



# M-Link Mobile Unit Gateway R19.4V6 Evaluation Guide

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Installing and configuring R19.4V6 of M-Link Mobile Unit Gateway for Constrained Networks for use over SatCom (IP) and HF (STANAG 5066) links.

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## Introduction

This guide demonstrates how to get up and running with M-Link Mobile Unit Gateway R19.4V6

M-Link MU Gateway is used to exchange messages between systems running on high quality links and those running over constrained networks, the M-Link MU Gateway communicates with M-Link MU Servers using XEP-0361 (and XEP-0365 for HF Radio) and with XMPP servers over normal quality links using the standard XMPP Server/Server protocol, allowing units communicating over constrained links to be integrated with existing standard XMPP installations.

Management tools (such as Isode MLC) which make use of the Client/Server protocol can connect to the M-Link MU Gateway for the purposes of configuring and monitoring the system. No other use of this protocol is supported, in particular the M-Link MU Gateway does not support directly connected users.

## Objectives

By the end of this evaluation you will have:

- Installed M-Link MU Gateway R19.4V6
- Requested a Product Activation Key (PAK)
- Receive and installed the PAK.
- Created and configured a XEP-0361 Zero Handshake Server to Server Protocol Link
- Created and configured a Peer Control with an X2X Link
- Tested the 5066 Subsystem using S5066 Console
- Created a connection to Icon-5066 Server
- Created and configured a SLEP Link
- Created and configured a Peer Control with the SLEP Link

## Using Isode Support

You will be given access to Isode support resources when carrying out your evaluation. Any queries you have during your evaluation should be sent to [isode.support@isode.com](mailto:isode.support@isode.com). Please note that access to the Self-Service Portal for web-based ticket submission and tracking is not available to evaluators.

## Preparation

You should visit [www.isode.com/products/supported-platforms.html](http://www.isode.com/products/supported-platforms.html) to discover which operating systems are supported for Isode evaluations. In addition to the server platforms listed, we support the use of Isode server products on Windows 10 for simple evaluations and demonstrations.

Isode supports the use of the latest versions of Google Chrome, Mozilla Firefox and Microsoft Edge browsers with the Harrier web client. Internet Explorer is not supported.

## External Dependencies

You will need a Chrome Browser installed on the Server and set as the default browser.

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### Product Download

Product downloads are held in a password-protected section of the Isode website. If you have not already done so you should apply for a username/password by filling in the form located at [www.isode.com/evaluate/evalrequest.html](http://www.isode.com/evaluate/evalrequest.html).

### Product Activation Key

M-Link Mobile Unit Gateway and Icon-5066 server require a valid Product Activation Key from Isode before it will run correctly. Keys are issued by Isode Customer Services. You will be show in this guide how to copy and send the Product Activation Key request to [isode.support@isode.com](mailto:isode.support@isode.com).

### External XMPP Server Details

This guide assumes that you already have access to external XMPP servers, which this installation will interact with.

## Installing M-Link

### Linux

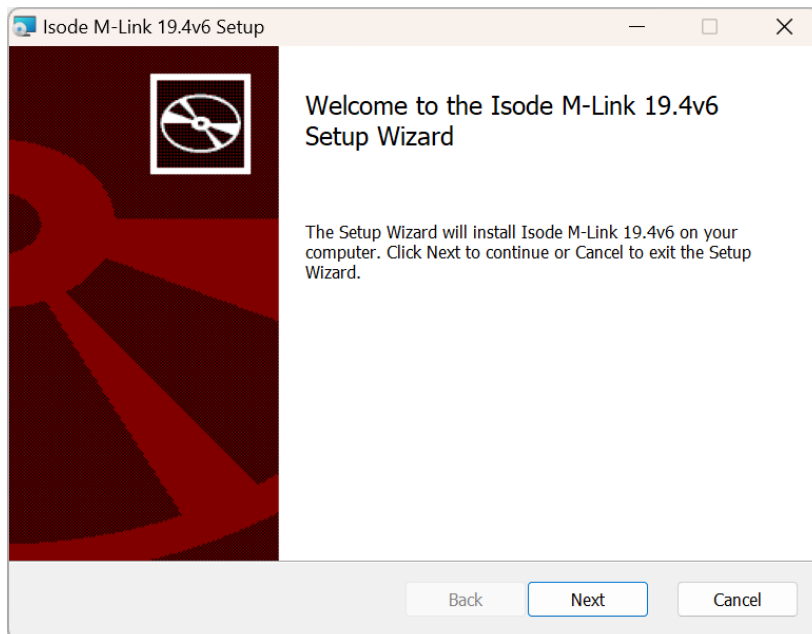
Run the following commands:

```
root@mle192-mt:/tmp
File Edit View Search Terminal Help
[root@mle192-mt tmp]# rpm -i mlink-19.4v6.rpm
Created symlink from /etc/systemd/system/multi-user.target.wants/mlink.service to /etc/systemd/system/mlink.service.
[root@mle192-mt tmp]# service mlink start
Redirecting to /bin/systemctl start mlink.service
[root@mle192-mt tmp]# █
```

Then jump to the browser screen of the Windows Install (on Page 8) and point your browser at - <https://localhost:5221>

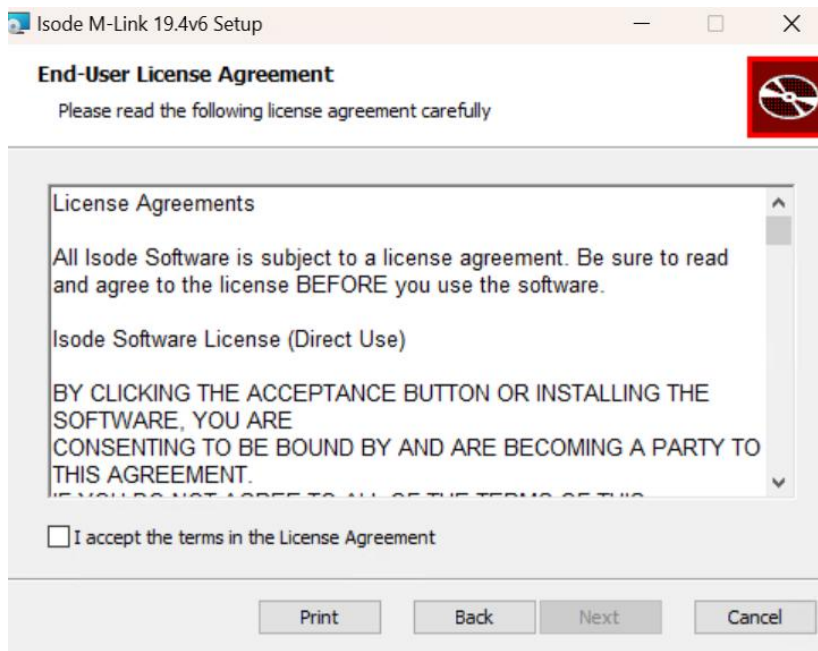
### Windows

Double-click the .msi file that you downloaded earlier and follow the instructions for a fresh install.

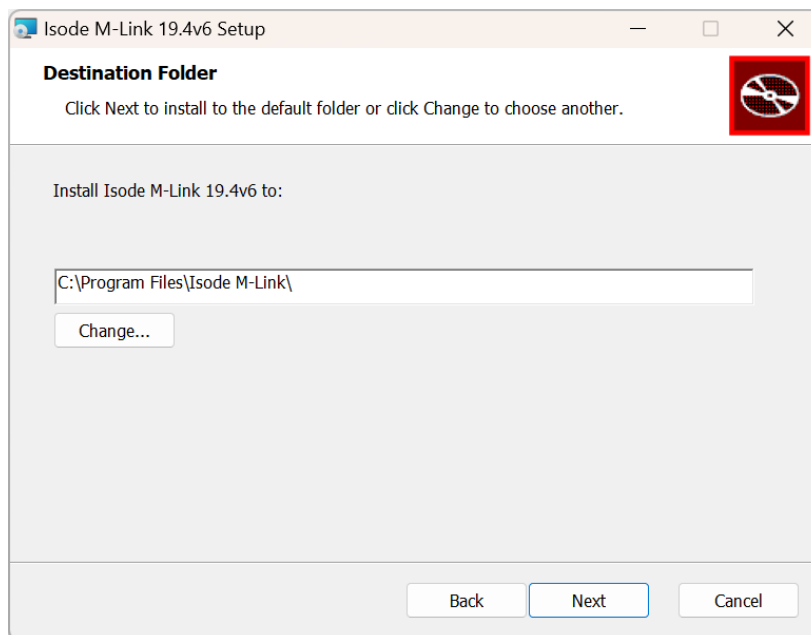


Click “Next”

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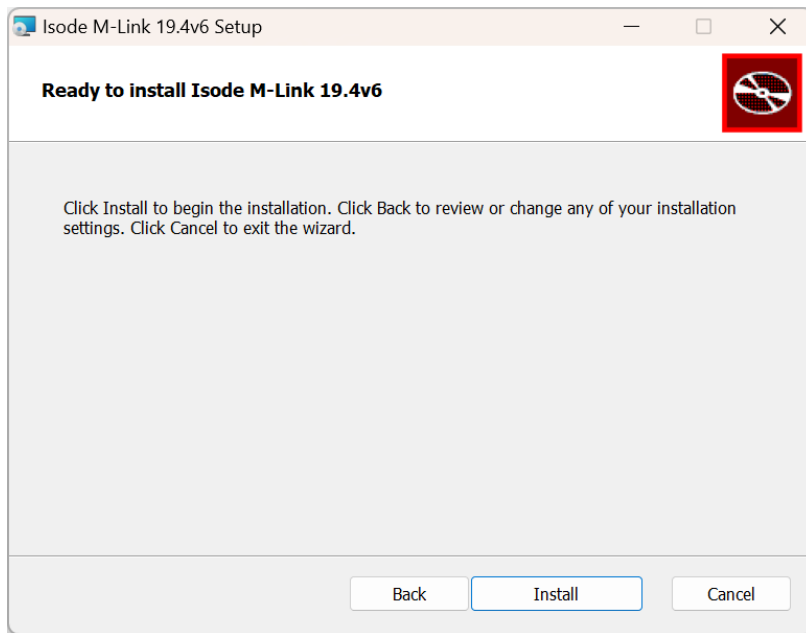


Check the checkbox to accept the terms of the license and click “Next

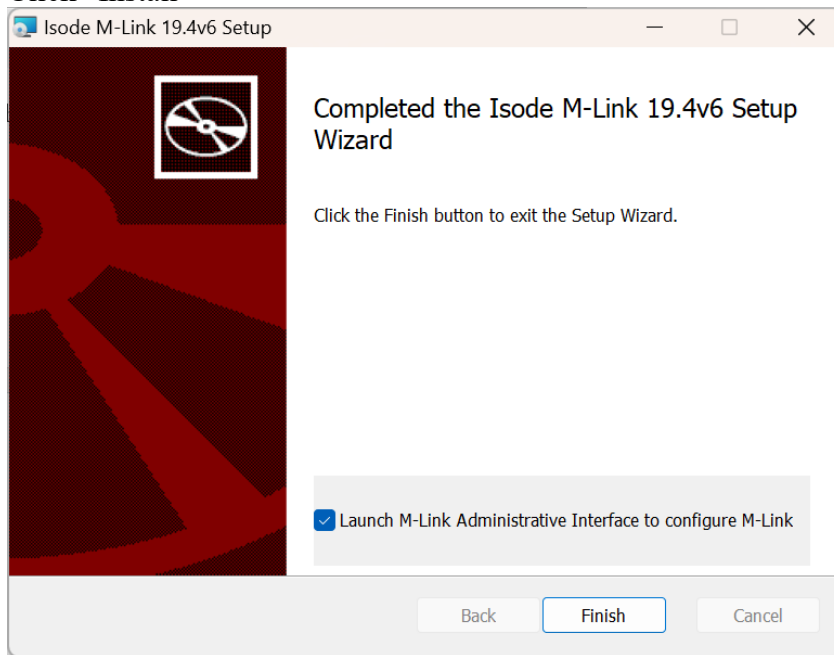


Click “Next”

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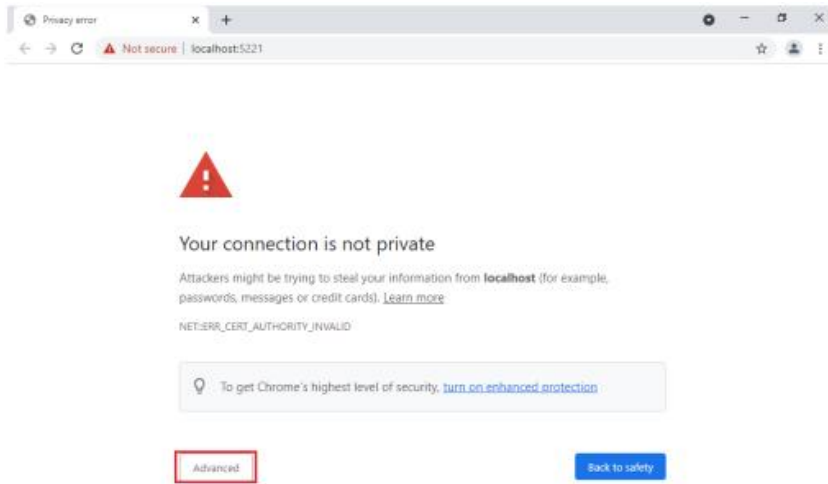


Click "Install"

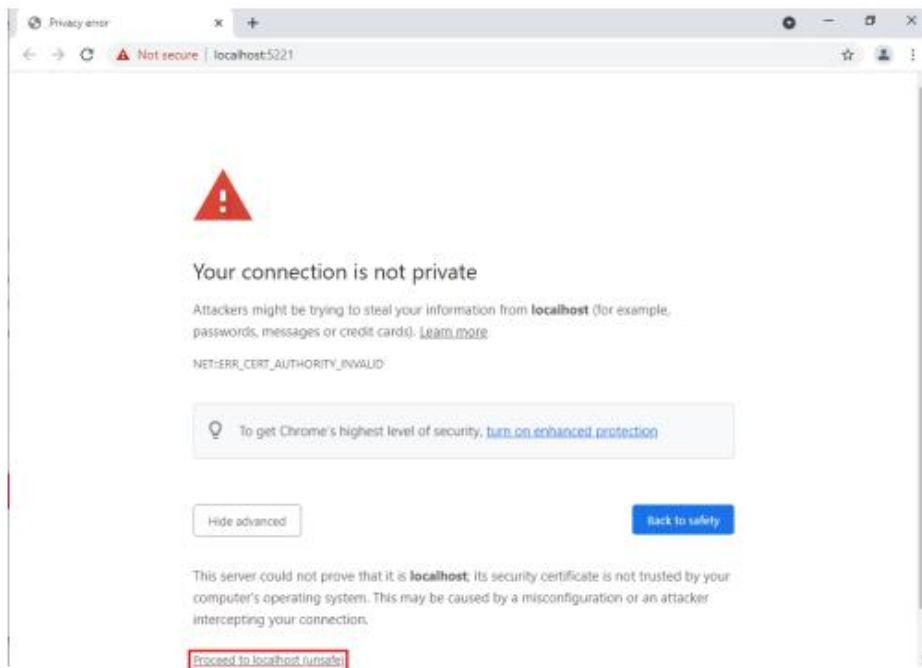


Click "Finish" and the following Browser window will open:

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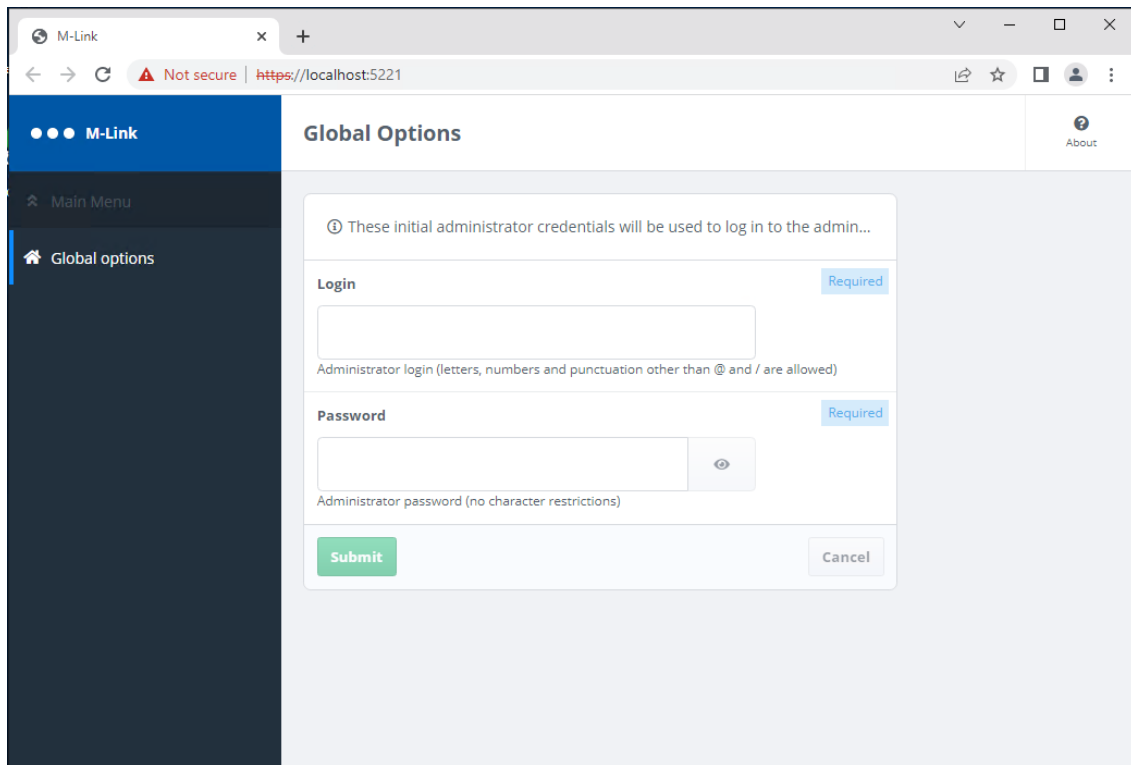
Click “Advanced”



*The configuration interface can be accessed from a web browser running on a different machine from M-Link by substituting localhost with the hostname or IP of the server machine. As the initial certificate is self-signed, it will need to be manually trusted before a browser will accept it - usually by clicking through a security warning.*

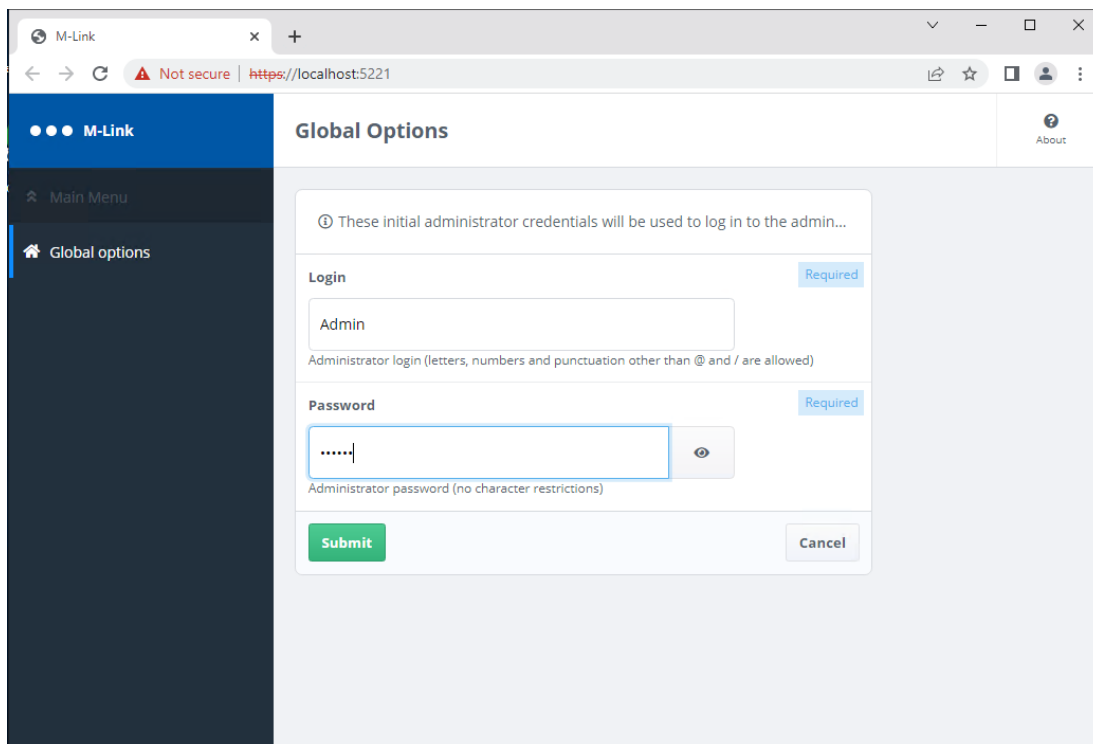
Click “Proceed to localhost (unsafe)”

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The screenshot shows a web browser window with the URL `https://localhost:5221`. The page title is "Global Options". On the left, there is a dark blue sidebar with "M-Link" at the top, followed by "Main Menu" and "Global options". The main content area has a light blue header with "Global Options" and an "About" link. Below the header, there is a warning icon and text: "These initial administrator credentials will be used to log in to the admin...". The form contains two sections: "Login" and "Password". The "Login" section has a text input field, a "Required" label, and a note: "Administrator login (letters, numbers and punctuation other than @ and / are allowed)". The "Password" section has a text input field with a toggle icon, a "Required" label, and a note: "Administrator password (no character restrictions)". At the bottom of the form are "Submit" and "Cancel" buttons.

Enter an Administrator Login Name of your choice and set a password.



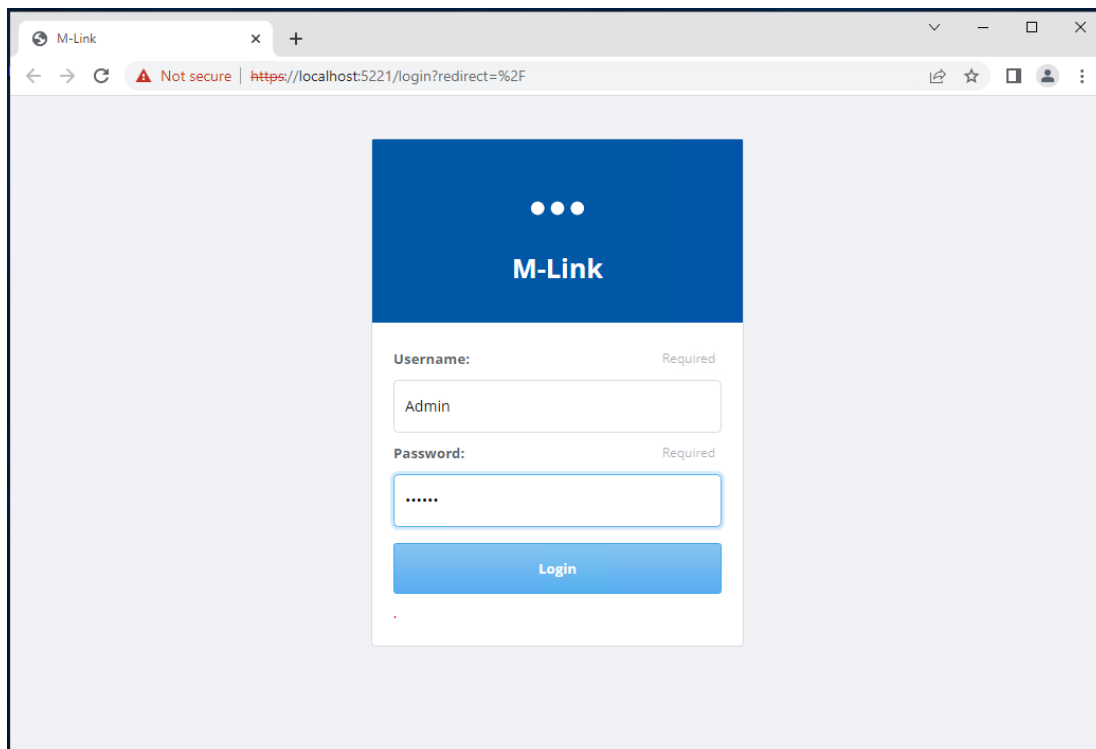
This screenshot shows the same "Global Options" page as the previous one, but with the "Login" field containing the text "Admin" and the "Password" field containing a masked password ".....". The "Submit" and "Cancel" buttons remain visible at the bottom of the form.

Click "Submit"



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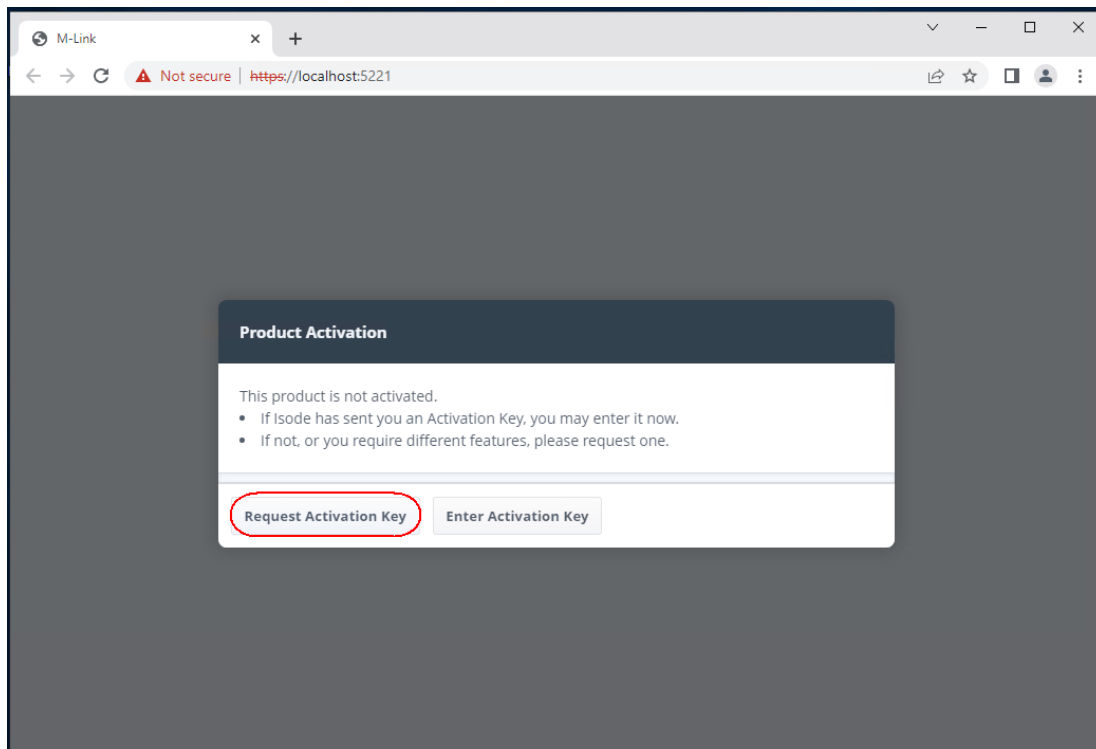
Enter the Administrator Login Name and Password you created previously. Click “Login”



The screenshot shows a web browser window with the address bar displaying "https://localhost:5221/login?redirect=%2F". The page features a blue header with the M-Link logo. Below the header is a login form with the following fields and buttons:

- Username:** Required field containing the text "Admin".
- Password:** Required field containing masked characters ".....".
- Login:** A blue button to submit the login information.

At the Product Activation screen click “Request Activation Key”



The screenshot shows a web browser window with the address bar displaying "https://localhost:5221". The page features a dark grey background with a white modal box titled "Product Activation". The modal box contains the following text and buttons:

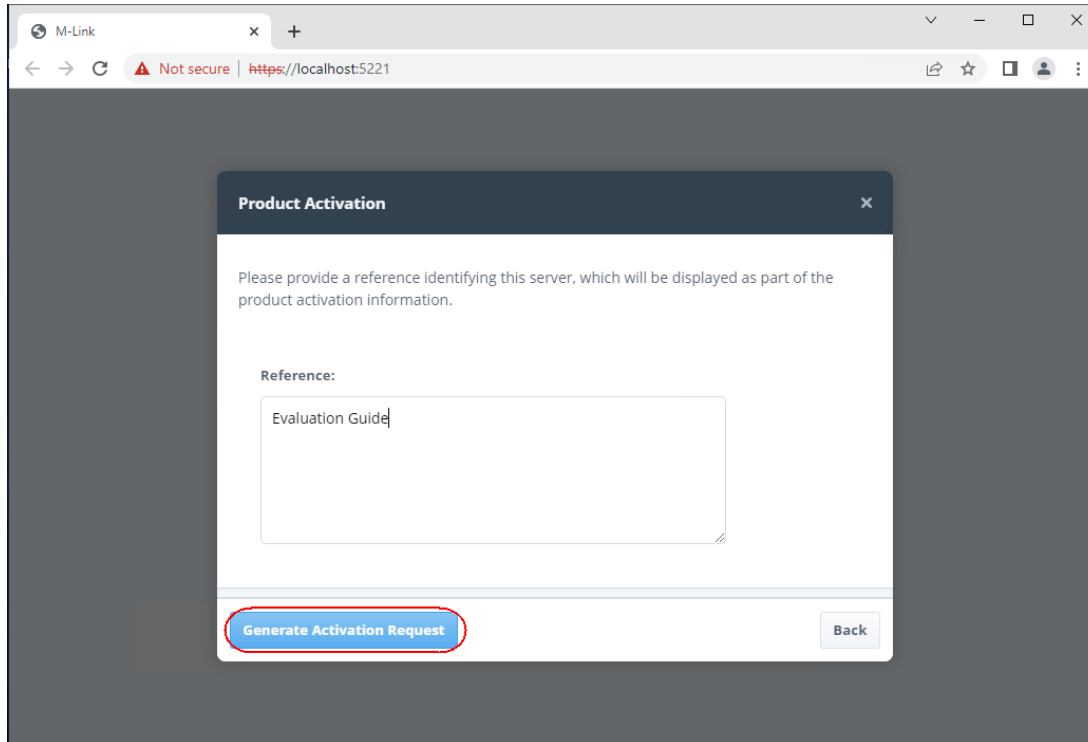
This product is not activated.

- If Isode has sent you an Activation Key, you may enter it now.
- If not, or you require different features, please request one.

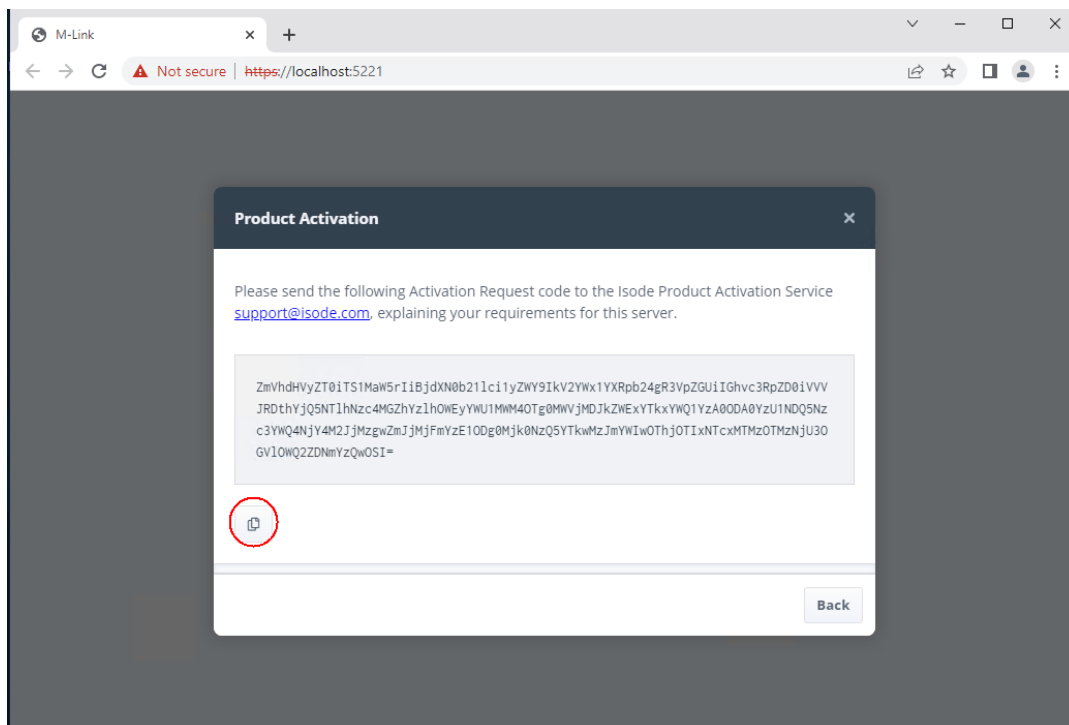
At the bottom of the modal box, there are two buttons: "Request Activation Key" (highlighted with a red circle) and "Enter Activation Key".

Enter a reference for your server, then click “Generate Activation Request”

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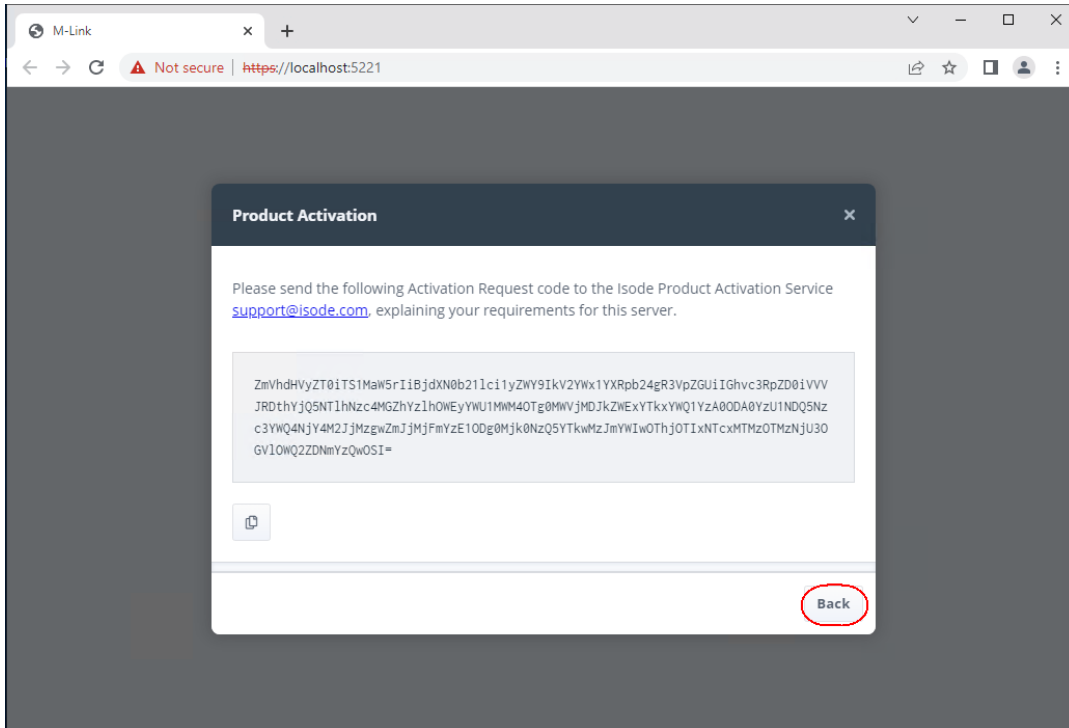


Use the “Copy” button (bottom left) to copy this “Activation Request” and then email it to [support@isode.com](mailto:support@isode.com)

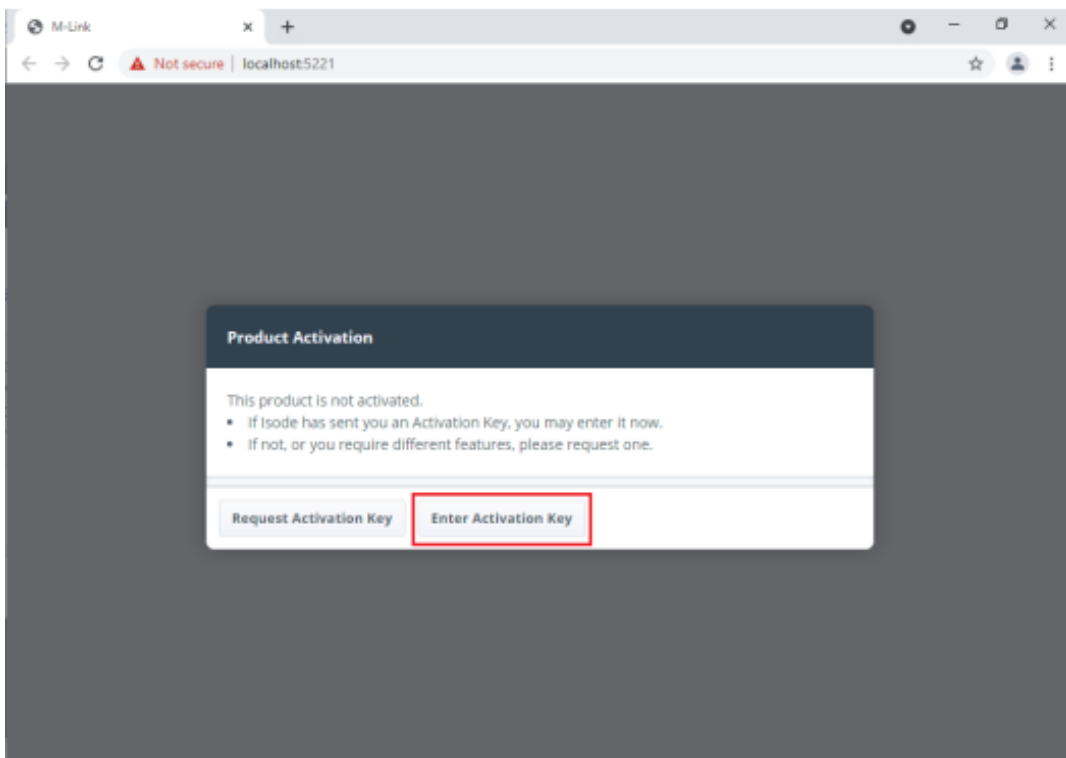


Click “Back”

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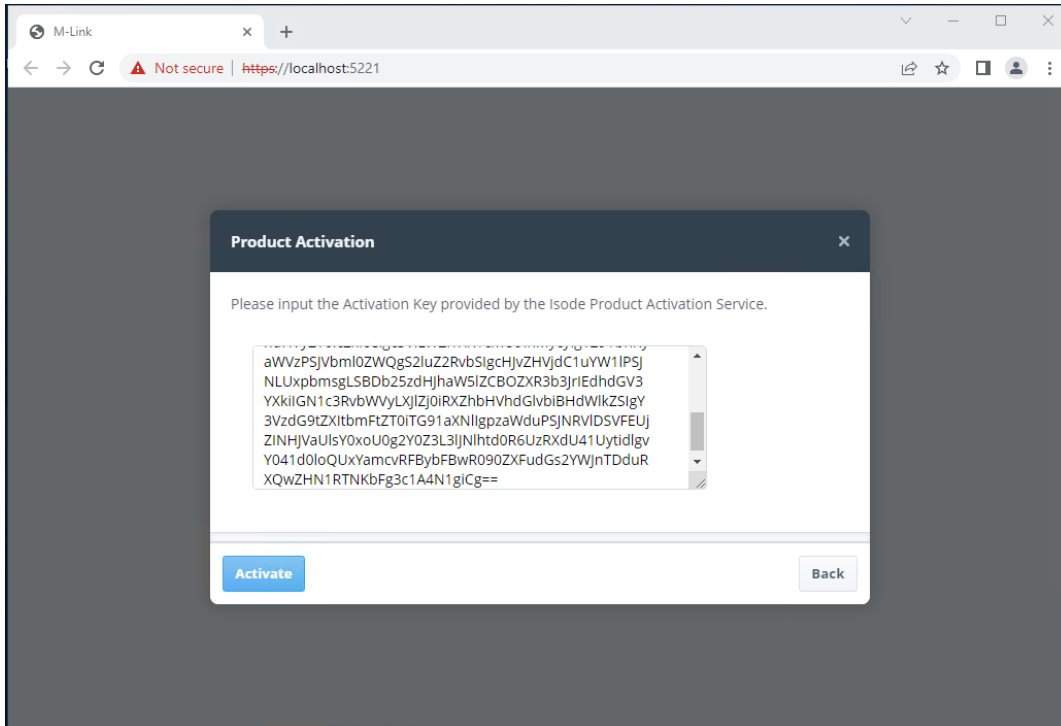


When you receive the “Product Activation Key” from Isode Support, you should then Click “Enter Activation Key”.

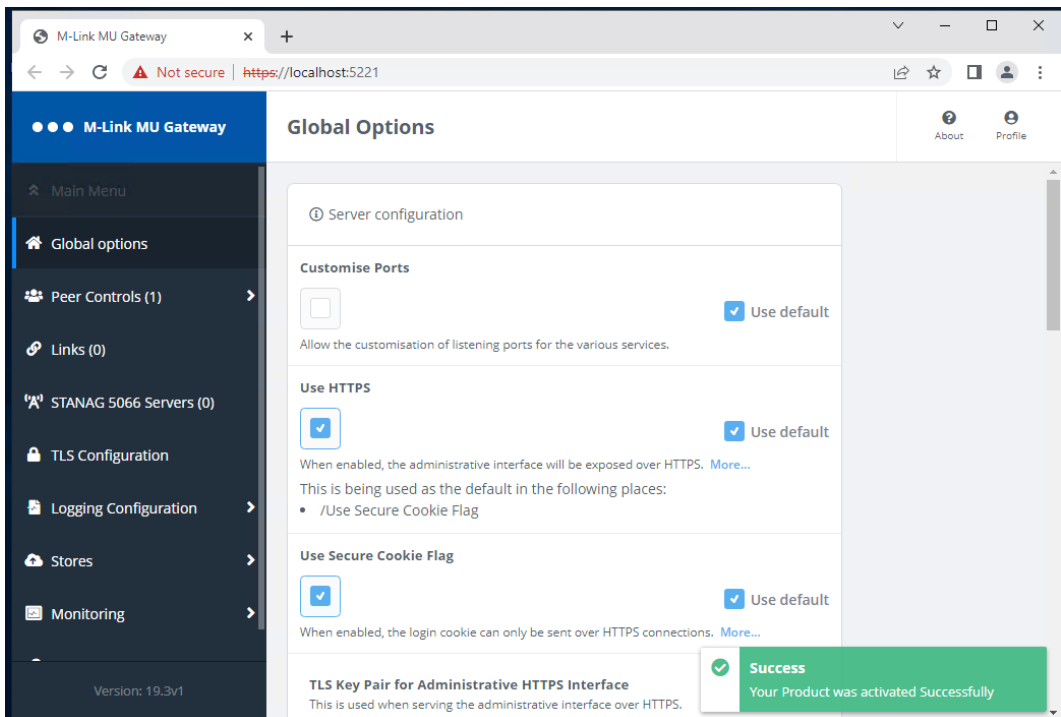


Paste the “Product Activation Key” in the space provided. Then click “Activate”

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The following screen should appear. Your server is now ready for further configuration:



## Operation over IP Networks

M-Link MU Gateway is an M-Link server with no local users, it is used to enable communication between groups of XMPP Servers over slow network links, enabling the optimization of the server-to-server protocol over the slow links.

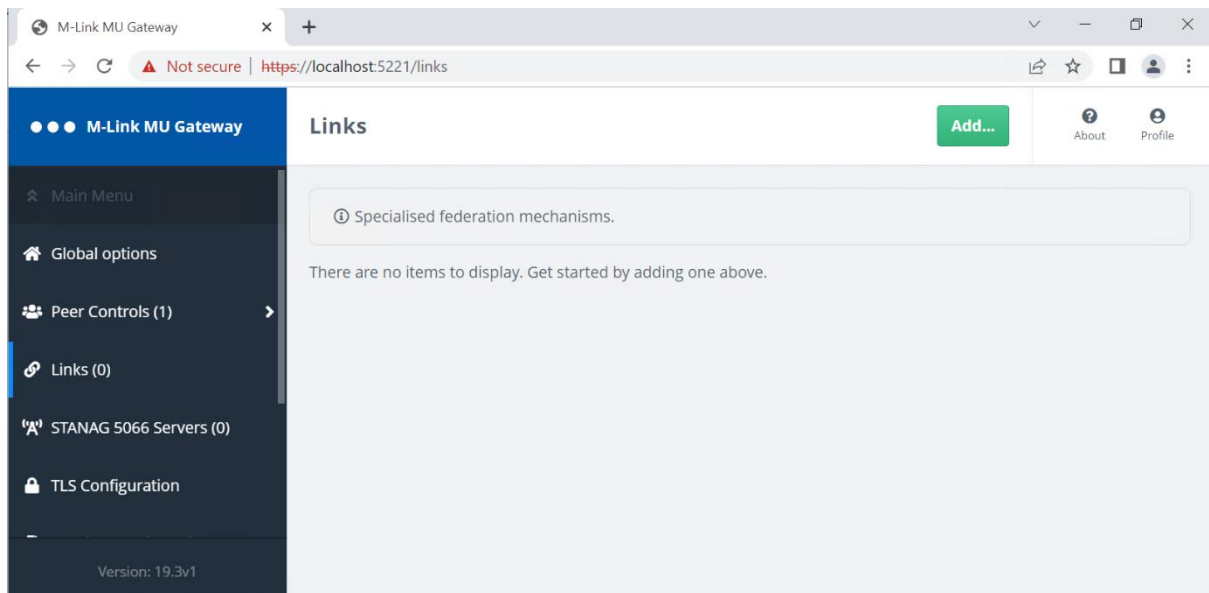
### Firewall Settings

On server systems, firewalls should be turned off or the relevant TCP Port enabled, we've used 65510 in this guide for the Zero Handshake protocol.

### Configuring a XEP-0361 Zero Handshake Server to Server Protocol Link

A XEP-0361 Zero Handshake Server to Server Protocol Link is typically used for connecting over a Low Bandwidth TCP/IP Connection e.g. SATCOM or some 3rd Party XMPP Guards

From the M-Link MU Gateway, click on “Links” then click “Add”



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The screenshot shows the 'Add new item to Links' configuration page for M-Link Edge. The page is titled 'Add new item to Links' and has a breadcrumb 'Links > add'. The left sidebar shows 'M-Link Edge' with a search bar and a menu with 'Main Menu' and 'Links (1)'. The main content area has a 'Link' section with the following fields:

- Link Name** (Required): A text input field with a red box around it. Below it is the text 'Distinctive name for the link.'
- Link Type** (Required): A dropdown menu with 'Please select an option' and a red box around it. Below it is the text 'Link type.'
- Local Port** (Required): A text input field with a red box around it. Below it is the text 'Port on which to listen. [More...](#)
- Fallback Link**: A dropdown menu with 'Please select an option' and a red box around it. Below it is the text 'Identifies a link to use as a fallback if this link cannot be established.'
- Listen Only**: A checkbox that is currently unchecked.

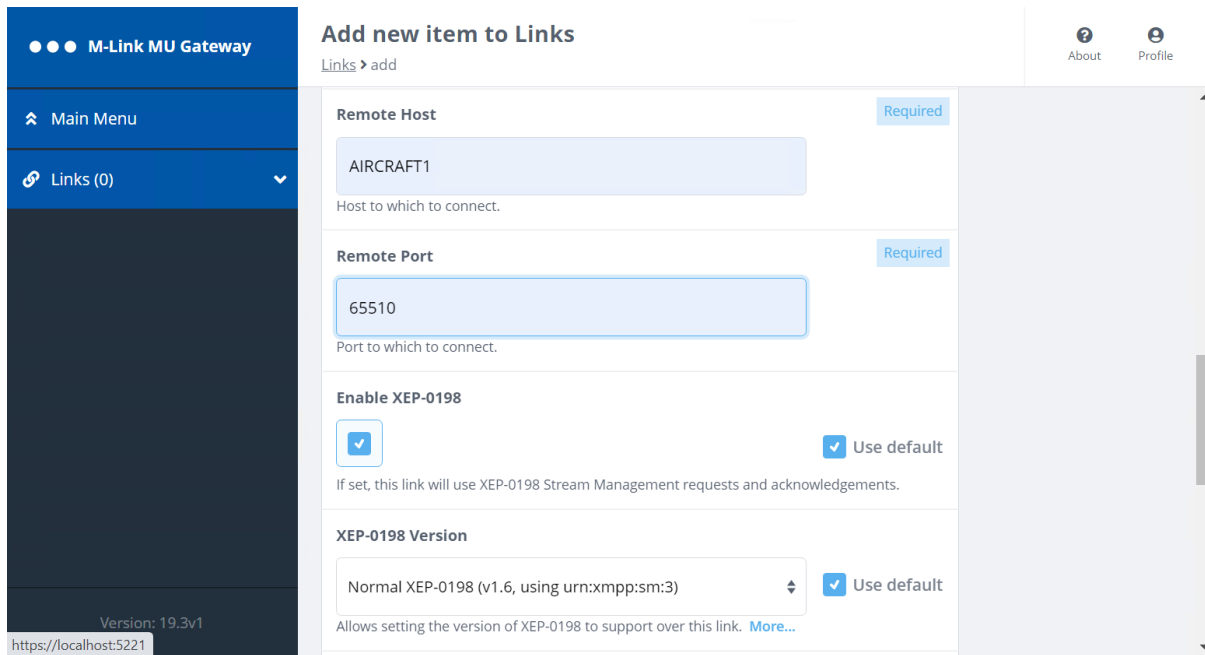
The “Link Name” is a “Friendly Name” that you should use to identify the Link, the “Link Type” will be “XEP-0361 Zero Handshake Server to Server Protocol Link” selected from the drop down. The Port will be agreed between the two servers.

The screenshot shows the 'Add new item to Links' configuration page for M-Link MU Gateway. The page is titled 'Add new item to Links' and has a breadcrumb 'Links > add'. The left sidebar shows 'M-Link MU Gateway' with a search bar and a menu with 'Main Menu' and 'Links (0)'. The main content area has a 'Link' section with the following fields:

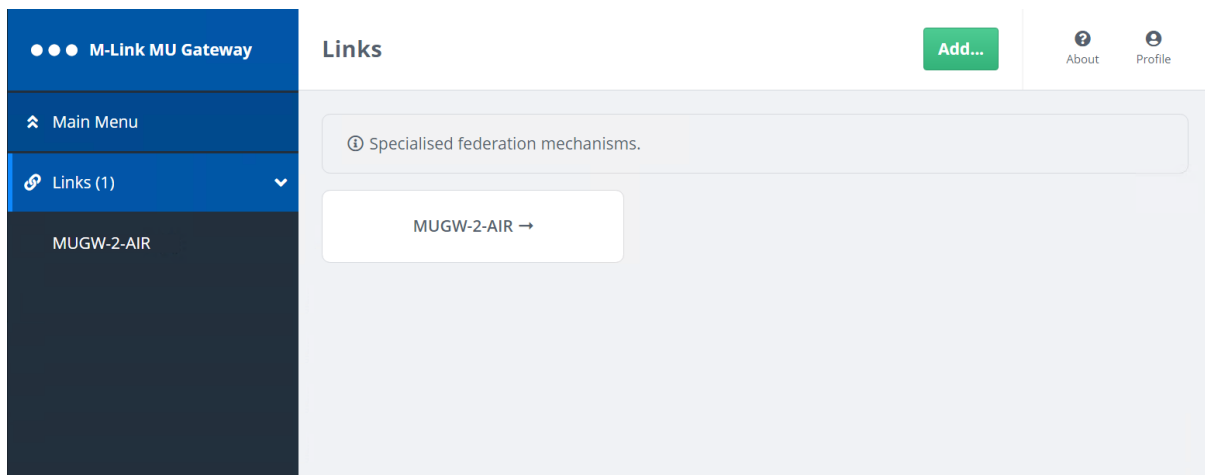
- Link Name** (Required): A text input field containing 'MUGW-2-AIR'. Below it is the text 'Distinctive name for the link.'
- Enabled**: A checkbox that is checked. To its right is a 'Use default' checkbox, also checked. Below it is the text 'If set, use this Link for new outbound connections. [More...](#)
- Link Type** (Required): A dropdown menu containing 'X2X (XEP-0361 Zero Handshake Server to Server Protocol)'. Below it is the text 'Link type.'
- Local Port** (Required): A text input field containing '65510'. Below it is the text 'Port on which to listen. [More...](#)

Scroll down and enter the “Remote Host” IP or Hostname and “Remote Port” of the external XMPP Server:

# M-Link Mobile Unit Gateway R19.4 Evaluation Guide

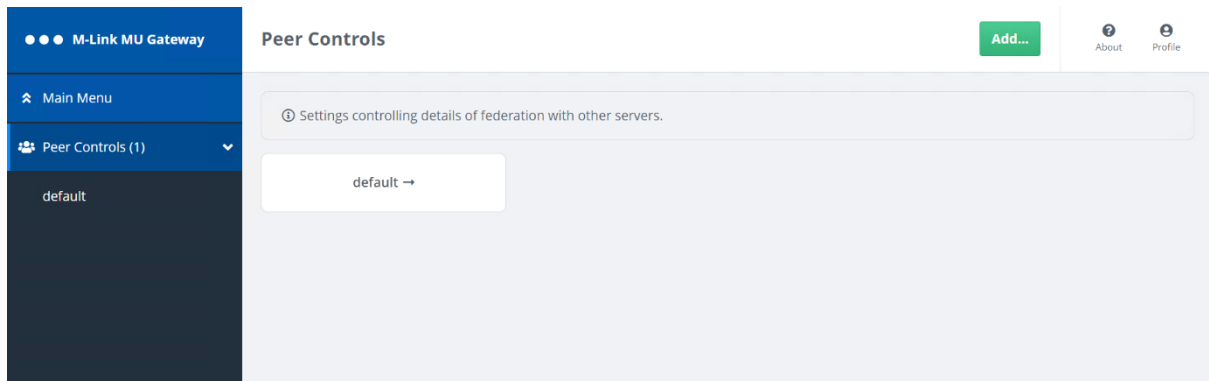


Scroll down and click “Add”. Your XEP-0361 Zero Handshake Server to Server Protocol Link is now complete and we can proceed to add it to a Peer Control Configuration.



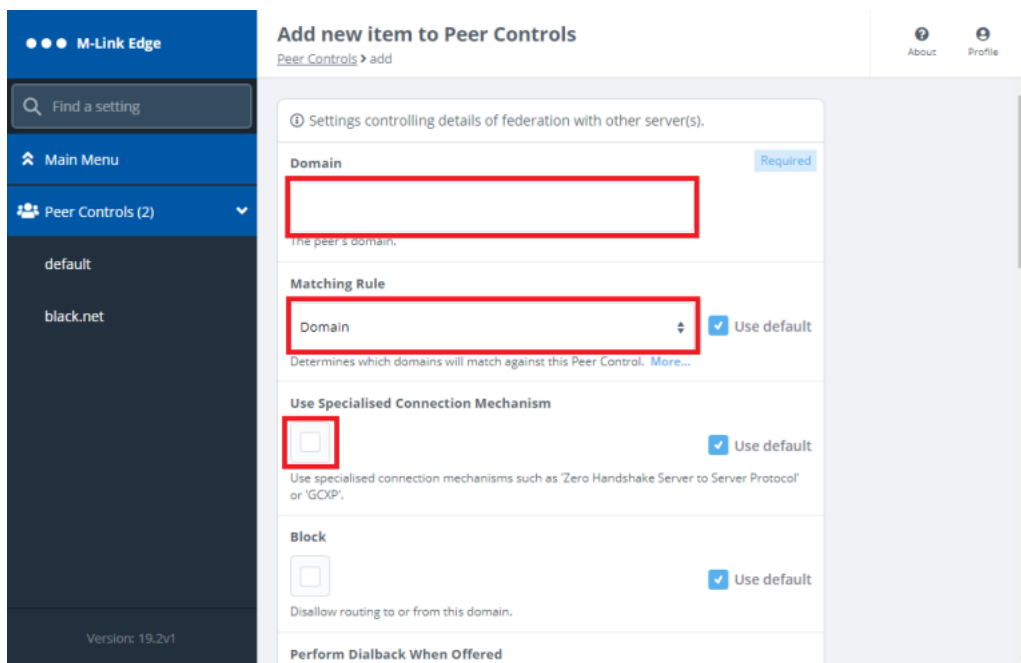
From the Main Menu click “Peer Controls”:

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Click on “Add”

Complete the “Domain”, “Matching Rule” and Check the “Use Specialised Connection Mechanism” Checkbox



The “Domain” should be the XMPP Domain of the Server you are connecting to. The “Matching Rule” should be “Domain and Subdomain” if you want to include both the 1 to 1 Domain and Multi User Chat (MUC) Domain. You should then select the “Link” you have just created from the drop down:



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**Add new item to Peer Controls**  
Peer Controls > add

**Domain** Required

aircraft1.net  
The peer's domain.

**Matching Rule**

Domain and Subdomains  Use default  
Determines which domains will match against this Peer Control. [More...](#)

**Use Specialised Connection Mechanism**

Use default  
Use specialised connection mechanisms such as 'Zero Handshake Server to Server Protocol' or 'GCXP'.

**Link** Required

MUGW-2-AIR  
Reference to the link to use.

Scroll down to “Relay Zone”

The M-Link MU Gateway Server does not have a Domain of its own, so it typically relays between different XMPP Domains. In order to do this, each Peer Control needs a unique “Relay Zone” defined. This is a free text name, so should be something to remind you of where you are relaying between:

**Add new item to Peer Controls**  
Peer Controls > add

Use default  
Disallow routing to or from this domain.

**Relay Zone**

AIR  
This specifies the relay zones for controlling relaying. [More...](#)

**Transformations**

+ Add item  
A list of Stanza Transformations applied for stanzas coming from or going to this peer.

**Drop Label-Only Message Stanzas**

Use default  
Drop message stanzas which only contain a label when transformations have been applied (regardless of whether the message has been modified by any transformation). [More...](#)

**Add** **Cancel**

Click “Add”

You have now completed configuring the XEP-0361 Zero Handshake Server to Server Protocol Link (X2) Link and associated Peer Control.

## Operation over HF Radio (STANAG 5066)

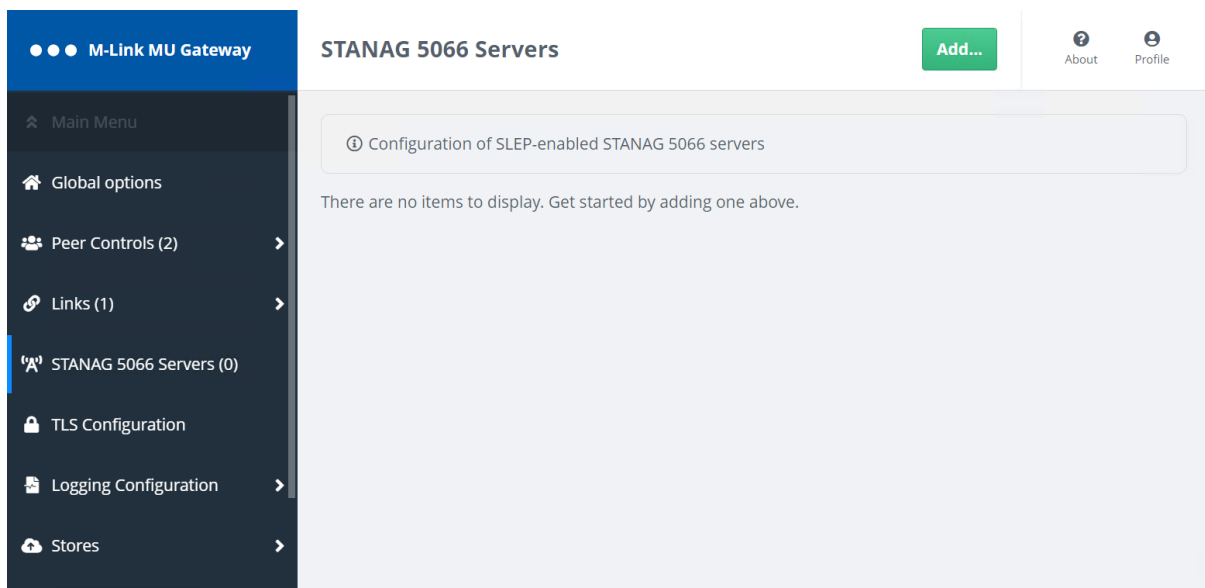
The M-Link MU Gateway uses the SIS Layer Extension Protocol protocol with Server to Server communication over STANAG 5066 ARQ (*XEP-0365*) to enable communication over STANAG 5066 services, such as HF radio via the STANAG 5066 Subnet Interface Service. The use of SLEP provides a reliable bidirectional stream service which can support compression.

This section assumes that you have access to a STANAG 5066 server. Isode's own "Icon-5066" product is available for this purpose and an evaluation guide for Icon5066 is available from [www.isode.com/evaluate/evaluate-network.html](http://www.isode.com/evaluate/evaluate-network.html).

To configure Isode applications to use STANAG 5066, two parameters are needed:

- The domain (or IP address) of the STANAG 5066 server
- The TCP ports of the STANAG 5066 server (port 5066 is commonly used)

Prior to running Isode applications over an S5066 link, we recommend testing the STANAG 5066 subsystem, using Isode's 'STANAG 5066 Console' tool.



Click "Add"

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**M-Link MU Gateway**

**Add new item to STANAG 5066 Servers**

STANAG 5066 Servers > add

About Profile

① STANAG 5066 Server

**Server Name** Required

Distinctive name for the server.

**Host** Required

TCP hostname or address of the STANAG 5066 server.

**Port** Use default

5066

TCP port of the STANAG 5066 server.

Version: 19.3v1

The “Server Name” is a “Friendly Name” that you should use to identify the STANAG server. The “Host” will be IP or Hostname of the 5066 Server. The “Port” is the TCP port of the STANAG 5066 Server

**M-Link MU Gateway**

**Add new item to STANAG 5066 Servers**

STANAG 5066 Servers > add

About Profile

① STANAG 5066 Server

**Server Name** Required

Icon5066-Node1

Distinctive name for the server.

**Host** Required

Icon5066SVR

TCP hostname or address of the STANAG 5066 server.

**Port** Use default

5066

TCP port of the STANAG 5066 server.

## M-Link Mobile Unit Gateway R19.4 Evaluation Guide

Scroll down.

In “Local SIS Address” Add the local SIS address of the STANAG 5066 server, “SAP ID” add the SAP ID used for this link.

The screenshot shows the 'Add new item to STANAG 5066 Servers' form. The left sidebar is titled 'M-Link MU Gateway' and includes a 'Main Menu' and 'STANAG 5066 Servers (0)' dropdown. The main content area has a title 'Add new item to STANAG 5066 Servers' and a breadcrumb 'STANAG 5066 Servers > add'. The form fields are: '5066' (TCP port of the STANAG 5066 server) with a 'Use default' checkbox; 'Local SIS Address' (Required) with the value '10.50.66.0' (Local SIS address of the STANAG 5066 server); and 'SAP ID' (6) with a 'Use default' checkbox (The SAP ID used for this link). There are 'Add' and 'Cancel' buttons at the bottom. The version '19.3v1' is shown at the bottom left.

Click “Add” The configuration of the STANAG 5066 Server is now complete and we can proceed to add it to a Link.

The screenshot shows the 'STANAG 5066 Servers' list. The left sidebar is titled 'M-Link MU Gateway' and includes a 'Main Menu' and 'STANAG 5066 Servers (1)' dropdown. The main content area has a title 'STANAG 5066 Servers' and an 'Add...' button. Below the title is a search bar with the text 'Configuration of SLEP-enabled STANAG 5066 servers'. A single server entry 'Icon5066-Node1 →' is displayed. The version '19.3v1' is shown at the bottom left.

Click “Main Menu”, click on “Links”

The screenshot shows the 'Links' page. The left sidebar is titled 'M-Link MU Gateway' and includes a 'Main Menu' and 'Links (0)' dropdown. The main content area has a title 'Links' and an 'Add...' button. Below the title is a search bar with the text 'Specialised federation mechanisms'. A message states 'There are no items to display. Get started by adding one above.' The version '19.3v1' is shown at the bottom left.

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Click “Add”

**M-Link MU Gateway** Add new item to Links  
Links > add

Link

**Link Name** Required  
Distinctive name for the link.

**Enabled**  
 Use default  
If set, use this Link for new outbound connections. [More...](#)

**Link Type** Required  
Please select an option  
Link type.

Version: 19.3v1

The “Link Name” is a “Friendly Name” that you should use to identify the Link, the “Link Type” will be “SLEP” selected from the drop down.

**M-Link MU Gateway** Add new item to Links  
Links > add

Link

**Link Name** Required  
MUGW-2-AIR  
Distinctive name for the link.

**Enabled**  
 Use default  
If set, use this Link for new outbound connections. [More...](#)

**Link Type** Required  
SLEP  
Link type.

Version: 19.3v1

Scroll down.

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The screenshot shows the 'Add new item to Links' configuration page. The left sidebar contains the 'M-Link MU Gateway' header, 'Main Menu', and 'Links (0)'. The main content area has the following fields:

- Session Idle Timeout:** A text input field containing '3600' and a checked 'Use default' checkbox. Below it, a note states: 'Sessions will be closed if no stanzas are sent or received for this number of seconds.'
- STANAG 5066 Server:** A dropdown menu with the text 'Please select an option' and a 'Required' label.
- Remote SIS Address:** An empty text input field with a 'Required' label.

At the bottom left of the sidebar, the version '19.3v1' is displayed. At the top right, there are 'About' and 'Profile' links.

From “STANAG 5066 Server” select 5066-node1. “Remote SIS Address enter the IP address of the remote STANAG 5066 SIS Node Address

This screenshot shows the configuration page after the STANAG 5066 Server dropdown has been updated to '5066-Node1' and the Remote SIS Address field has been filled with '10.50.66.1'. The 'Add' button is now visible at the bottom left of the form area.

The configuration fields are:

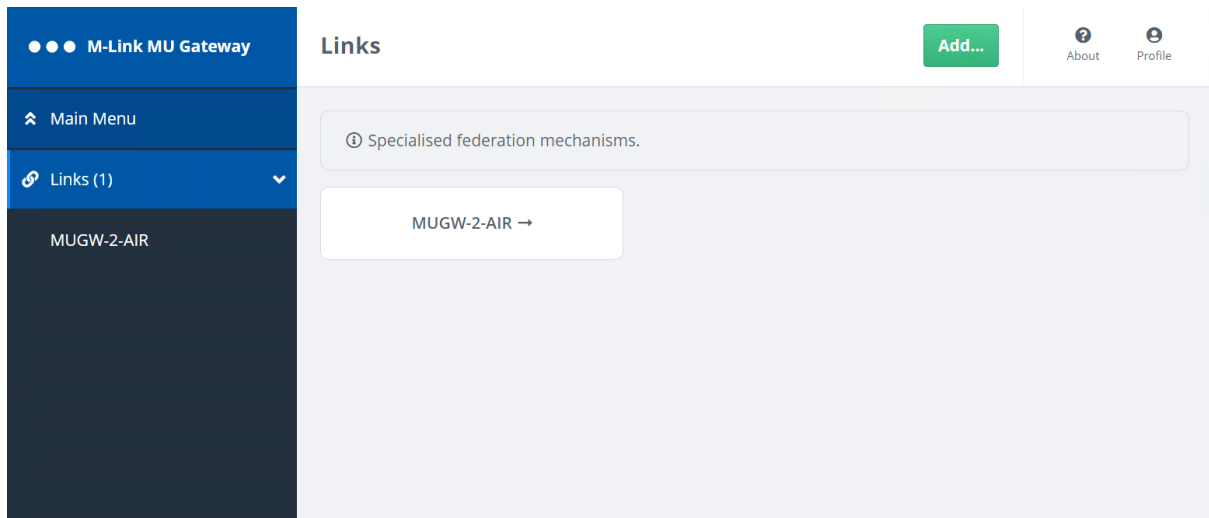
- STANAG 5066 Server:** A dropdown menu showing '5066-Node1' and a 'Required' label.
- Remote SIS Address:** A text input field containing '10.50.66.1' and a 'Required' label.
- PDU Priority:** A text input field containing '10' and a checked 'Use default' checkbox. Below it, a note states: 'Priority of this SLEP link'.
- Compress:** A checked checkbox and a checked 'Use default' checkbox. Below it, a note states: 'If enabled, SLEP compression will be enabled for this link.'

At the bottom of the form area, there are 'Add' and 'Cancel' buttons. The version '19.3v1' is still visible in the sidebar.

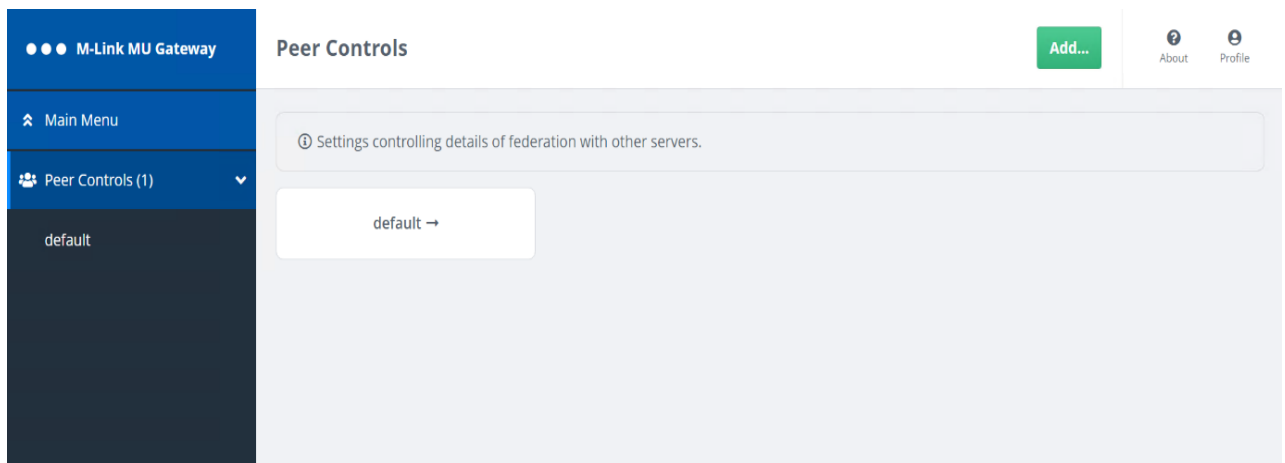
Click “Add”

Your SLEP Link is now complete, we can proceed to add it to a Peer Control Configuration.

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From the Main Menu click “Peer Controls”:



Click on “Add”

Complete the “Domain”, “Matching Rule” and Check the “Use Specialised Connection Mechanism” Checkbox

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The screenshot shows the 'Add new item to Peer Controls' configuration page in the M-Link Edge interface. The left sidebar includes a search bar, 'Main Menu', and 'Peer Controls (2)' with a dropdown menu showing 'default' and 'black.net'. The main content area is titled 'Settings controlling details of federation with other server(s)'. It contains several sections: 'Domain' (Required) with an empty text input field; 'Matching Rule' with a dropdown menu set to 'Domain' and a 'Use default' checkbox checked; 'Use Specialised Connection Mechanism' with an unchecked checkbox and a 'Use default' checkbox checked; and 'Block' with an unchecked checkbox and a 'Use default' checkbox checked. A 'Perform Dialback When Offered' section is partially visible at the bottom.

The “Domain” should be the XMPP Domain of the Server you are connecting to. The “Matching Rule” should be “Domain and Subdomain” if you want to include both the 1 to 1 Domain and Multi User Chat (MUC) Domain. You should then select the “Link” you have just created from the drop down.

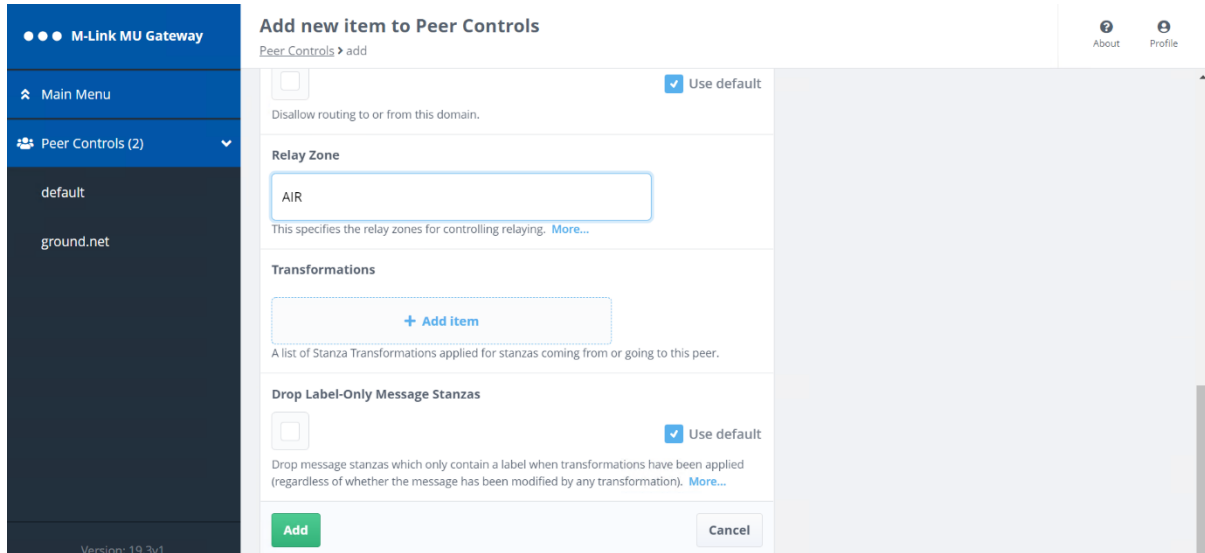
The screenshot shows the 'Add new item to Peer Controls' configuration page in the M-Link MU Gateway interface. The left sidebar includes a search bar, 'Main Menu', and 'Peer Controls (1)' with a dropdown menu showing 'default'. The main content area is titled 'Settings controlling details of federation with other server(s)'. It contains several sections: 'Domain' (Required) with a text input field containing 'aircraft1.net'; 'Matching Rule' with a dropdown menu set to 'Domain and Subdomains' and a 'Use default' checkbox unchecked; 'Use Specialised Connection Mechanism' with a checked checkbox and a 'Use default' checkbox unchecked; and 'Link' (Required) with a dropdown menu set to 'MUGW-2-AIR'. A 'Perform Dialback When Offered' section is partially visible at the bottom.

Scroll down to “Relay Zone”



## M-Link Mobile Unit Gateway R19.4 Evaluation Guide

The M-Link MU Gateway Server does not have a Domain of its own, so it typically relays between different XMPP Domains. In order to do this, each Peer Control needs a unique “Relay Zone” defined. This is a free text name, so should be something to remind you of where you are relaying between:



Click “Add”

You have now completed configuring the “SLEP” Link and associated Peer Control.

You have also reached the end of this Guide. Further Advanced Configuration Options can be found in the M-Link R19.4V6 User Manual or by contacting [isode.support@isode.com](mailto:isode.support@isode.com).

## What Next?

### Other Evaluations

This guide is one many relating to Isode's XMPP Messaging Products, other guides are:

- Setting up an XMPP System for 1:1 and Multi-User Chat
- Connecting XMPP and IRC Chat Services (M-Link R17.0 only)
- M-Link EDGE 19.4 Evaluation Guide

Information on all of these evaluations can be found at [www.isode.com/evaluate/evaluate-xmpp.html](http://www.isode.com/evaluate/evaluate-xmpp.html) . For messaging evaluations outside the scope of these guides, please contact us.

### Whitepapers

Isode regularly publishes whitepapers on technical and market topics related to its products. A full list of these can be found at [www.isode.com/whitepapers](http://www.isode.com/whitepapers)

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