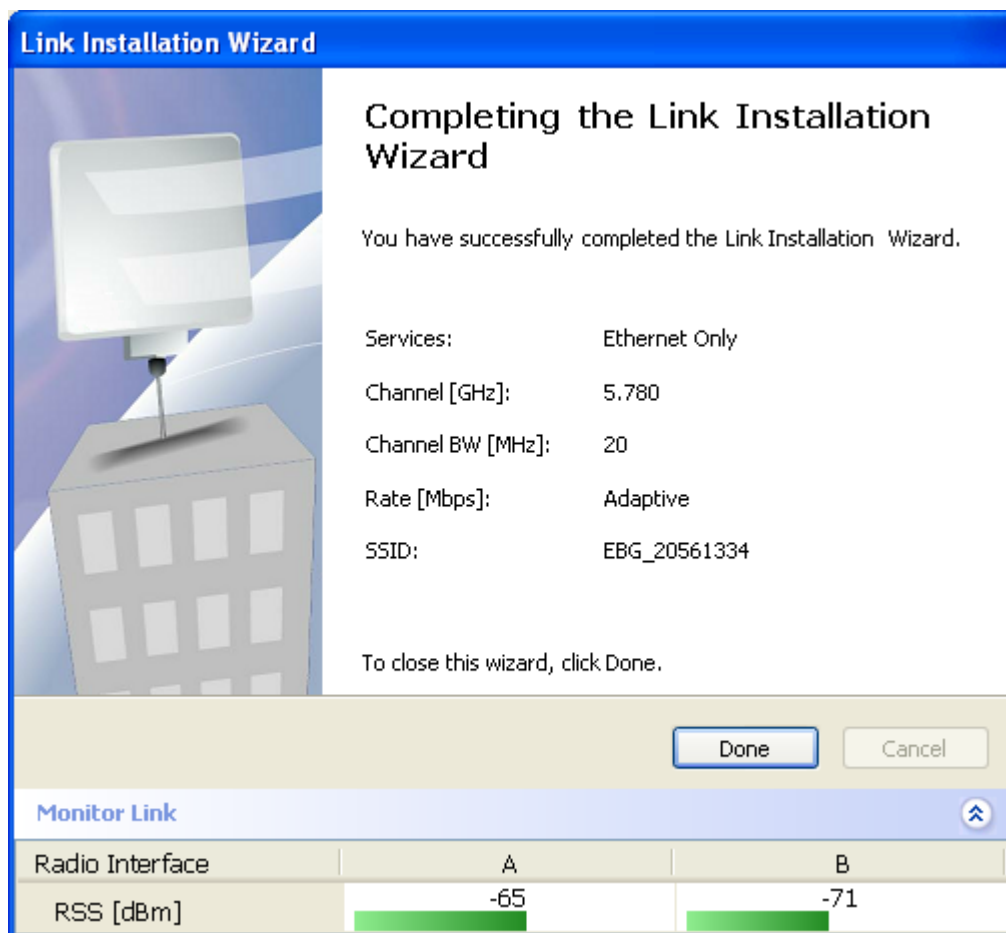


Figure 4-20: Installation Wizard Exit Summary

Click **Done** to return to the main window.

The main window now reflects the installation:

The screenshot shows the RADWIN Manager interface with the following details:

- Link: TP5F_BTT**
 - Link ID: EBG_20561334
 - Services: Ethernet Only
 - Frequency [GHz]: 5.785
 - Channel BW [MHz]: 20
 - Rate [Mbps]: Adaptive
 - Status: Link Active
- Site: A**
 - IP Address: 10.0.0.120
 - Subnet Mask: 255.0.0.0
 - Trap Destination: 0.0.0.0
- Site: B**
 - IP Address: 10.0.0.121
 - Subnet Mask: 255.0.0.0
 - Trap Destination: 0.0.0.0
- Radio Interface:**

Location:	A	B
RSS [dBm]	-64	-66
- Ethernet Service:**

	A	B
Ethernet Throughput [Mbps]	51.6	51.7
Rx Rate	0.0	0.0
Tx Rate	0.0	0.0
- Frequency:** 5.785 GHz
- Events Log:**

Number	Date & Time	Message	Trap Source	IP Address
- Status Bar:** Connection Available | Connection Mode: Network | IP Address: 10.0.0.120 | Encrypted Link

Figure 4-21: Main window of the manager after installation

➤ **To verify the installation:**

- Verify that the Radio Signal Strength (RSS) is according to expected results as determined by the Link Budget Calculator.



Installation mode, as described above, may be re-entered using **Configuration | 1 Configure Site A** and **Installation Mode** the Site Configuration dialog. Some Installation mode functionality may cause a break in link service.

If you can accomplish link changes without breaking the service, always prefer to use Configuration mode, described in chapter 5.

Configuring the Link

This chapter describes the link configuration procedure, which is performed after the installation of both sides of the RADWIN 1000/2000 link, as set out in chapters 3 and 4.

Link configuration uses a Link Configuration Wizard to redefine the configuration parameters and fine-tune an operational link. Both sides of the link are configured simultaneously.

The following parameters are configured using the Link Configuration Wizard:

- System parameters
- Channel settings
- Transmission power and antenna settings
- Service parameters

Link Configuration: Getting Started

The Main Window of the RADWIN Manager

Ensure that the RADWIN Manager is running.

The main window should look similar to that in [figure 5-1](#):

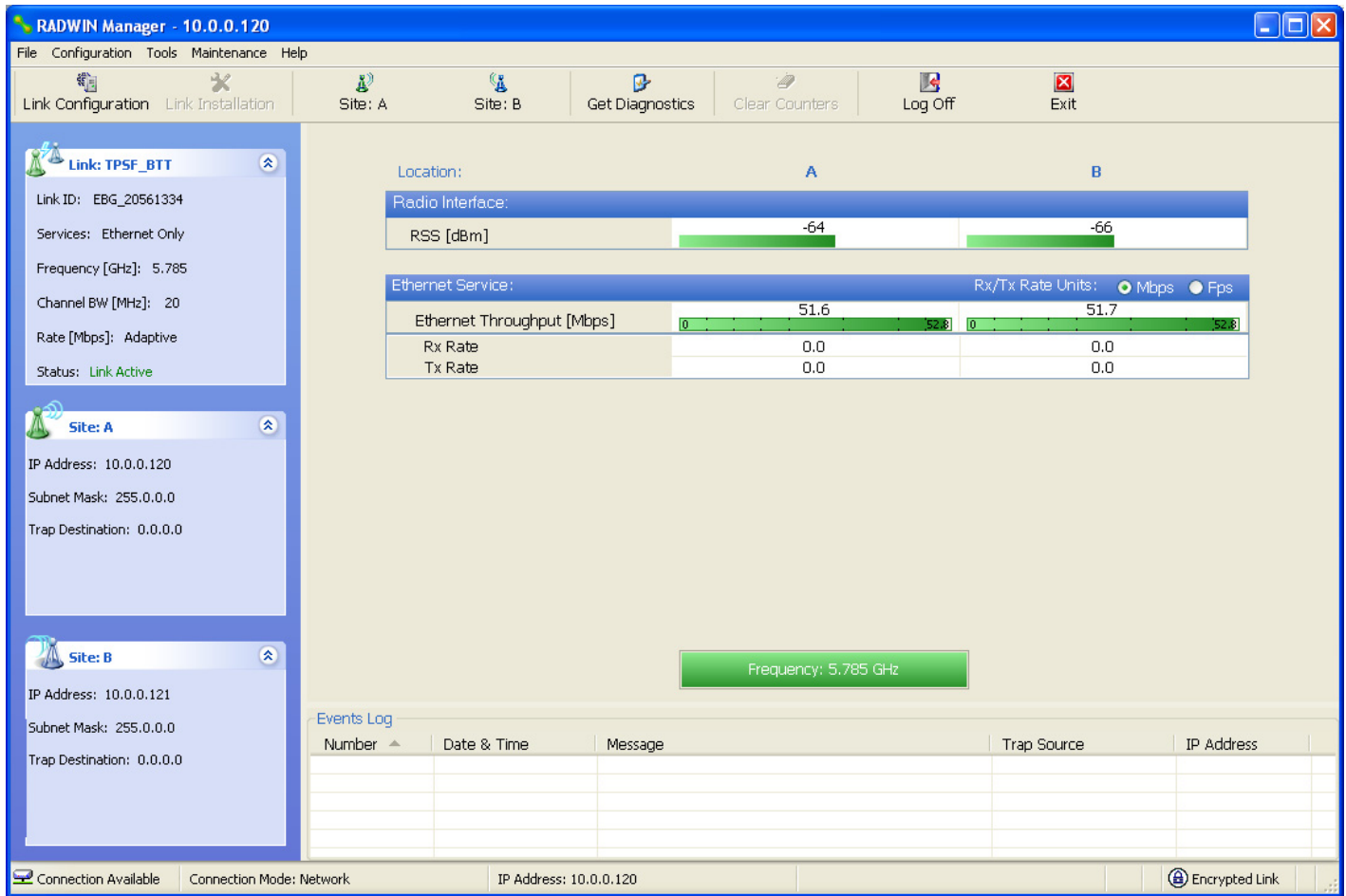


Figure 5-1: Main window, Wireless Link is Active

Before starting a configuration session, make sure that a communication link exists between the two sides of the link.

The Link Status indication bar must be green. In the Link Status panel, the Status field should show Link Active in green.

The main window of the RADWIN Manager contains a large amount of information about the link. Before proceeding to details of link configuration we set out the meaning of each item in the main window.

The RADWIN Manager Toolbar

In configuration mode, the RADWIN Manager toolbar contains the following buttons:

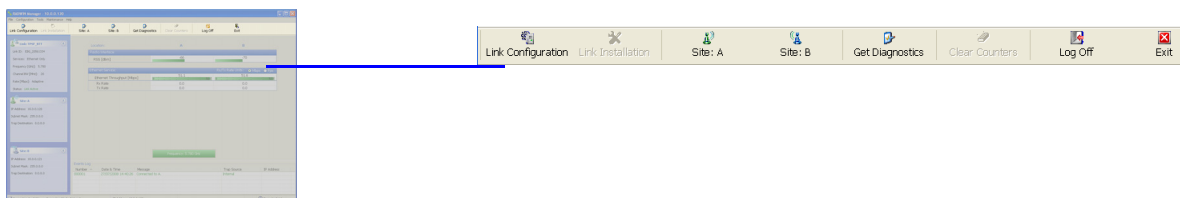


Table 5-1: RADWIN Manager Toolbar

Item	Description
Link Configuration	Changes configuration parameters of an operating wireless link; assigns text files for storing alarms, statistics and configuration data. This button is disabled until a link installation has been completed
Link Installation	Performs preliminary configuration of the system. This button is disabled after the link is installed
Site: <Site 1 name>	Opens the Site configuration dialog for Site A. Same as Configuration 1 Configure <Site 1 name>
Site: <Site 2 name>	Opens the Site configuration dialog for Site B. Same as Configuration 2 Configure <Site 2 name>
Get Diagnostics	Obtain system information
Clear Counters	Disabled
Log off	Closes the current session and logs off RADWIN Manager
Exit	Exits RADWIN Manager

The RADWIN Manager Main Menu

The RADWIN Manager menu, is shown in [table 5-2](#) below:

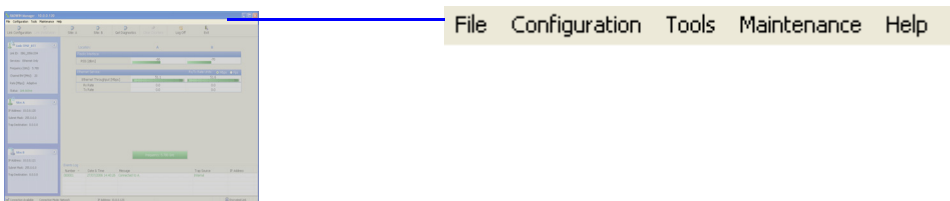


Table 5-2: RADWIN Manager main menu functionality

Menu level			Function	Reference	
Top	+1	+2			
File					
	Log Off		Return to Log On dialog. Same as Log Off button		
	Exit		Exit the manager. Same as Exit button		
Configuration					
	Link Configuration		Run the Configuration Wizard. Not available in installation mode		
	1 Configure <Site 1 name>		Provides limited configuration for site. Has a path to return to installation mode		
	2 Configure <Site 2 name>		Provides limited configuration for site. Has a path to return to installation mode		
	Installation		Runs the Installation Wizard. Not available in configuration mode		
Tools					
	Performance Monitoring Report				
	Active Alarms				
		1 <Site 1 name>	Shows active alarms for <Site 1 name>		
		2 <Site 2 name>	Shows active alarms for <Site 1 name>		
	Change Password		Change the Log On password dialog	page 4-7	
	Events Log			page 7-10	
			Clear Events	Clear local events log	
			Save to File	Save events log file	
Preferences		Local preferences dialog			

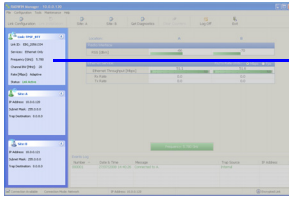
Table 5-2: RADWIN Manager main menu functionality (Continued)

Menu level			Function	Reference	
Top	+1	+2			
Maintenance					
		Clear counters	Disabled		
		Loopbacks	Disabled		
		Reset			
			1 <Site 1 name>	Reset <Site 1 name> ODU	
			2 <Site 2 name>	Reset <Site 2 name> ODU	
Help					
		RADWIN Manager Help	View online version of the User Manual		
		Link Budget Calculator	Calculator opened in default browser	Appendix D	
		Get Diagnostics Information	Obtain system information	page 7-1	
		About RADWIN Manager	Manager build and system information		

Elements of the RADWIN Manager Main Window

Link details pane

The Link details pane on the left is split into three sections. The top section summarizes information about the link:



Link: TPSF_BTT

Link ID: EBG_20561334

Services: Ethernet Only

Frequency [GHz]: 5.785

Channel BW [MHz]: 20

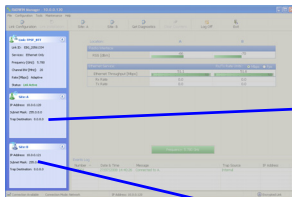
Rate [Mbps]: Adaptive

Status: Link Active

Table 5-3: Link Details

Item
Link ID
Services selected
Frequency
Channel bandwidth
Rate
Link status

The two lower panels show basic link site details:



Site: A

IP Address: 10.0.0.120

Subnet Mask: 255.0.0.0

Trap Destination: 0.0.0.0

Site: B

IP Address: 10.0.0.121

Subnet Mask: 255.0.0.0

Trap Destination: 0.0.0.0

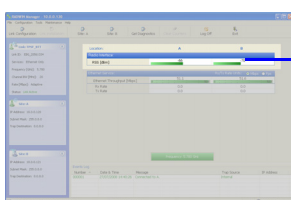
Table 5-4: Link site details, Site A and Site B

Item
IP Address
Subnet Mask
Trap Desalination

Monitor pane

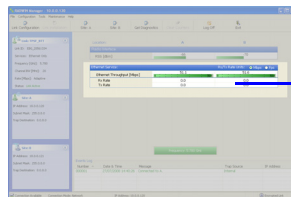
The monitor pane, is the main source of real time information about link performance at both link sites. It includes the following panes (top to bottom):

- Radio Interface, Received Signal Strength (RSS) in dBm



Location:	A	B
Radio Interface:		
RSS [dBm]	-64	-66

- Ethernet Service:



Ethernet Service:	Rx/Tx Rate Units: <input checked="" type="radio"/> Mbps <input type="radio"/> Fps	
Ethernet Throughput [Mbps]	51.6	51.7
Rx Rate	0.0	0.0
Tx Rate	0.0	0.0

- Ethernet Throughput: The numbers are the current calculated throughputs at each site. The colored bars (with numbers) indicate the maximum possible throughput having regard for air conditions.
- Rx and Tx Rates: Actual Ethernet traffic received and transmitted rates per site, in Mbps of Fbps.

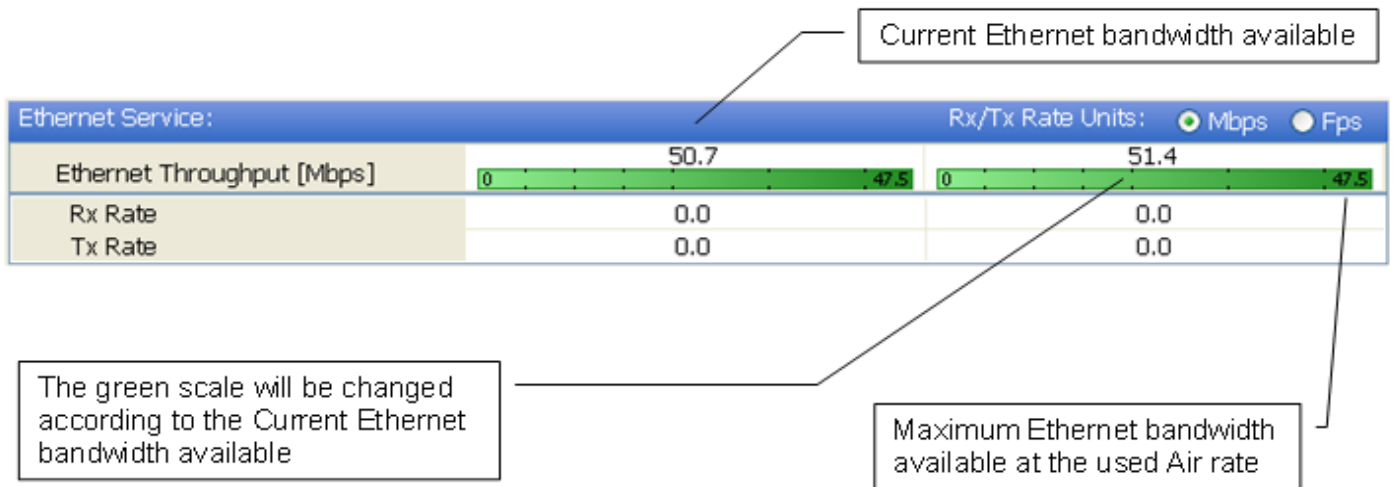
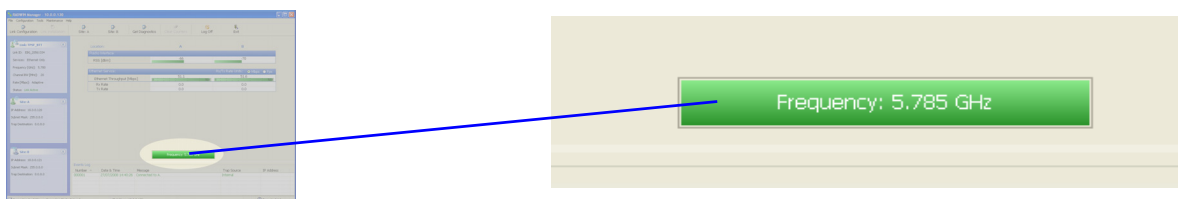


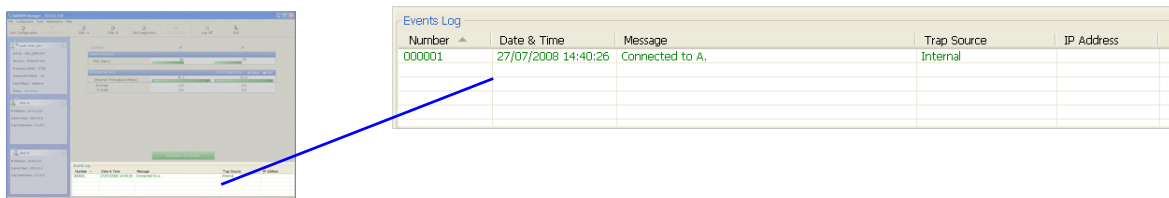
Figure 5-2: Ethernet Bandwidth Indication



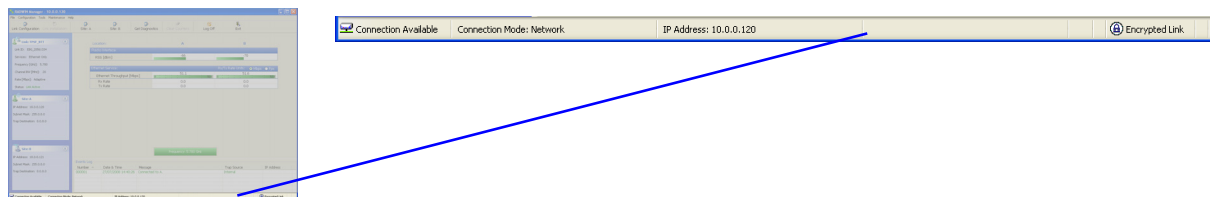
- Frequency box: It shows the link frequency. The color of the box indicates the status
 - Green is an active link
 - Red is an inactive link
 - Magenta shows an authentication or compatibility problem
 - Brown shows severe compatibility problem

Events Log

The Events Log, stores alarms generated from both sides of the link and is detailed in chapter 7, [The Events Log](#).





Status Bar



The Status bar, displays the following icons:

Table 5-5: Status bar indicators

Icon or Label	Purpose
Connectivity	Shows if RADWIN Manager is communicating with the ODU.
Connection available	Connection mode to the ODU <ul style="list-style-type: none"> • Over-the-Air connection - using the IP address of the remote unit. • Local connection - direct connection to the IDU without using an IP address. • Network connection - through a LAN
IP Address	Login IP address
Encryption indicator	 Normally encrypted link  Link password validation failed. The link is encrypted with default keys. Service and configuration are unavailable. Change the link password.



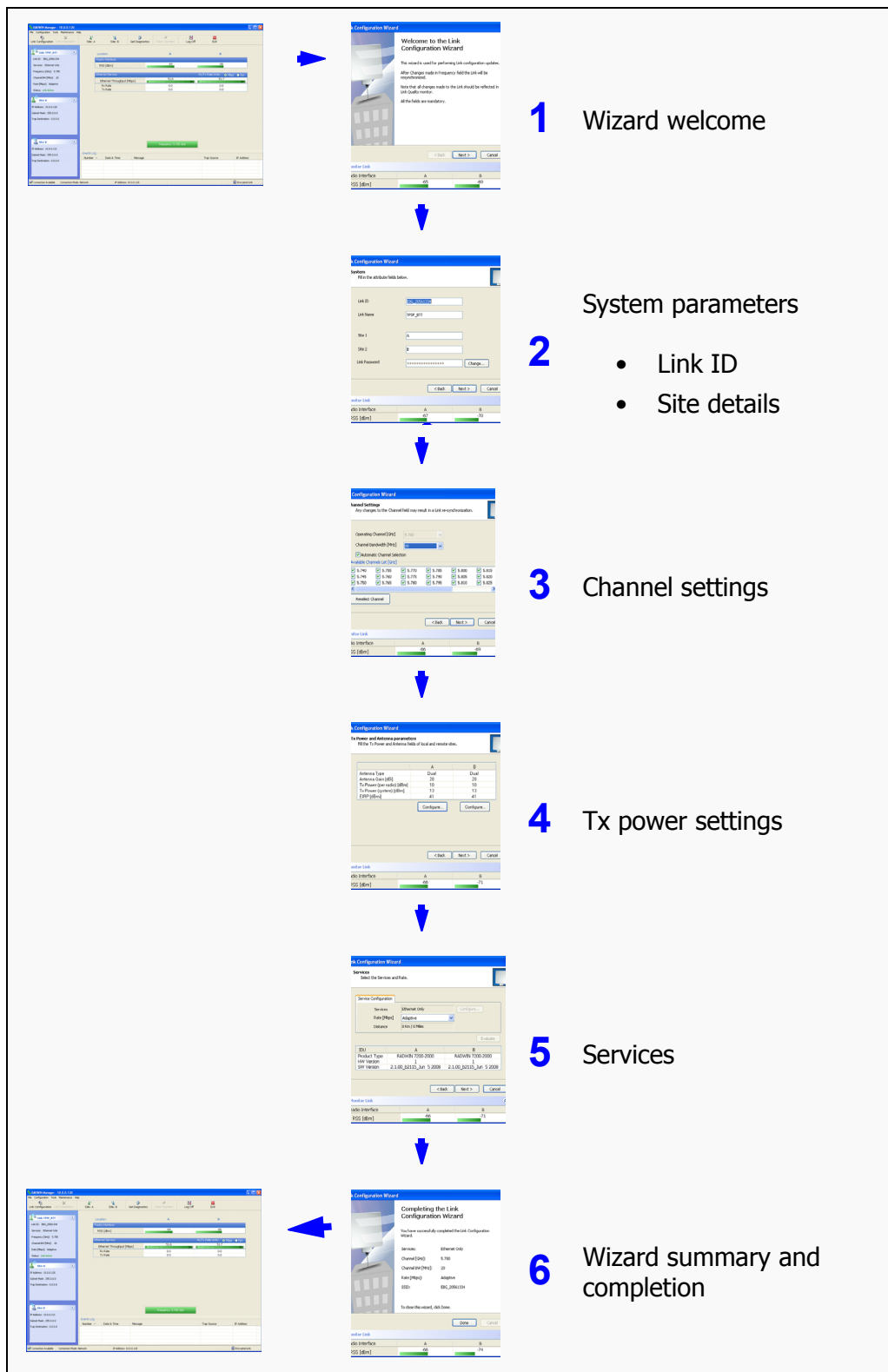
Note

There are several “floating” icons, which appear under specific conditions

Configuring the Link: Overview

The Configuration Wizard has seven steps as shown in [table 5-6](#) below.

Table 5-6: Link Configuration Wizard



Since configuration functionality is included in the installation, we will briefly review the main steps and for most part offer references to the corresponding installation step.

Configuring the Link: Step 1, Start the Wizard

In the tool bar of the RADWIN Manager main window, click the **Link Configuration** button. The Link Configuration button is only accessible on a fully installed link as set out in chapter 4.

The Configuration Wizard opens:

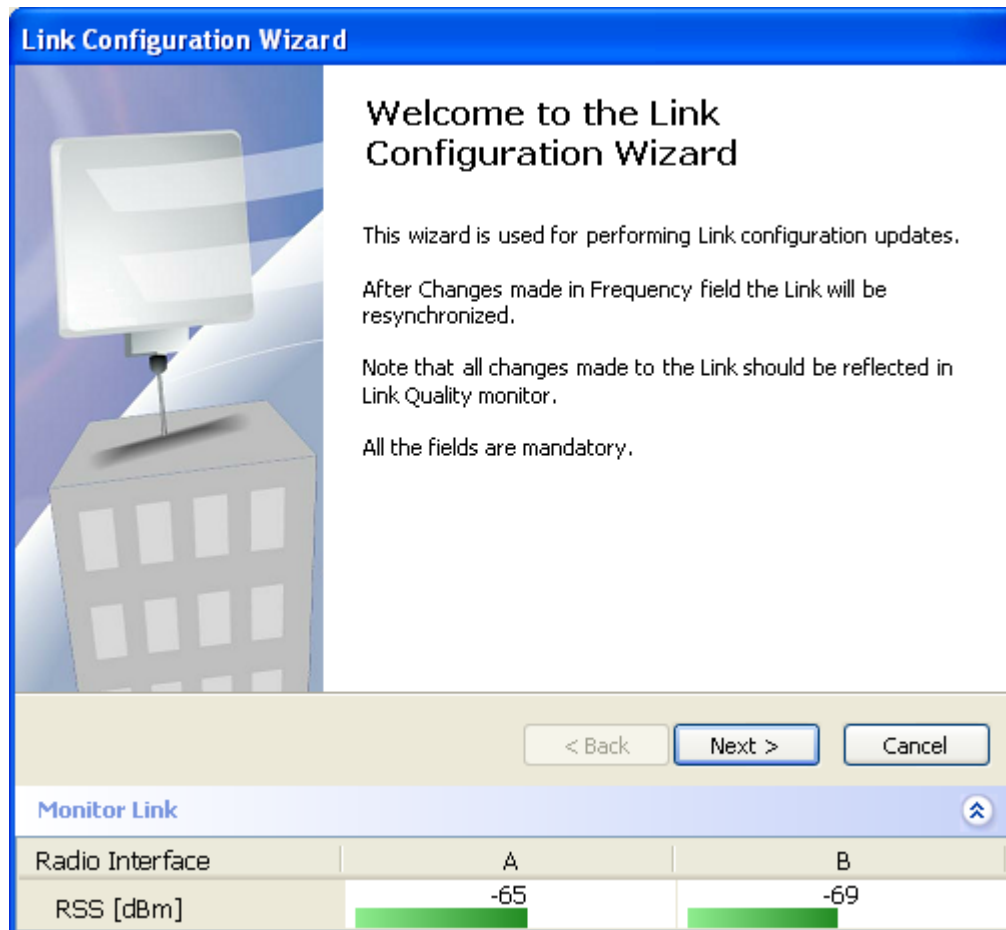


Figure 5-3: Link Configuration Wizard

Click **Next** to proceed with the configuration procedure.

Configuring the Link: Step 2, System Parameters

The System dialog box opens:

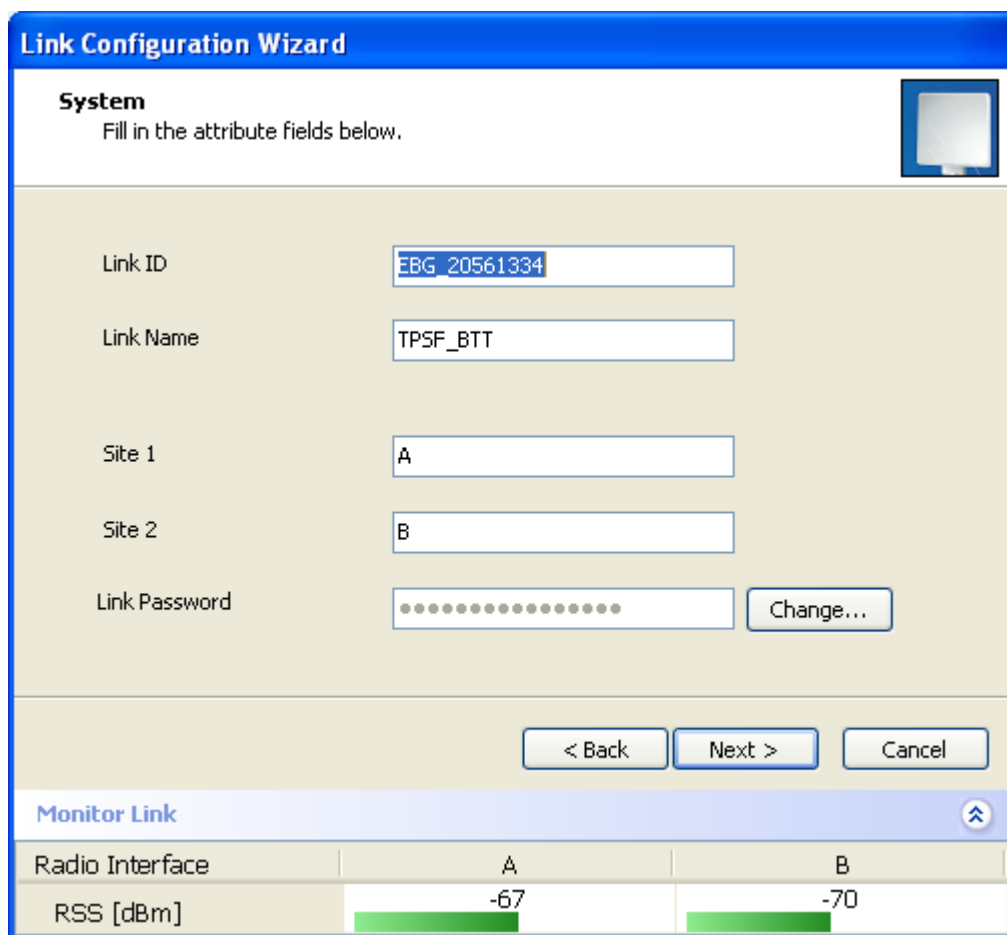


Figure 5-4: Configuration Wizard, System dialog box

The System attributes may be edited and the Link Password may be changed exactly as in the corresponding Link Installation step on [page 4-14](#).

Click **Next** to continue.

Configuring the Link: Step 3, Channel Settings

Configuring the Channel Settings follows the same pattern as the Installation procedure:

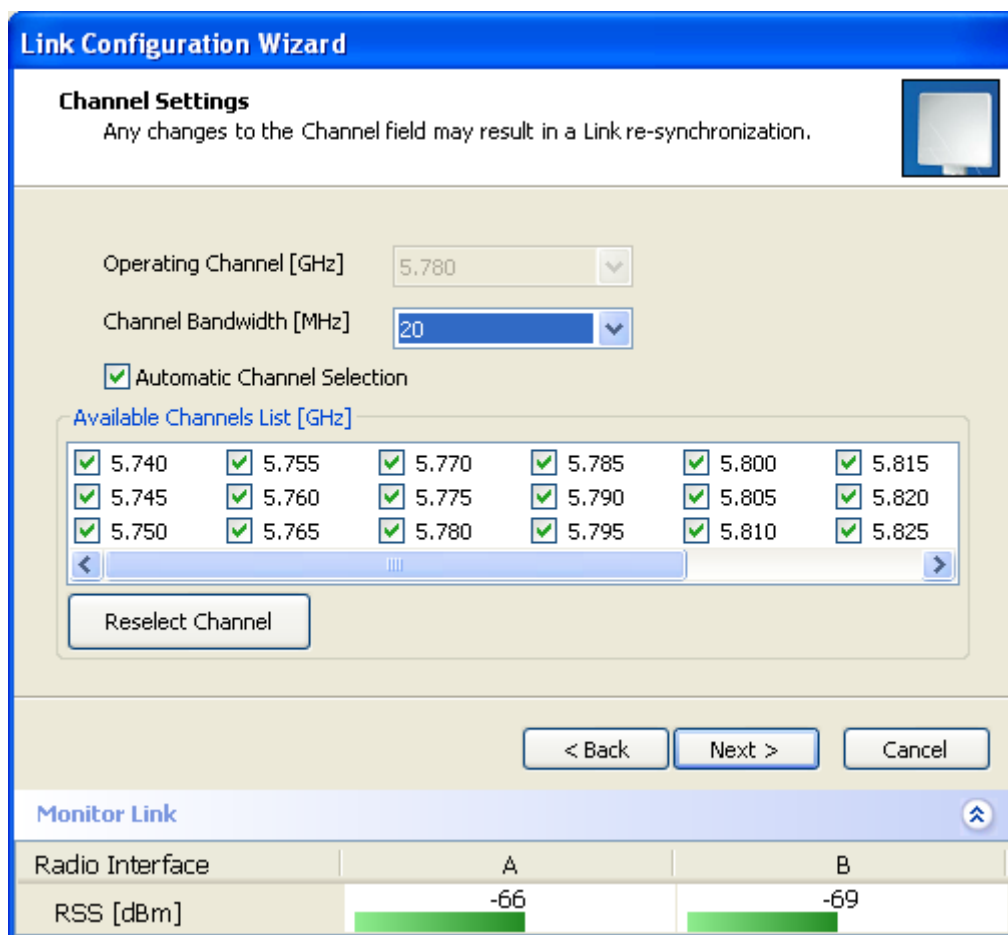
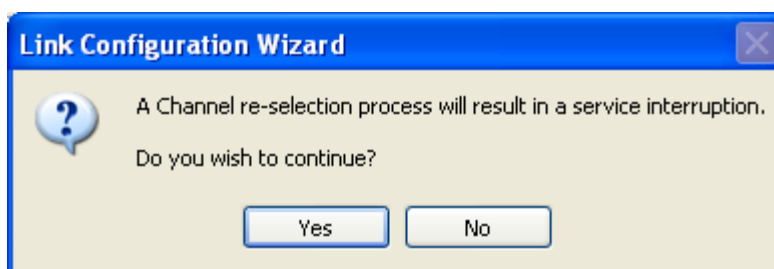


Figure 5-5: Channel Settings dialog box - Automatic Channel Selection

Notice that the operating channel is grayed out. If you use the **Reselect Channel** button, to change it, you will be asked for confirmation:



If you accept, then the system will search for the best operating channel:

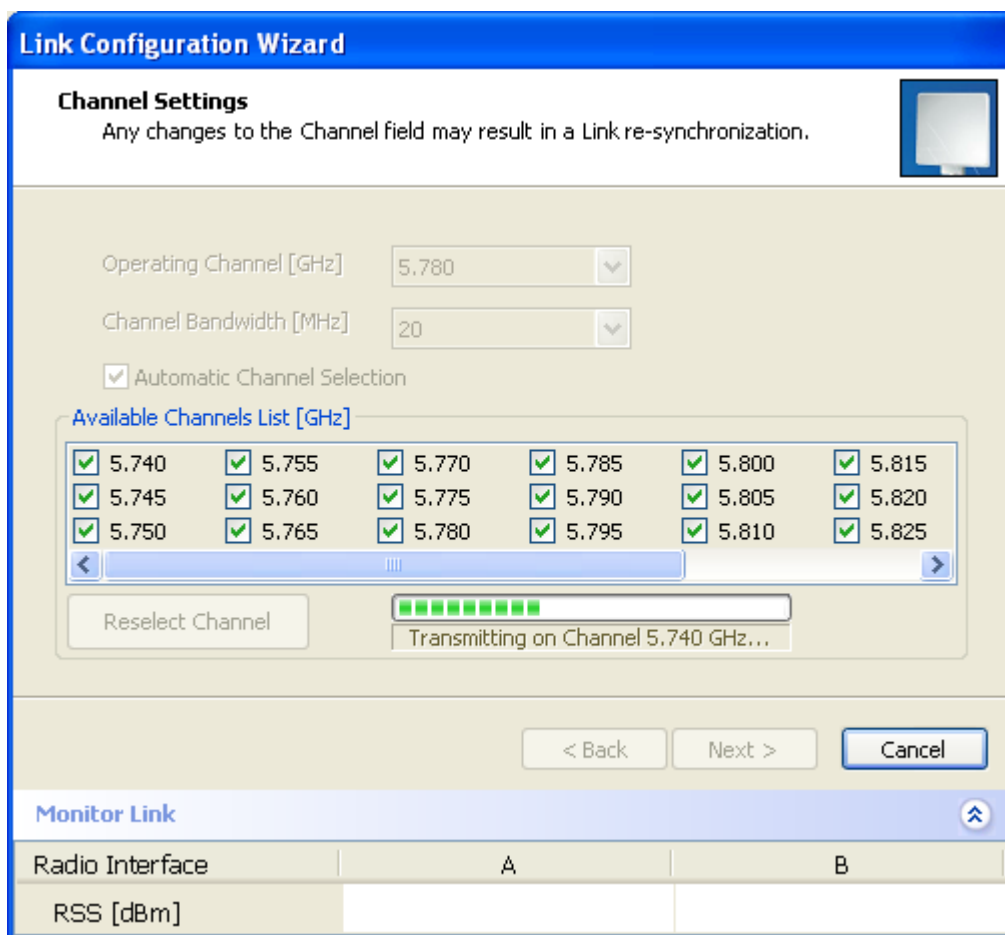


Figure 5-6: Searching for the best operating channel

The link will return to the status of [figure 5-5](#) above with a possible change to the operating channel.

If you work without automatic channel selection, the Channel Settings window looks like this:

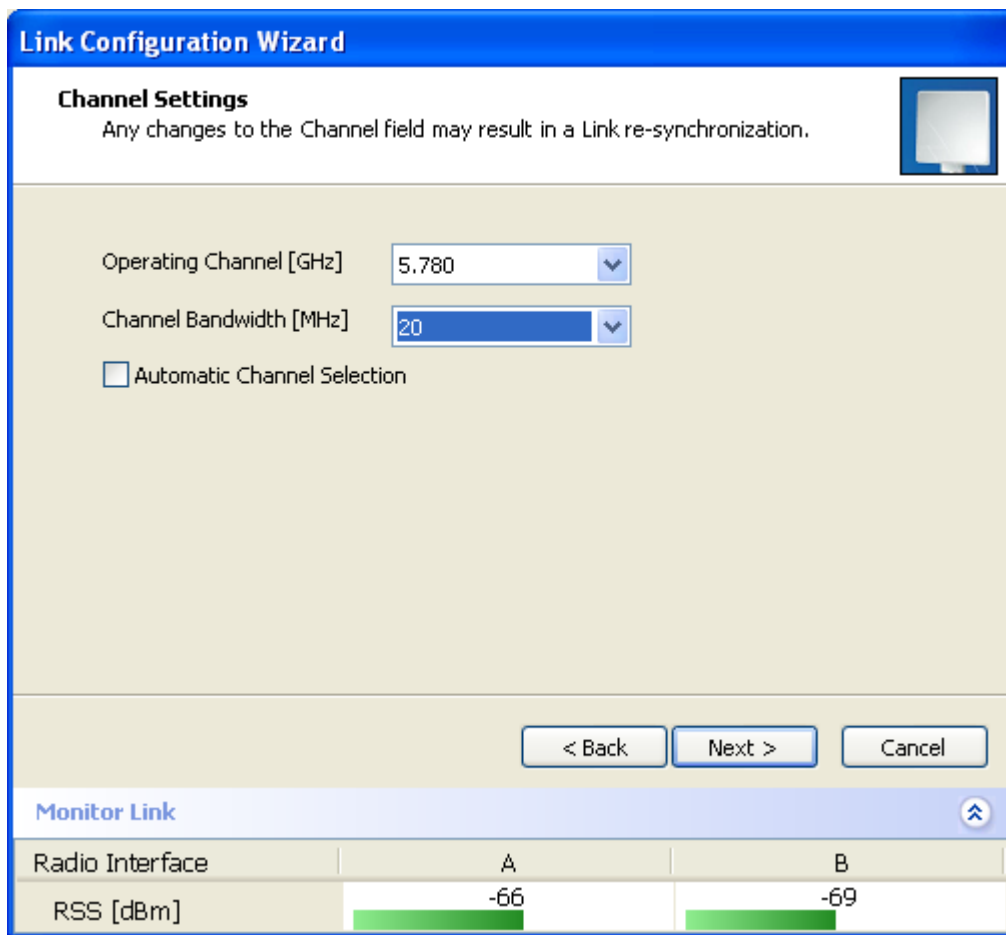


Figure 5-7: Channel Settings without automatic channel selection

If you click the Operating Channel drop-down list, the following window appears:

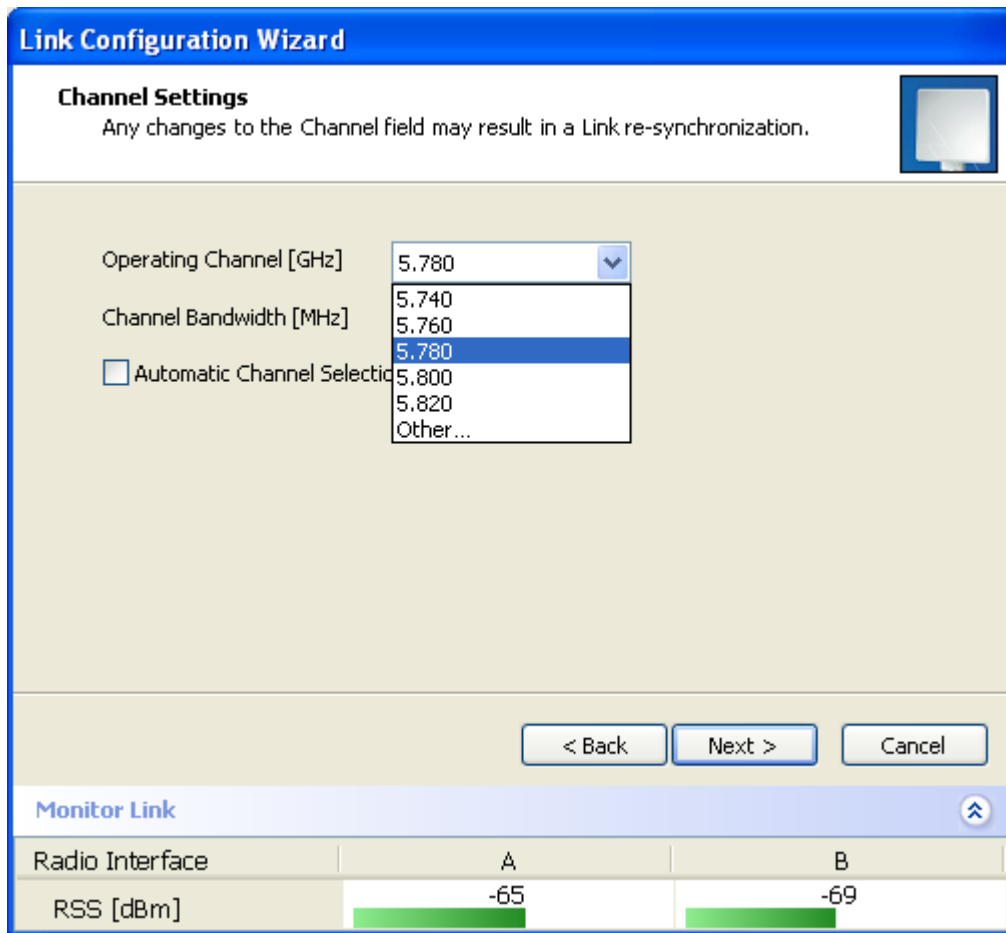


Figure 5-8: Channel frequency options

Selecting one of the frequencies presented returns you to the status of [figure 5-7](#) with the appropriate change. If you choose **Other...**, the following window opens:

Link Configuration Wizard

Channel Settings
Any changes to the Channel field may result in a Link re-synchronization.

Operating Channel [GHz] Other... 5.800

Channel Bandwidth [MHz] 20

Automatic Channel Selection

< Back Next > Cancel

Monitor Link

Radio Interface	A	B
RSS [dBm]	-65	-69

Figure 5-9: Choosing an "Other" Operating Channel frequency

The right hand drop-down list (showing 5.800) allows you to fine-tune the frequency in increments of ± 5 MHz within a range of 5.740 - 5.835 GHz.

When you have completed making your choice, click **Next** to continue.

Configuring the Link: Step 4, Tx Power and Antenna Settings

Link Configuration Wizard

Tx Power and Antenna parameters
Fill the Tx Power and Antenna fields of local and remote sites.

	A	B
Antenna Type	Dual	Dual
Antenna Gain [dBi]	28	28
Tx Power (per radio) [dBm]	10	10
Tx Power (system) [dBm]	13	13
EIRP [dBm]	41	41

Configure... Configure...

< Back Next > Cancel

Monitor Link

Radio Interface	A	B
RSS [dBm]	-66	-71

Figure 5-10: Transmission Power and Antenna Parameters

If you chose to configure either antenna, you are presented with the following window:

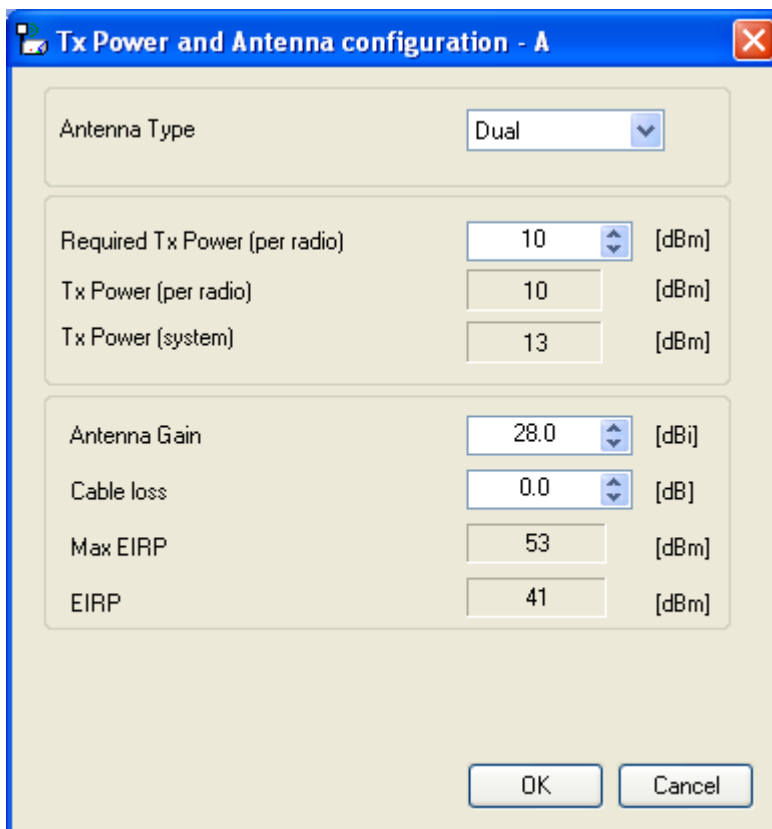
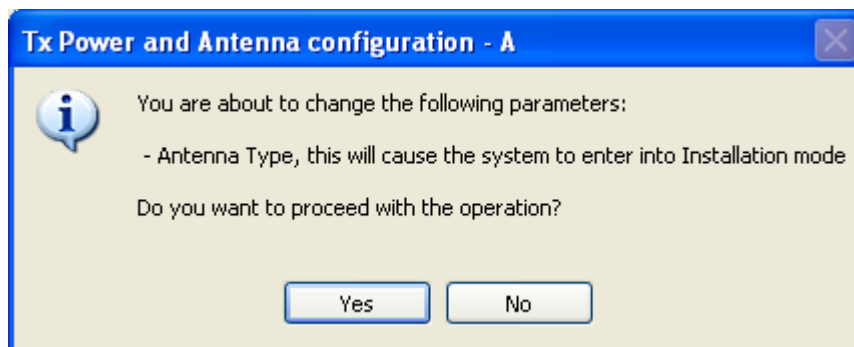


Figure 5-11: Antenna configuration dialog with opened type selection

So far, the procedure duplicates the corresponding Installation process on. If you choose a different antenna type and click **OK**, you will receive the following cautionary message:



In this context, entering Installation mode causes a service break until it is restored by running the Installation wizard.

If you are uncertain, do not do this without expert technical assistance.

You may also change the Required Tx Power, Antenna Gain and Cable Loss. The procedure is the same as that set out in the Installation procedure on [page 4-23](#).

When you have completed making your choice, proceed to the Services window.

Configuring the Link: Step 5, Services

Here is the services dialog:

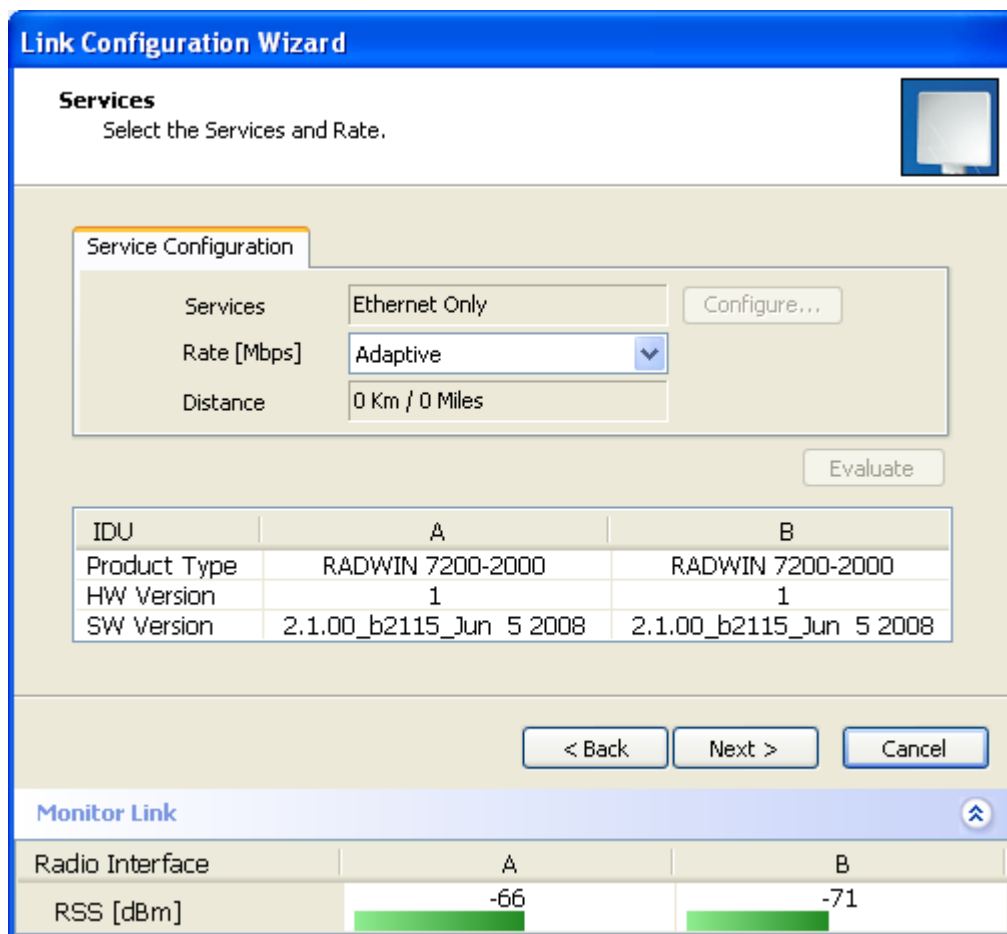


Figure 5-12: Services and Rates dialog

To choose Services, see the corresponding Installation procedure on [page 5-20](#).

Click **Next** to continue.

Configuring the Link: Step 6, Configuration Summary and Exit

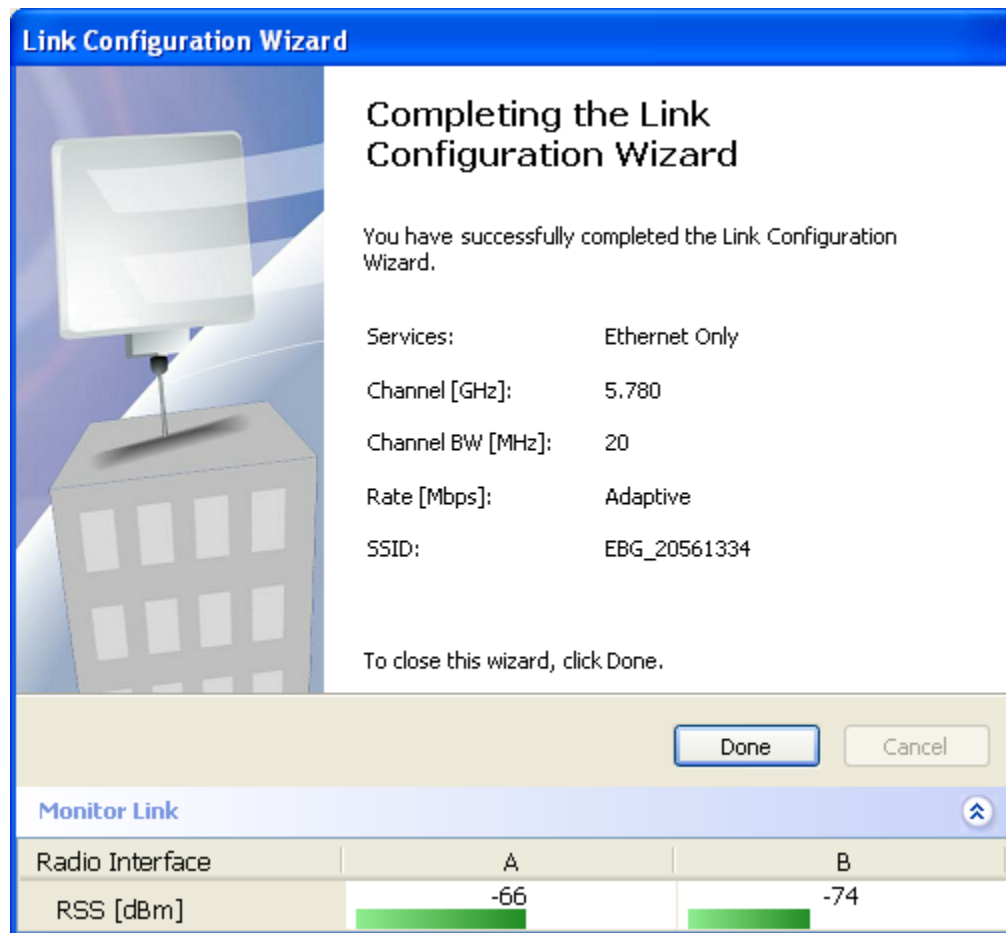


Figure 5-13: Configuration Wizard Exit Summary

Click **Done** to return to the main window.

The main window now reflects the configuration:

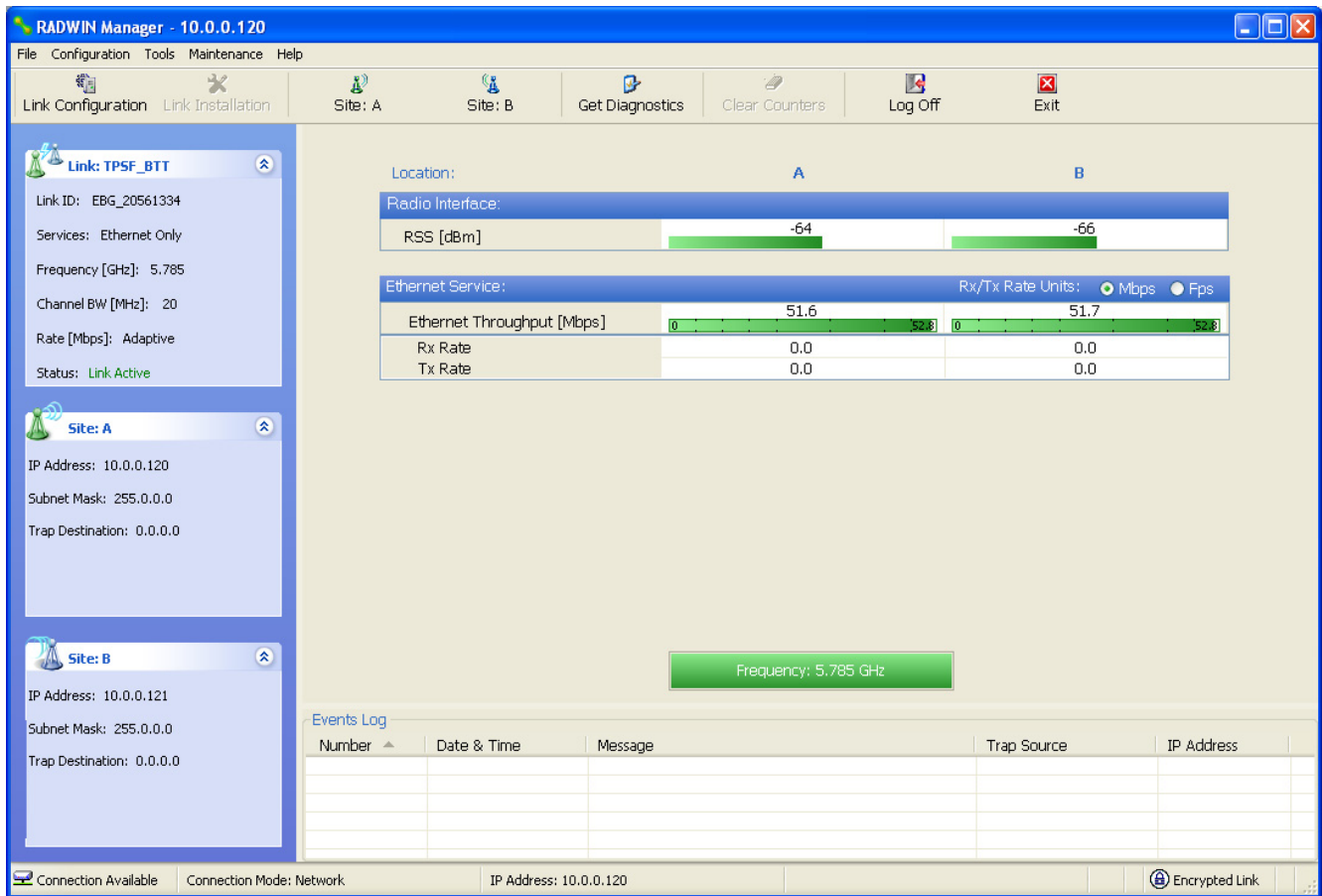


Figure 5-14: Main window of the manager after configuration