

1.1 Preface

This Quick Installation Guide provides instructions and reference material for getting started with the DLM-3500. The Guide will illustrate how to install the DLM-3500 and configure its basic settings.

1.2 Package Contents

- DLM-3500 x 1
- CD-ROM x 1
- Quick Installation Guide x 1
- Console Cable x 1
- Ethernet Cable (Crossover) x 1
- Switching US Power Adapter x 1
- Power Translator (for EU/UK/AU only) x 1

1.3 System Overview

1.3.1 Hardware Introduction

Front Panel



LED's:

1. **WAN1/WAN2/WAN3/WAN4:** OFF indicates the line is not connected, and ON indicates the line is connected.
2. **LAN:** OFF indicates the line is not connected, and ON indicates the line is connected.
3. **Power:** ON indicates that power is on and OFF indicates that power is off.

Rear Panel



DC-IN: The power cord attaches here.

LAN: The LAN port is connected to internal private network for users access Internet. Default LAN port IP is 192.168.0.1. By connecting to LAN port, user could access the web management interface to configure DLM-3500.

WAN1/WAN2/WAN3/WAN4: The four WAN ports are connected to a network which is not managed by the DLM-3500 system, and this port can be used to connect the ATU-Router of ADSL, the port of Cable Modem, or the Switch or Hub on the LAN of a company. Default WAN1/WAN2/WAN3/WAN4 port IPs are 192.168.1.1, 192.168.2.1, 192.168.3.1 and 192.168.4.1 respectively. Example in next chapter leads you to configure WAN ports to correspond to your network environment.

Console Port: The system can be configured via HyperTerminal. The terminal's configuration must be 9600bps, 8, N, 1, flow control - none.

1.3.2 Hardware Installation

1. Connect the power cord to the power socket on the rear panel. The Power LED will light up.
2. Connect an Ethernet cable to the WAN1 Port on the rear panel. Connect the other end of the Ethernet cable to the WAN connection of Internet.
3. Connect an cross-over Ethernet cable to LAN Port on the rear panel. The **LAN** port is referred to as **Private LAN** and the administrator can enter the web management interface to perform configurations via this **Private LAN**. Connect the other end of the Ethernet cable to a client's PC.

Attention: Usually, a straight RJ-45 can be applied if the DLM-3500 is connected to a hub/computer which supports automatic crossover.

2. Getting Started

While getting started with DLM-3500, you may encounter with complicated settings which may hinder your progress. This chapter serves to explain the basic functionalities of DLM-3500 and how to operate and configure the system. It will also cover related subjects in network structures and hardware installation which will help you during your setup of DLM-3500.

2.1 Preparation

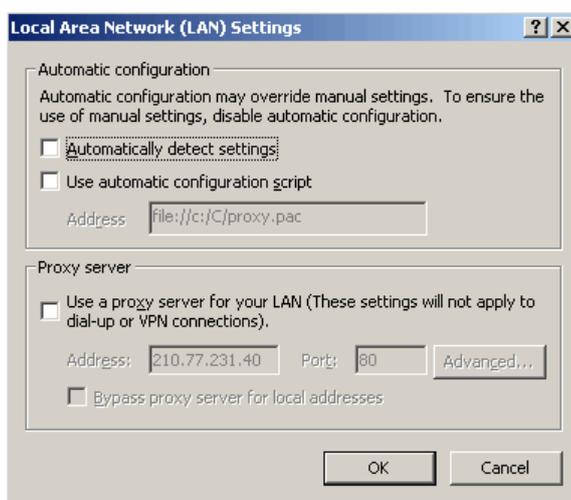
Before you get started, there are few things you need to know:

1. The position of the DLM-3500 LAN Port: It has five network interfaces and the last port is LAN Port which is marked on the machine.
2. The default IP address for LAN interface is 192.168.0.1
3. Your IP addresses for computers in the LAN should be changed to 192.168.0.2 (or 192.168.0.x) and subnet mask 255.255.255.0 in order to avoid conflicts with the default LAN port.
4. Check your network environment carefully before installing DLM-3500. A well-designed network environment with the necessary information such as your network structure, IP addresses, and network segments information will help you complete the setup of DLM-3500 parameters.
5. DLM-3500 uses a web-based management user interface (Web-based UI). Due to internal design constraints, you have to use Microsoft Internet Explorer 6.0 (IE 6.0), or higher to access the Web-based UI. A screen resolution of 800x600 or higher is recommended.

2.2 Access to the Web-based UI

The Web-based UI enables you to easily perform every configuration task. Follow the steps below to access the Web-based UI.

1. Connect your PC Ethernet LAN interface to LAN port of DLM-3500 with a cross-over cable, which is in standard packing. The default management LAN port of DLM-3500 is LAN port.
2. After powering on DLM-3500, the LED of LAN port will turn on. This indicates that it is on-line.
3. Check that the proxy setting of your IE browser is turned off, no proxy server is required in order to access DLM-3500's Web-based UI. Open IE, select **Internet Option** on the menu bar of **Tools**, click the **Connection** tab, and then click **LAN settings** to open **Local Area Network Settings** dialog box, under **Proxy server**, make sure proxy server is not selected.



4. In the URL field of IE, type in <http://192.168.0.1> to access the Web-based UI.
6. DLM-3500 provides two types of user accounts:
 - **admin** – Has privileges to monitor and modify system parameters.
 - **monitor** – Has privileges to monitor only.

DLM-3500 allows up to 1 administrator and 1 monitor to access concurrently.

Default password for admin and monitor are “admin” and “monitor”, respectively. We strongly recommend you to modify the passwords at the first time you log into the web-based UI.

2.3 DLM-3500 Web-based UI Overview

After logged in, you will be able to start configuring or monitoring DLM-3500 through the Web-based UI.

In order to help you to familiar with the basic operations, the explanations are as follows:

The Web-based UI tasks are grouped into four categories. The categories are located at the upper left-hand corner of Web-based UI task bar. The four categories are:

- **System**
- **Network**
- **Service**
- **Log**

On the first stage, you can login as Administrator in the Web-based UI and modify the Administrator or Monitor password by performing the following: (1) Click **System** and select **Administration** on task bar, (2) enter your new admin password or monitor password, after the system confirmation, using the new password next time you log in.

Password Recovery

If you forget your administrator password, use a Terminal (VT-100 compatible) to establish the connection between PC RS-232 series port and DLM-3500 Console interface, execute system reset to default.

Before you log into serial console, please complete following setting: Bits per second: 9600, Data bits: 8, Parity: None, Stop bits: 8, Flow control: None. The serial console and Web-based UI use the same username and password pairs. By default, the password of "admin" is "admin", and the password of "monitor" is "monitor". If the password is changed via the Web-based UI, it will also be changed in the serial console. In case you lose your password, you can use the username "reset" and password "DLM-3500_dlink" to log into serial console and reset the system to default.

Open the IE browser to access the Web-based UI

Please Note: Please remember the changed password; otherwise it is not possible to access the DLM-3500 management interface.

2.4 Quick Set up a basic network with DLM-3500

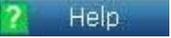
This section describes the operations and arrangement of Web Based UI, the following figure displays the operating menu of DLM-3500 Web-based UI system.

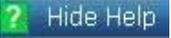


2.4.1 DLM-3500 Operating Menu

The task bar of operating menu contains four categories, which are **System**, **Network**, **Service**, **Log**, each category has these own menu. Select the “**Logout**” from up right corner to exit the system. **Apply**, **Help/Hide Help** buttons are displayed on the operating menu, the functions are as described below:

 **Apply** After modifying the parameters of specific menu page, click this button to save your changes to memory, the old settings will also be saved.

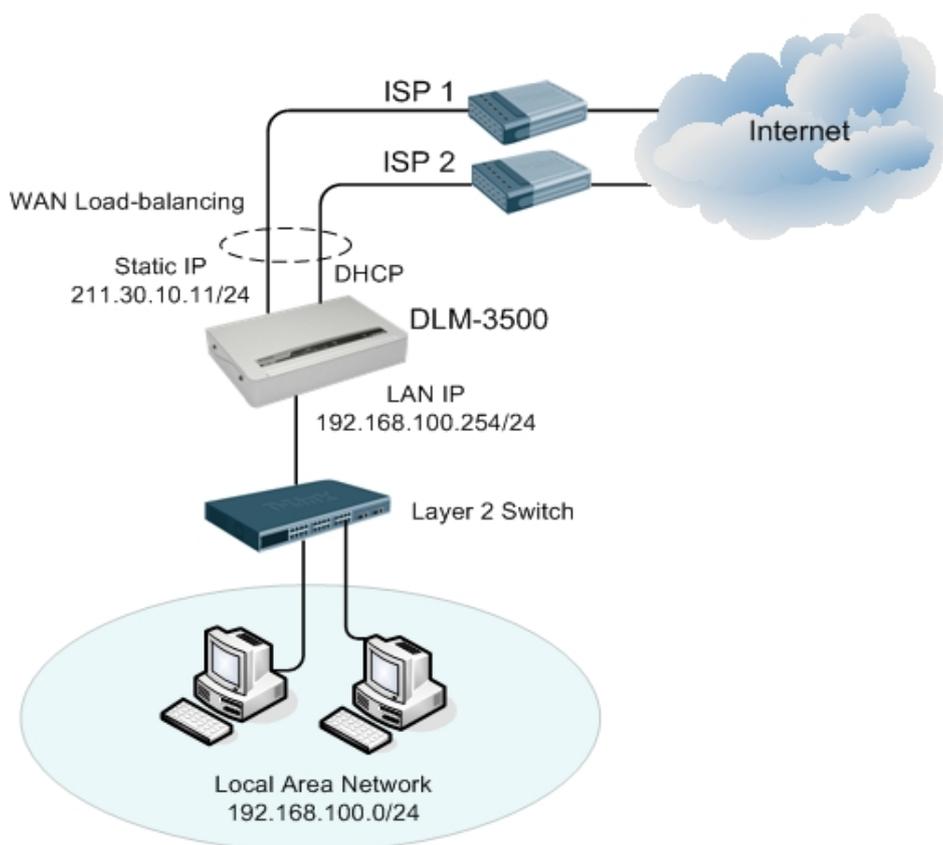
 **Help** Click the Help button to display the on-line help of the current page, the on-line help information will automatically swap when you change the function page or language.

 **Hide Help** Click Hide Help to hide the on-line help information.

Please Note: The Apply button here is active only on certain pages, any parameters modified without click Apply will not be saved to the memory. Remember to click Apply when you are ready to move to the next page menu or logout.

2.4.2 Network Scenario

In this section, we will walk you through a simple example to configure DLM-3500 step by step. The network architecture in this example is illustrated as below. DLM-3500 is running outbound load-balancing on WAN 1 and WAN 2 interface with two last mile connection from ISP 1 and ISP 2. WAN 1 uses static IP address assigned by ISP 1 and ISP 2 will use automatically IP address assigned by ISP 2.



2.4.3 Configuring Your WAN Interface

Click on the **[Network] -> [WAN Setting]** in menu, you will see the page for WAN setting. Before configuring your WAN setting, make sure you know the **gateway, public IPs** from your ISP. Information like this should have been given to you when first applied for a WAN connection with your ISP. They are essential to make your WAN connection work properly.



After you see the **[WAN Setting]** page, the procedure for configuring WAN settings is listed below:

1. Select the number of WAN links you want to configure. If you have multiple links, you can only edit one WAN link at a time.



2. In the **[Basic Setting]** table, tick the checkbox next to **“Enable”** to activate the WAN link.
3. Select your **WAN mode** in the second field. Several options are available in this dropdown list. The WAN type depends on how your ISP allocates the WAN link to you. In this example, we assume you are given a single public IP from your ISP, so you need to configure your WAN mode as **“Standard”**.
4. In the third and fourth field, fill in your **upstream** and **downstream** bandwidth limits of your WAN link.
5. In the fifth field, you can set it manually or system can get it automatically.
5. In this example, we assume you have a healthy WAN and stop monitoring ICMP and TCP packets, so we configure it as **“Never”**. **(For further information about “WAN Link Health Detection”, please refer to the User’s Manual)**
6. Fill in your **IP Address to WAN1** of DLM-3500 in the ninth field. In this example, it is 211.30.10.11
7. Fill in the **gateway’s IP address** in the tenth field. In this example, it is 211.30.10.9.
8. Fill in the **subnet mask** in the eleventh field. In this example, it is 255.255.255.0.

WAN No. WAN 1

Basic Setting	
Enable	<input checked="" type="checkbox"/>
Mode	Standard
Downstream Bandwidth	512 Kbps
Upstream Bandwidth	512 Kbps
Speed/Duplex	Auto
Port Status	100Mbps/Full Duplex
MAC Address	00:00:99:99:77:35
Wan Link Health Detection	Never
Address	<input type="button" value="+"/>
	<input type="button" value="+"/> <input type="button" value="-"/> <input type="button" value="↑"/> <input type="button" value="↓"/> 211.30.10.11
Gateway	211.30.10.9
Subnet Mask	255.255.255.0
IP(s) in DMZ	<input type="button" value="+"/>
	<input type="button" value="+"/> IP Range

10. Select “WAN 2” in the first field [WAN No.] and tick the checkbox next to “Enable” to activate the WAN link.
11. Select your WAN mode in the second field. In this example, we assume you are given a IP from a DHCP server, so you need to configure your WAN mode as “DHCP”.
12. Fill in your upstream and downstream bandwidth limits of WAN link 2.
13. Config [Speed/Duplex] as “Auto” and [Wan Link Health Detection] as “Never”. (we assumes you have a healthy WAN and stop monitoring ICMP and TCP packets)

WAN No. WAN 2

Basic Setting	
Enable	<input checked="" type="checkbox"/>
Mode	DHCP
Downstream Bandwidth	512 Kbps
Upstream Bandwidth	512 Kbps
Speed/Duplex	Auto
Port Status	Broken
MAC Address	00:00:99:99:77:36
Wan Link Health Detection	Never
Clone MAC	<input type="checkbox"/>

14. Press **[Apply]** to update all the parameters you have just entered.

2.4.4 Configuring Your LAN Interface

The screenshot shows the D-Link DLM-3500 WAN Link Manager interface. The left sidebar contains a tree view with 'Network' expanded to 'LAN Setting'. The main content area displays the 'Basic Subnet' configuration table and a 'Static Routing Subnet' table.

Basic Subnet	
Address	192.168.0.1
Netmask	255.255.255.0
Port Setting	Auto
Port Status	Broken
MAC Address	00:00:99:99:77:33
RIP	<input type="checkbox"/>

Static Routing Subnet			
	Subnet	Subnet Mask	Gateway
<input type="button" value="+"/>			

Default LAN port IP of DLM-3500 is 192.168.0.1. You can see the default configuration of LAN port at **[Network] -> [LAN Setting]**. According to your current LAN environment, you can configure the LAN setting of DLM-3500. The procedure is listed as below:

1. Fill in the LAN port IP in the first field of **[Basic Subnet]** table. In this example, it is 192.168.100.254.

2. Fill in the netmask in the second field. In this example, it is 255.255.255.0.
3. In the third field, you can set it manually or system can get it automatically.
4. Press **[Apply]** to update all the parameters you have just entered.
5. We assume you connect DLM-3500 directly to access the web management interface by a certain IP 192.168.0.X. After applying new LAN setting, you could not access the web management interface since the different subnet. You should re-access it using IP such as 192.168.100.X. The IP of DLM-3500 web management interface now is 192.168.100.254.

Basic Subnet	
Address	192.168.100.254
Netmask	255.255.255.0
Port Setting	Auto
Port Status	Broken
MAC Address	00:00:99:99:77:33

RIP

Static Routing Subnet			
	Subnet	Subnet Mask	Gateway
<input type="checkbox"/>			

2.4.5 DHCP Settings

DHCP server may be enabled at **Network -> DHCP setting**.

1. Fill in the Lease Time in seconds for DHCP client. In this example, it is 36000.
2. Fill in the Default Gateway that the DHCP clients will use. In this example, it default gateway is the LAN port of DLM-3500.
3. Fill in the Subnet Mask that the DHCP clients will use.
4. Fill in the Domain Name that the DHCP clients will use, this field is optional.
5. Fill in the DNS Server's IP address that DHCP clients will use in the **[DNS Server]** filed. Please note that the DNS server must be set properly to LAN user to go to Internet successfully.
6. Administrator can specify the DHCP pool range that the DHCP clients will use by filling the **Dynamic Range Start** and **Dynamic Range End** field.



7. Press **[Apply]** to update all the parameters you have just entered.

2.4.6 WAN Out Load Balancing Configuration



The following configuration is about load balancing with two wan links. In this example, algorithm “Run Robin” is employed to do load balancing with WAN 1 and WAN 2. Click on the **[Service] -> [Auto Routing]** in menu, you could see the **[Auto Routing]** page and the procedure for configuration is listed below:

1. Click button to create new configuration.

Auto Routing			
	When	Source	Destination
<input type="checkbox"/>	All-Time	Any	WAN
<input type="checkbox"/>	All-Time	Any	WAN

2. Configuration of filter includes “When”, “Source”, “Destination” and “Service”. In this example, we configure [When] as “All-Time”, [Source] as “Any”, [Destination] as “WAN” and [Service] as “Any”.

Auto Routing			
When	Source	Destination	Service
All-Time	Any	WAN	Any
All-Time	Any	WAN	Any

3. In [Routing Policy] field, it includes two sub-fields [Algorithm] and [Parameter]. In this example, we do load balancing with WAN 1 and WAN 2 in algorithm “Run Robin”. So we configure [Algorithm] as “By Weight”, then set weight of WAN 1 and WAN 2 as “1” in [Parameter].

Routing Policy		Fail-Over Policy		Log																
Algorithm	Parameter	Algorithm	Parameter																	
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4. Press [Apply] to update all the parameters you have just entered.

So far, we have only mentioned the basic operations of the Web-based UI and how to basically integrate DLM-3500 into your present network environment with simple outbound WAN Load-balancing.

For further information, please refer to the User’s Manual of DLM-3500