



# **36 Port InfiniBand QDR Switch Platform Installation Guide**

PNs: MIS5025, MIS5030, MIS5031, MIS5035

Rev 1.5

## NOTE:

THIS HARDWARE, SOFTWARE OR TEST SUITE PRODUCT (“PRODUCT(S)”) AND ITS RELATED DOCUMENTATION ARE PROVIDED BY MELLANOX TECHNOLOGIES “AS-IS” WITH ALL FAULTS OF ANY KIND AND SOLELY FOR THE PURPOSE OF AIDING THE CUSTOMER IN TESTING APPLICATIONS THAT USE THE PRODUCTS IN DESIGNATED SOLUTIONS. THE CUSTOMER’S MANUFACTURING TEST ENVIRONMENT HAS NOT MET THE STANDARDS SET BY MELLANOX TECHNOLOGIES TO FULLY QUALIFY THE PRODUCT(S) AND/OR THE SYSTEM USING IT. THEREFORE, MELLANOX TECHNOLOGIES CANNOT AND DOES NOT GUARANTEE OR WARRANT THAT THE PRODUCTS WILL OPERATE WITH THE HIGHEST QUALITY. ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT ARE DISCLAIMED. IN NO EVENT SHALL MELLANOX BE LIABLE TO CUSTOMER OR ANY THIRD PARTIES FOR ANY DIRECT, INDIRECT, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES OF ANY KIND (INCLUDING, BUT NOT LIMITED TO, PAYMENT FOR PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY FROM THE USE OF THE PRODUCT(S) AND RELATED DOCUMENTATION EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.



Mellanox Technologies  
350 Oakmead Parkway Suite 100  
Sunnyvale, CA 94085  
U.S.A.  
[www.mellanox.com](http://www.mellanox.com)  
Tel: (408) 970-3400  
Fax: (408) 970-3403

Mellanox Technologies, Ltd.  
PO Box 586 Hermon Building  
Yokneam 20692  
Israel  
Tel: +972-4-909-7200  
Fax: +972-4-959-3245

© Copyright 2011. Mellanox Technologies. All rights reserved.

Mellanox®, BridgeX®, ConnectX®, InfiniBlast®, InfiniBridge®, InfiniHost®, InfiniRISC®, InfiniScale®, InfiniPCI®, PhyX® and Virtual Protocol Interconnect® are registered trademarks of Mellanox Technologies, Ltd. CORE-Direct and FabricIT are trademarks of Mellanox Technologies, Ltd. All other marks and names mentioned herein may be trademarks of their respective companies.

36 Port InfiniBand QDR Switch Platform Installation Guide

# Table of Contents

|  |          |
|--|----------|
| <b>Table of Contents</b>                       | <b>3</b> |
| <b>List of Figures</b>                         | <b>4</b> |
| <b>List of Tables</b>                          | <b>5</b> |
| <b>About this Manual</b>                       | <b>7</b> |
| Intended Audience                              | 7        |
| Related Documentation                          | 7        |
| Document Conventions                           | 7        |
| Internally Managed vs. Externally Managed      | 9        |
| Installing the Switch in the Rack              | 10       |
| Minimum and Maximum Rack Depth for this Switch | 11       |
| Installing the Switch in the Rack              | 11       |
| Grounding the Switch                           | 17       |
| Configuring the Switch for the First Time      | 17       |
| Unified Fabric Manager (UFM)                   | 24       |
| FabricIT                                       | 24       |
| Starting an SSH Connection to the Switch       | 26       |
| Starting a WebUI Connection to the Switch      | 26       |
| Resetting the Switch                           | 27       |

## List of Figures

|            |  |    |
|------------|--|----|
| Figure 1:  | Rack Rail Kit Parts MIS00083/85                    | 12 |
| Figure 2:  | Rack Rail Kit Parts MIS000079                      | 13 |
| Figure 3:  | Which Side of the Rack Do You Want the Connectors? | 13 |
| Figure 4:  | Which Side of the Rack Do You Want the Connectors? | 14 |
| Figure 5:  | Making Room for the Power Cord                     | 15 |
| Figure 6:  | Screwing on the Bracket                            | 15 |
| Figure 7:  | Screwing on the Rail                               | 16 |
| Figure 8:  | Inserting the Caged Nuts                           | 16 |
| Figure 9:  | Connect Bracket to Rack Vertical support           | 16 |
| Figure 10: | Externally Managed Management Interface            | 17 |
| Figure 11: | License Key Entitlement Number                     | 25 |
| Figure 12: | License Key Generation Form                        | 25 |
| Figure 13: | Reset Button                                       | 27 |

# List of Tables

|          |  |    |
|----------|--|----|
| Table 1: | Revision History of this User's Manual                   | 6  |
| Table 2: | Reference Documents and Web Sites                        | 7  |
| Table 3: | Switch Management by OPN                                 | 9  |
| Table 4: | Switches and Rail Kits for Various Rack Depths           | 10 |
| Table 5: | Mellanox Part Numbering Legend                           | 10 |
| Table 6: | Serial Terminal Program Configuration                    | 18 |
| Table 7: | Configuration Wizard Session - IP Configuration by DHCP  | 19 |
| Table 8: | Configuration Wizard Session - IP Zeroconf Configuration | 21 |
| Table 9: | Configuration Wizard Session - Static IP Configuration   | 22 |

## Revision History

**Table 1 - Revision History of this User's Manual**

| Revision | Date       | Details  |
|----------|------------|--|
| 1.5      | May 2011   | Added section on UFM   |
| 1.4      | July 2010  | Added files to change this into a book. Added last page with barcode |
| 1.3      | June 2010  | Added "Getting the License Key"                                      |
| 1.2      | May 2010   | Added Note: ETH Ports Must be 10/100M                                |
| 1.1      | April 2010 | Minor formatting   |
| 1.0      | April 2010 | Initial Release  |

## About this Manual

This manual provides installation and set-up instructions for the IS50XX series QSFP top of rack InfiniBand Switch Platform.

### Intended Audience

This manual is intended for users and system administrators responsible for installing and setting up the switch platform.

The manual assumes familiarity with the InfiniBand<sup>®</sup> architecture specification.

### Related Documentation

The documentation set accompanying the QSFP Chassis InfiniBand Switch platform includes the following:

**Table 2 - Reference Documents and Web Sites**

|   |  |
|---|--|
| <i>Switch Firmware and Firmware Update Tools</i>                                      | See <a href="http://www.mellanox.com/content/pages.php?pg=management_tools&amp;menu_section=34">http://www.mellanox.com/content/pages.php?pg=management_tools&amp;menu_section=34</a><br><br>Note that the Switch System described in this manual is based on Mellanox Technologies' InfiniScale IV switch device. |
| <i>FabricIT<sup>™</sup> Enterprise Fabric Management (EFM) Software User's Manual</i> | Talk to your Mellanox representative for information regarding licensing and implementation of the FabricIT Enterprise Fabric Management Software System.<br>See   |

### Document Conventions

When discussing memory sizes, MB and MBytes are used in this document to mean size in mega bytes. The use of Mb or Mbits (small b) indicates size in mega bits.



This symbol indicates a recommendation.



This symbol indicates important information for the user and installer.



This symbol indicates a potential danger of damage to the hardware or software.



This symbol indicates a potential danger of injury to users and / or installers and potential damage to the hardware or software.



## Internally Managed vs. Externally Managed

The following table shows which switches come with a management CPU and which do not. Managed switches can be upgraded from simple chassis management to full fabric management by purchasing an additional license. For more information on buying a license see the user's manual.

Unmanaged switches are plug and play out of the box. All switches come with the latest firmware burned on the Flash. Update the firmware on unmanaged switches in-band only. When new firmware is available you will receive an email with the link to the Mellanox firmware download site. The download site has the Mellanox firmware tool package and full instructions for updating firmware.

All managed switches have internal chassis management. With the purchase of a license this management module can manage the IB fabric. See Table for details.

**Table 3 - Switch Management by OPN**

| Family | Managed / Unmanaged | Management Connections   |
|--------|---------------------|--|
| IS5025 | Unmanaged           | No Management  |
| IS5030 | Managed             | RS232 cable DB9 to RJ45 included in the box to connect to host PC for initial configuration of the switch. After initial configuration the switch can be managed through the Ethernet using a remote connection.<br>This switch is capable of Fabric management for an unlimited number of nodes, with the purchase of a Mellanox UFM. |
| IS5031 | Managed             | RS232 cable DB9 to RJ45 included in the box to connect to host PC for initial configuration of the switch. After initial configuration the switch can be managed through the Ethernet using a remote connection.<br>This switch is capable of Fabric management for an unlimited number of nodes, with the purchase of a Mellanox UFM. |
| IS5035 | Managed             | RS232 cable DB9 to RJ45 included in the box to connect to host PC for initial configuration of the switch. After initial configuration the switch can be managed through the Ethernet using a remote connection.<br>This switch is capable of Fabric management for an unlimited number of nodes, with the purchase of a Mellanox UFM. |

Should your unmanaged switch have CONSOLE, Ethernet, and USB connectors, they will not work. Only the I2C connector will work on unmanaged switches.

**Table 4 - Switches and Rail Kits for Various Rack Depths**

| Switch S(Standard)/ B (Short) | Rack Size    | Rail Kit # |
|-------------------------------|--------------|------------|
| Short                         | 50cm to 80cm | MIS000083  |
| Short                         | 38cm to 50cm | MIS000079  |
| Standard                      | 50cm to 80cm | MIS000085  |

**Table 5 - Mellanox Part Numbering Legend**

| Place | Field                   | Decoder  |
|-------|-------------------------|--|
| IS    | System Type             | InfiniScale Switch   |
| 50    | Model                   | Family   |
| FF    | Form factor             | 25 = 36 Ports Unmanaged<br>30 = 36 Ports and Chassis Management with Fabric Management up to 108 nodes<br>31 = 18 ports upgradable to 36 ports Managed<br>35 = 36 ports with chassis management and Fabric Management up to 2000 nodes |
| C     | InfiniBand Port Config. | Q= QDR, D= DDR   |
|       | -                       | Separator  |
| P     | # of Power Supplies     | 0=0, 1=1, 2=2....  |
| M     | Depth of the Unit       | S = standard depth, B = short depth  |
| Y     | Air Flow direction      | R= Connector side to PSU side airflow<br>F= PSU side to Connector side airflow   |
| R     | RoHS                    | C=RoHS5, X=RoHS6   |

## Installing the Switch in the Rack

The procedure for installing the switch in a full rack while bringing the power cord across along side of the switch can be found in the Switch User manual.

The switch platform can be rack mounted and is designed for installation in a standard 19" rack. The power side of the switch includes a hot-swap power supply module, a blank cover for an optional second PSU for redundancy, and a hot-swap fan tray. There are two possible air flow directions. Be sure that the switch air flow direction is compatible with your system, rack, and

PSUs. The connector side of the switch has the QSFP ports, system LEDs, and management connection ports.

The switch platform contains auto-sensing 100 - 240 VAC connections for all possible PSUs.

The installer should use a rack capable of supporting the mechanical and environmental characteristics of a fully populated platform.



The rack mounting holes conform to the EIA-310 standard for 19-inch racks. Take precautions to guarantee proper ventilation in order to maintain good air-flow at ambient temperature. Cable routing in particular should not impede the air exhaust from the chassis.

## Minimum and Maximum Rack Depth for this Switch

This switch can be installed in any standard 19" racks with depths of 380mm to 900mm.

The short switch with the MIS000079 Rail kit can only go into a 19" rack whose vertical supports are between 380mm and 500mm apart.



To use the IS50XX in a rack deeper than 500mm, order the IS50XX with the standard depth, or order the MIS000083 rail kit. The both of these solutions will allow you to install the switch in a 19" rack whose vertical supports are between 500mm and 800mm apart.

The standard depth switch uses the MIS000085 rail kit for installation in a 19" rack whose vertical supports are between 500mm and 800mm apart.

## Installing the Switch in the Rack

### Tools and Customer Supplied Parts

- Phillips Screwdrivers #1 and #2
- ESD strap
- ESD mat
- grounding screw
- grounding wire sufficient to reach a valid ground.

Make sure that the Rail kit is compatible with your rack.

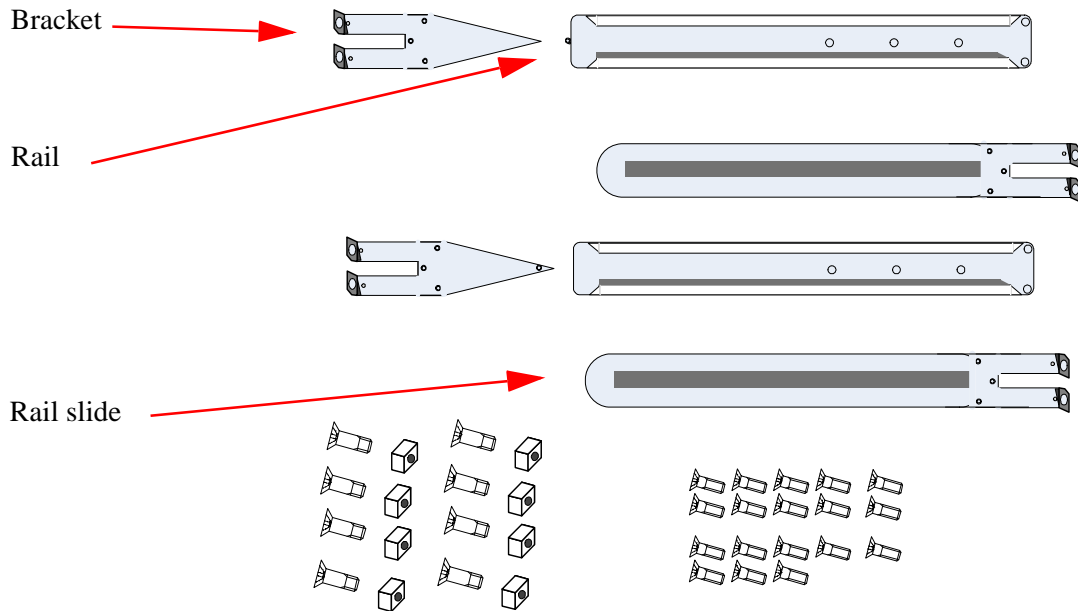
For short depth switches, rail kit # MIS00083 is to be used for racks from 50cm to 80cm deep, and rail kit # MIS00079 is to be used for racks from 38cm to 50cm deep including the iDataPlex rack.

For standard depth switches rail kit # MIS00085 is to be used for racks from 60cm to 80cm deep.

## Tools and Customer Supplied Parts

- Phillips Screwdrivers #1 and #2
- ESD strap
- ESD mat
- grounding screw
- grounding wire sufficient to reach a valid ground.

**Figure 1: Rack Rail Kit Parts MIS00083/85**



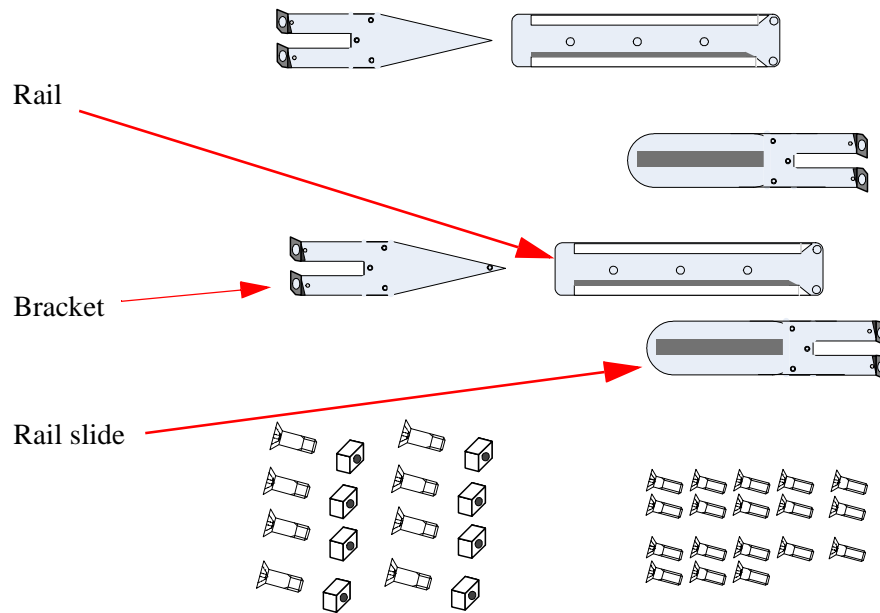
Make sure that the Rail kit is compatible with your rack.

For short depth switches, rail kit # MIS00083 is to be used for racks from 50cm to 80cm deep, and rail kit # MIS00079 is to be used for racks from 38cm to 50cm deep including the iDataPlex rack.

For standard depth switches rail kit # MIS00085 is to be used for racks from 60cm to 80cm deep.

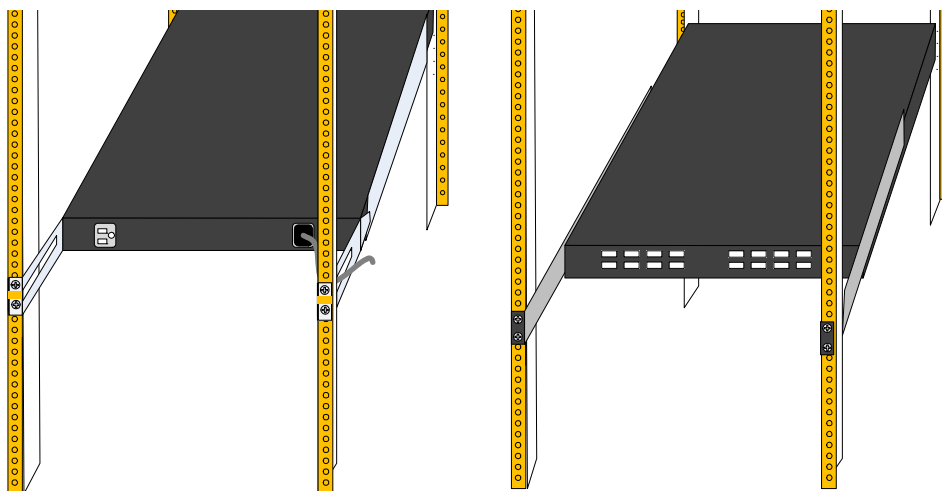
### Parts included in the rail kit:

- 2 rails
- 2 rail slides
- 2 brackets
- 18 recessed flat head screws
- 8 caged nuts
- 8 pan head screws M6

**Figure 2: Rack Rail Kit Parts MIS000079**

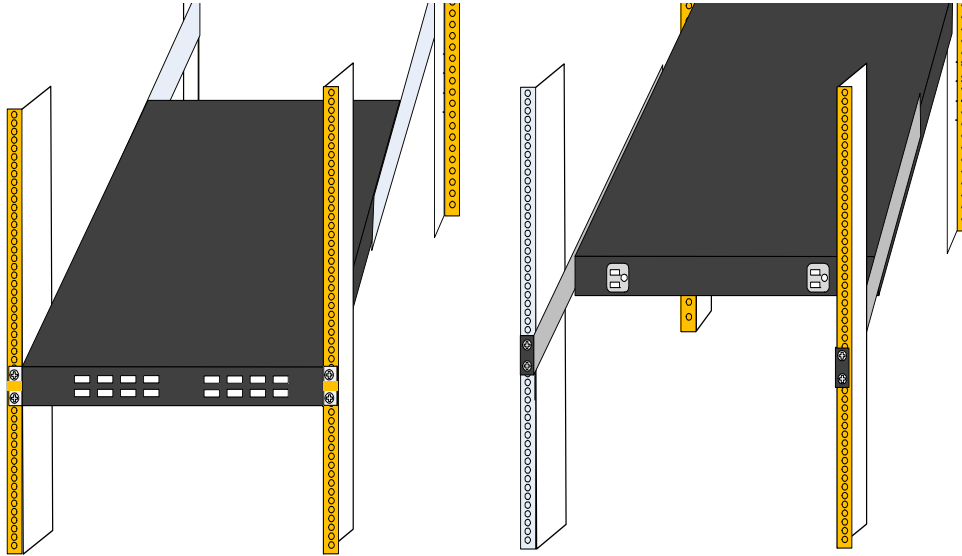
1. Place the ESD mat on the floor where you will be working and put on the ESD strap. Make sure the ESD strap is touching your skin and that the other end is connected to a verified ground.
2. Choose which side of the switch you want even with the rack vertical support. Either the side with the power supply units or the side with the IB connectors can be even with one of the vertical rack supports.

Things to consider before choosing where to mount the rails and rail slides.

**Figure 3: Which Side of the Rack Do You Want the Connectors?**

The figure above shows the power side next to the door and the connector side away from the door. This configuration has more room for the cables and a larger bending radius.

**Figure 4: Which Side of the Rack Do You Want the Connectors?**



The figure below shows the connector side next to the door and the power side away from the door. This configuration may be necessary to conform to your rack configuration.

The distance between the rack and the door can be as little as 4 cm on one side of the rack and as much as 18 cm on the other side of the rack. Keep in mind that there can be as many as 36 cables connected to the switch.



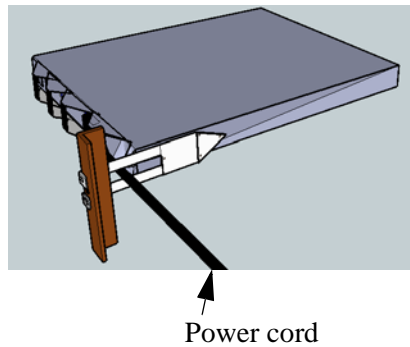
- Do you want the connector side recessed in the rack to allow for a larger cable bending radius?
  - Will the connector side be recessed past other equipment in the rack and will this be problematic?
3. Screw the brackets onto the switch. Use the flat head screws to connect the bracket. There are two options for mounting the bracket. One option will place the switch even with the vertical support of the rack and the second option will recess the switch further into the rack. If

you are using the second option insert the power cable before screwing the bracket to the vertical support.



If you need to bring the Power cord from the other side of the rack, recess the switch and run the Power cord through the bracket, also using the slot in the rail slide. See the user manual for detailed instructions on routing the power cord from the power side to the connector side.

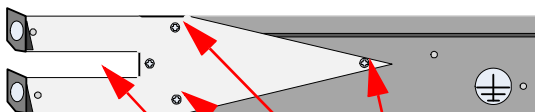
**Figure 5: Making Room for the Power Cord**



**Figure 6: Screwing on the Bracket**

In this position the front of the switch is ~5cm behind the rack vertical support

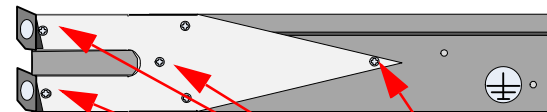
In this position the front of the switch is even with the rack vertical support



Place to put the power cable.

In this position you will use 3 flat head screws

This configuration also allows you to put the power cord through the bracket.

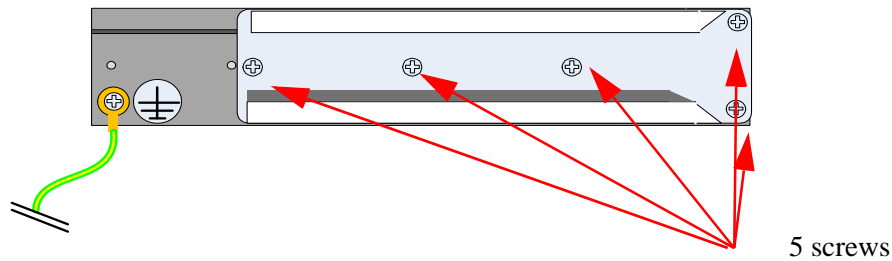


In this position you will use 4 flat head screws

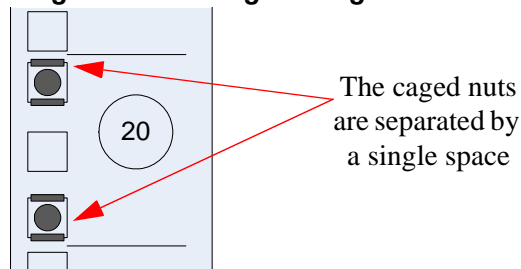


The side of the switch with these brackets will be the side that is even with or very close to the vertical rack support.

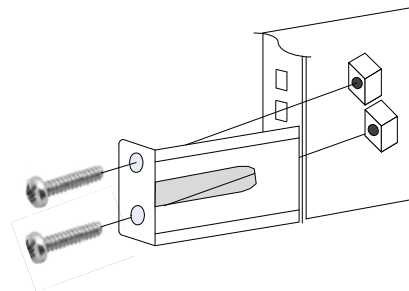
4. Screw the rails onto the switch. Use 5 flat head screws to connect each rail to the switch.

**Figure 7: Screwing on the Rail**

- Clip the 4 caged nuts into the holes in the rack you will be using to connect the rail slides. Check that both sides of the switch, left and right, are the same level in the rack.

**Figure 8: Inserting the Caged Nuts**

- Clip 4 more caged nuts into the holes in the rack you will be using to connect the brackets. Check that both sides of the switch, power side and connector side, are at the same level in the rack.
- Using two of the bolts for each rail slide, install the rail slides.
- Tighten the bolts to 9.2 Nm or 81.5 pound inches. If the power cable is on this side of the switch, feed the power cable into the slot in the rail slide before screwing it to the vertical support.

**Figure 9: Connect Bracket to Rack Vertical support**

- Place the four bolts for the caged nuts within reach.
- Slide the switch into the rails.
- Put the switch into place and screw the bolts into the nuts from step 6. If the power cable is on this side of the switch, feed the power cable into the slot in the bracket before screwing it to the vertical support. Tighten the bolts to 9.2 Nm or 81.5 pound inches.
- Tighten all of the screws to 9.2 Nm or 81.5 pound inches.



13. Ground the switch
14. Plug in the power cables.
15. Check the Status LEDs and confirm that all of the LEDs show status lights consistent with normal operation.



Warning: Any yellow status LEDs is cause for concern and must be dealt with immediately.

It can take up to 3 minutes to boot up, during which time the status LED may indicate red.

16. You can start connecting all of the cables to the switch.

## Grounding the Switch

Check to determine if your local or national electrical codes require an external ground to all IT components. If so, connect a ground wire to one of the casing screws and connect the other end to a valid ground. If you choose to not use the ground screw, make sure that the rack is properly grounded and that there is a valid ground connection between the chassis of the switch and the rack. Test the ground using an Ohm meter.



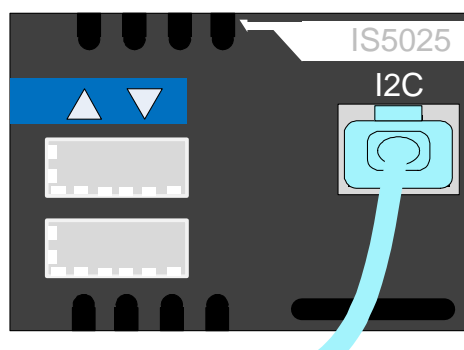
Some national and/or local codes may require IT components to be bonded and externally grounded (not including the power cord ground). You must follow all national and local codes when installing this equipment.

## Configuring the Switch for the First Time

### Externally Managed (Unmanaged) Switches

Unmanaged (Externally managed) switches, that is the IS5025 switches, do not get configured. On unmanaged switches, the CONSOLE, Ethernet, and USB connectors are not found and if existing do not work. Instead there is an RJ45 I2C connector.

**Figure 10: Externally Managed Management Interface**

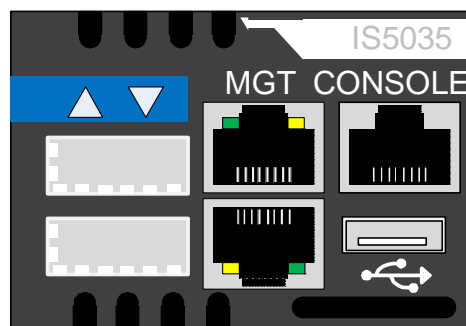


The unmanaged switches are Plug and Play and all firmware updates should be done in-band. The I2C connection should only be used if the firmware image was corrupted to the point that the regular firmware tools cannot successfully return the correct image.

When you install the switch, it comes with the latest firmware burned on the board. You will not need to burn firmware unless you get notification from Mellanox that a newer version of firmware for your switch has been released. The RJ45 to DB9 harness 000022 in the box with the switch, is for use with the MTUSB-1 adapter.

### Managed (Internally managed) Switches

1. Connect the host PC RS232 connector to the CONSOLE port of the switch using the supplied cable



Connect the host PC to here.

Note: No remote IP connection is available at this stage.

2. Configure a serial terminal program (for example, HyperTerminal, Minicom, or Tera Term) on your host PC with the settings described in Table 6.

**Table 6 - Serial Terminal Program Configuration**

| Parameter    | Setting |
|--------------|---------|
| Baud Rate    | 9600    |
| Data bits    | 8       |
| Stop bits    | 1       |
| Parity       | None    |
| Flow Control | None    |

3. Login (from serial terminal program) as *admin* and use *admin* as password. This starts the Mellanox configuration wizard.

4. Go through the Mellanox configuration wizard. [Table 7](#) shows an example of a wizard session.

**Table 7 - Configuration Wizard Session - IP Configuration by DHCP (Sheet 1 of 2)**

| Wizard Session Display (Example)   | Comments  |
|--|---|
| Mellanox configuration wizard<br>Do you want to use the wizard for initial configuration? yes                          | You must perform this configuration the first time you operate the gateway or after resetting the gateway password. Type 'y' and then press <Enter>.  |
| Step 1: Hostname? [switch-1]   | If you wish to accept the default hostname, then press <Enter>. Otherwise, type a different hostname and press <Enter>.   |
| Step 2: Use DHCP on eth0 interface? Yes  | <p>Perform this step to obtain an IP address for the gateway. (eth0 is the management port of the gateway.)</p> <p>If you wish the DHCP server to assign the IP address, type 'yes' and press &lt;Enter&gt;.</p> <p>If you type 'no' (no DHCP), then you will be asked whether you wish to use the 'zeroconf' configuration or not. If you enter 'yes' (yes Zeroconf), the session will continue as shown in Table 8.</p> <p>If you enter 'no' (no Zeroconf), then you need to enter a <i>static</i> IP, and the session will continue as shown in Table 9.</p> |
| Step 3: Admin password (Enter to leave unchanged)?<br><new_password><br>Step 4: Confirm admin password? <new_password> | <p>To avoid illegal access to the machine, please type a password and then press &lt;Enter&gt;. Then confirm the password by re-entering it.</p> <p>Note that password characters are <i>not</i> printed.</p>   |

**Table 7 - Configuration Wizard Session - IP Configuration by DHCP (Sheet 2 of 2)**

| Wizard Session Display (Example)  | Comments   |
|---|--|
| <p>You have entered the following information:</p> <ol style="list-style-type: none"> <li>1. Hostname: &lt;switch-1&gt;</li> <li>2. Use DHCP on eth0 interface? : yes</li> <li>3. Admin password (Enter to leave unchanged): (CHANGED)</li> </ol> <p>To change an answer, enter the step number to return to. Otherwise hit &lt;enter&gt; to save changes and exit.</p> <p>Choice: &lt;Enter&gt;</p> <p>Configuration changes saved.</p> <p>To return to the wizard from the CLI, enter the “configuration jump-start” command from configuration mode. Launching CLI...</p> <p>switch-1 &gt;</p> | <p>The wizard displays a summary of your choices and then asks you to confirm the choices or to re-edit them.</p> <p>Either press &lt;Enter&gt; to save changes and exit, or enter the configuration step number (1, 2 or 3) that you wish to return to.</p> <p>Note:<br/>To run the command “configuration jump-start”, you must be in Config mode.</p> |

**Table 8 - Configuration Wizard Session - IP Zeroconf Configuration**

| Wizard Session Display - IP Zeroconf Configuration (Example)  |
|---|
| <pre> Mellanox configuration wizard  Do you want to use the wizard for initial configuration? y  Step 1: Hostname? [switch-112428] Step 2: Use DHCP on eth0 interface? [no] Step 3: Use zeroconf on eth0 interface? [no] yes Step 4: Default gateway? [192.168.10.1] Step 5: Primary DNS server? Step 6: Domain name? Step 7: Admin password (Enter to leave unchanged)?  You have entered the following information:  1. Hostname: Switch-112428 2. Use DHCP on eth0 interface: no 3. Use zeroconf on eth0 interface: yes 4. Default gateway: 192.168.10.1 5. Primary DNS server: 6. Domain name: 7. Admin password (Enter to leave unchanged): (unchanged)  To change an answer, enter the step number to return to. Otherwise hit &lt;enter&gt; to save changes and exit.  Choice:  Configuration changes saved.  To return to the wizard from the CLI, enter the "configuration jump-start" command from configure mode. Launching CLI...  switch-1 &gt; </pre> |

**Table 9 - Configuration Wizard Session - Static IP Configuration**

| Wizard Session Display - Static IP Configuration (Example)   |
|--|
| <pre> Mellanox configuration wizard  Do you want to use the wizard for initial configuration? y  Step 1: Hostname? [switch-112428] Step 2: Use DHCP on eth0 interface? [yes] n Step 3: Use zeroconf on eth0 interface? [no] Step 4: Primary IP address? 192.168.10.4 Mask length may not be zero if address is not zero (interface eth0)  Step 5: Netmask? [0.0.0.0] 255.255.255.0 Step 6: Default gateway? 192.168.10.1 Step 7: Primary DNS server? Step 8: Domain name? Step 9: Admin password (Enter to leave unchanged)?  You have entered the following information:  1. Hostname: Switch-112428 2. Use DHCP on eth0 interface: no 3. Use zeroconf on eth0 interface: no 4. Primary IP address: 192.168.10.4 5. Netmask: 255.255.255.0 6. Default gateway: 192.168.10.1 7. Primary DNS server: 8. Domain name: 9. Admin password (Enter to leave unchanged): (unchanged)  To change an answer, enter the step number to return to. Otherwise hit &lt;enter&gt; to save changes and exit.  Choice:  Configuration changes saved.  To return to the wizard from the CLI, enter the "configuration jump-start" command from configure mode. Launching CLI...  switch-1 &gt; </pre> |

1. Before attempting a remote (for example, SSH) connection to the switch, check the eth0 interface configuration. Specifically, verify the existence of an IP address. To check the current eth0 configuration, enter the following commands:

```

switch-112428> enable // Enter 'enable' mode of CLI
switch-112428# show interface eth0 // # indicates 'enable' mode

```

The following is an example of the output:

## Interface eth0 state

Admin up: yes  
Link up: yes  
IP address: 192.168.10.6  
Netmask: 255.255.255.0  
Speed: 100Mb/s (auto)  
Duplex: full (auto)  
Interface type: ethernet  
Interface source: physical  
MTU: 1500  
HW address: 00:00:50:3A:8E:80  
Comment:

RX bytes: 123102  
RX packets: 1271  
RX mcast packets: 0  
RX discards: 0  
RX errors: 0  
RX overruns: 0  
RX frame: 0

TX bytes: 122850  
TX packets: 1119  
TX discards: 0  
TX errors: 0  
TX overruns: 0  
TX carrier: 0  
TX collisions: 0

switch-112428#

## Unified Fabric Manager (UFM)

For an added licensing fee you can purchase Mellanox's Unified Fabric. UFM is a powerful platform for managing scale-out computing environments. It enables data center operators to efficiently monitor and operate the entire fabric, boost application performance and maximize fabric resources utilization.

## FabricIT

FabricIT EFM is a software based management system that can be run with either a command line interface or with a *WebUI* interface. Chassis management comes with the switch system. An optional license is required for full use of FabricIT cluster management. See the FabricIT EFM User Manual for instructions and commands available to manage the chassis, switches, and fabric.

### Downloading FabricIT Software and Documents

To download FabricIT software and documentation, please visit the following Web page:

FabricIT [http://www.mellanox.com/content/pages.php?pg=fabric\\_it\\_login](http://www.mellanox.com/content/pages.php?pg=fabric_it_login).

Note that you will need to enter the License Entitlement number and the Switch S/N to obtain the software and documentation, and also to generate an EFM license that enables extended FabricIT management and inspection features on your switch system.

### Installing Licenses

Two licenses are offered with FabricIT EFM software:

1. License for extended FabricIT management and inspection features
2. License for enabling additional ports on a switch system

### Getting the License Key

FabricIT Enterprise Fabric Manager (EFM) license can be purchased from your Mellanox representative at any time. A License Enablement Number will be supplied at the time of purchase. To generate the License Key enter the License Enablement Number and the Switch Serial Number into the Mellanox online license tool at <http://license.mellanox.com>. The Switch Serial Number can be found on the pull-out tab or the box labeling.



**Figure 11: License Key Entitlement Number**

The screenshot shows the Mellanox Technologies website header with navigation tabs for Investors and Support, and a main menu with links for Company, Products, Solutions, Partners, News, Education & Media, and Where to Buy. The main content area features a box titled "License Key Generation with Entitlement Number" containing an "Entitlement Number:" label and a text input field with a play button icon. Below the box is a link: "If you are an administrator user click here". The footer contains a navigation bar with links for Home, Company, Products, Solutions, Partners, News, Investors, Support, and Legal/Privacy Policy, along with the copyright notice "© 2009 Mellanox Technologies. All Rights Reserved."

**Figure 12: License Key Generation Form**

The screenshot shows the Mellanox Technologies website header with navigation tabs for Investors and Support, and a main menu with links for Company, Products, Solutions, Partners, News, Education & Media, and Where to Buy. The main content area features a "Return" link on the left and a form titled "License Key Generation Form". The form includes four input fields labeled "Entitlement Number:", "Part Number:", "Number of Ports:", and "Enter Your Switch Serial Number:". A "Generate >>" button is positioned below the input fields. The footer contains a navigation bar with links for Home, Company, Products, Solutions, Partners, News, Investors, Support, and Legal/Privacy Policy, along with the copyright notice "© 2009 Mellanox Technologies. All Rights Reserved."

## FabricIT Management and Inspection License

If your switch system includes an internal management, then to activate extended FabricIT management and inspection features you need to install the license that was purchased along with the switch system. Without the license, you will not be able to run a Subnet Manager on the switch nor run advanced fabric diagnostics.

## Port Enabling License

Note: This section is relevant to MIS5031 switch systems only.

If you originally purchased the switch system with a license that enables only a subset of the available switch ports (e.g., 18 ports) and you now wish to enable additional ports, then you need to obtain a special license from your authorized Mellanox reseller.

For information on installation, please refer to the *FabricIT Enterprise Fabric Management Software CLI User's Manual*.

## Starting an SSH Connection to the Switch

SSH connection also supports TelNet.



Each Ethernet connector gets connected to Ethernet switches. These switches must be configured to 10/100M auto-negotiation.

1. Set up an Ethernet connection between the switch and a local network machine (“the remote machine” henceforth) using a standard RJ-45 connector.
2. Connect to the remote machine.
3. Start a remote shell to the switch using the following command:

```
ssh -l admin <your ip address>
```

When prompted for a password enter “admin”.

Note that the IP address used above is the same IP address that was assigned to the Mellanox configuration wizard in the “Configuring the Switch for the First Time” section.

4. You can enter any supported command now.

Note: For a complete reference of commands, please see *Mellanox FabricIT Management Software User's Manual*.

## Starting a WebUI Connection to the Switch

1. Set up an Ethernet connection between the switch and a local network machine (“the remote machine” henceforth) using a standard RJ-45 connector.
2. Start a Web browser – Internet Explorer 7.0 or Mozilla Firefox 3.0.

Note: Make sure the screen resolution is set to 1024\*768 or higher.

3. Enter as URL the following: `http://<switch_IP_address>`  
where `<switch_IP_address>` is the IP address of the switch or its DNS name.

- You will receive the login window for remote management of the switch.

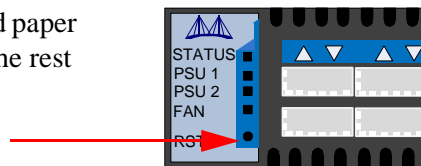
- Use *admin* for both the login (Account) and the password.

## Resetting the Switch

Should the switch stop working, try resetting the switch. On the connector side panel under the system LEDs is a reset button. This reset button requires a tool to be pressed, a paper clip will do.

**Figure 13: Reset Button**

Use an opened paper clip to press the rest button.



This button resets the switch when the button is pushed. A quick push of this button resets the whole switch. When the button is held down for 15 seconds the switch is reset and the password is reset to the factory default password. The LEDs will flicker for a fraction of a second to indicate reset is occurring.

The IS Series User Manual can be found at:  
<http://www.mellanox.com>



**USA**

Mellanox Technologies Inc.  
350 Oakmead Parkway, Suite 100  
Sunnyvale, CA 94085  
Tel: (408) 970-3400  
Fax: (408) 970-3403  
www.mellanox.com  
E-mail: info@mellanox.com  
Map and Directions

Tech Support: 408-916-0055  
(8:00AM to 5:00 PM - Pacific)

36 Port InfiniBand QDR Switch Platform  
Installation Guide



Mellanox Technologies, Ltd.  
PO Box 586 Hermon Building  
Yokneam, Israel 20692  
Telephone: +972-4-909-7200  
Fax: +972-4-959-3245  
E-mail: info@mellanox.com

Tech Support: +972 4 9097200 ext 250  
(8:00AM to 5:00 PM - Israel Time)

**www.mellanox.com**