

Configure Secure Network for DDBC320-DALI

To configure a secure Dynalite network when connecting a DDBC320-DALI via Ethernet, please follow the architecture guidelines and configuration steps below.

(This FAQ only applies to System Builder version 4.33 or earlier).

Architecture guidelines

- Connecting a DDBC320-DALI controller securely via Ethernet requires at least one PDDEG-S for maximum of 25 x DDBC320-DALI.
- System Builder (SB) and System Manager (SM) are then configured to connect using a secure web socket to the PDDEG-S. The PDDEG-S will then connect to the DDBC320-DALI controllers via secure TLS TCP connections.
- It is recommended that the DyNet spur address range offsets are configured on the DDBC320-DALI rather than the PDDEG-S. Multiple DDBC320-DALI can be configured with the same offset, so they behave as a single spur.

Configuration Steps

1. Create a site private key
2. Configure PDDEG-S
 - a. Add PDDEG-S
 - b. Run Bridge Configuration Wizard
 - c. Configure User for Web Socket
 - d. Add Routing between multiple DDBC320-DALIs
 - e. Upload site private key
 - f. Save to device
3. Configure DDBC320-DALI
 - a. Add DDBC320-DALI
 - b. Run Bridge Configuration Wizard
 - c. Set secure TCP client port
 - d. Upload site private key
 - e. Save to device
 - f. Move under PDDEG-S
4. Configure Ethernet Trunk

1. Create a site private key

1. Download and install openssl - <https://tecadmin.net/install-openssl-on-windows/>
2. Open a command prompt and run the following command:

```
"<Installed Location of openssl>\openssl.exe" genrsa -out "<filename>" 2048
```

For example

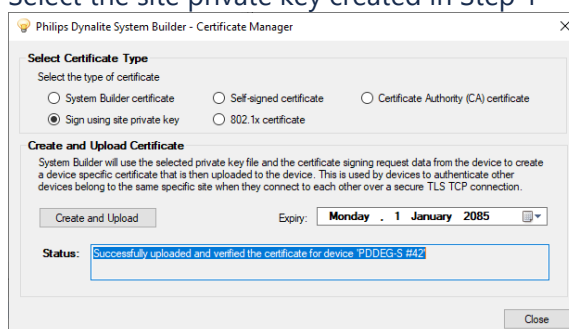
```
"C:\Program Files\OpenSSL-Win64\bin\openssl.exe" genrsa -out  
"C:\temp\mySitePrivateKey.pem" 2048
```

2. Configure the PDDEG-S

1. Add PDDEG-S to SB by connecting via RS-485.
2. Run Bridge Configuration Wizard.
 - a. From System Selection, select **Hotel Floor Ethernet Gateway**
 - b. Check **Static IPv4 address** and configure static IP Address (and Gateway and Subnet mask if required)
 - c. Under **Configuration Selection**, ensure **Connections** is checked and click **Next**.
 - d. In Trunk Connection > Connection Type, select **Web Socket** and check **Secure**
 - e. Set Floor Connection port as **50443** and ensure **Secure** is checked and click **Next**
 - f. Do not add any Physical and Logical Ranges and click **Next**
 - g. Ensure Device Online Status metric is checked and click **Finish**
3. Configure User for Web Socket.
 - a. In the Users editor, configure a User for authenticating the connection over the web socket. In the Users editor enter and confirm the password for the admin user (or a different user can be created)
4. Add Routing on PDDEG-S to route messages between multiple DDBC320-DALIs:
 - a. In Routing editor add the following additional routing record
IPv4 TCP Port 50443 → IPv4 TCP Port 50443
 - b. **Note:** This routine record is required if there are common area messages to be routed between different DDBC320-DALIs. If the network is busy, then there may be performance issues as this routine record will result in all messages from every DDBC320-DALI being routed to all other DDBC320-DALI controllers. If this is the case, then it may be necessary to have separate secure ports (with different port numbers) for groups of DDBC320-DALI that have common areas

Enable	From	To	Filters
<input checked="" type="checkbox"/>	IPv4 Port 1, Spur, TCP Server, Port: 50443	Web Socket Port 1, Trunk	No filter
<input checked="" type="checkbox"/>	IPv4 Port 1, Spur, TCP Server, Port: 50443	IPv4 Port 1, Spur, TCP Server, Port: 50443	No filter
<input checked="" type="checkbox"/>	Metrics Collection	Web Socket Port 1, Trunk	No filter
<input checked="" type="checkbox"/>	Internal Messages	IPv4 Port 1, Spur, TCP Server, Port: 50443	No filter
<input checked="" type="checkbox"/>	Internal Messages	Web Socket Port 1, Trunk	No filter
<input checked="" type="checkbox"/>	Web Socket Port 1, Trunk	IPv4 Port 1, Spur, TCP Server, Port: 50443	No filter

6. Upload site private key.
 - a. Right-click the PDDEG-S and select **Manage Certificate**
 - b. Select Certificate Type **Sign using site private key**
 - c. Select the site private key created in Step 1



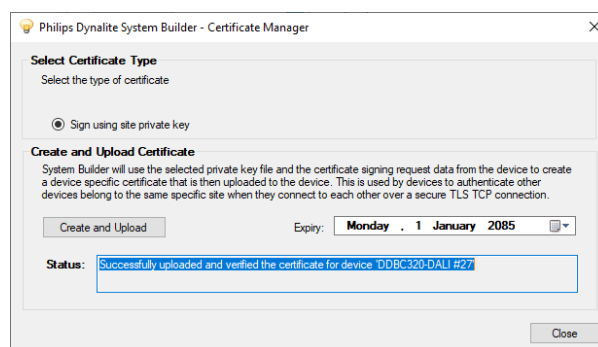
7. Save Configuration to Device.

Note: To secure the system, in Ports editor, ensure that no additional un-secure IP ports are configured.

3. Configure the DDBC320-DALI

Perform the following steps for each of the DDBC320-DALI controllers

1. Add DDBC320-DALI to SB by connecting via RS-485.
2. Run Bridge Configuration Wizard.
 - a. From System Selection, select **DyNet Translation Ethernet Gateway**
 - b. Check **Static IPv4 address** and configure static IP Address (and Gateway and Subnet mask if required), as configured in the Ports editor. It is possible to use either static or dynamic IP address on the DDBC320-DALI controllers as they will be connecting to the PDDEG-S.
 - c. Under **Configuration Selection**, ensure **Connections** is checked and click **Next**
 - d. Select Trunk Connection Type of **TCP IPv4**
 - e. Set Trunk Port to **50443**
 - f. Leave all other check boxes unchecked
 - g. Ignore Inter-spur Connection and click **Next**
 - h. Add Physical and Logical Ranges. Recommend not to have a group of more than three DDBC320-DALIs with the same address ranges. Add common area address ranges if required and click **Next**
 - i. Uncheck all metrics and click **Finish**
3. Set secure TCP client port. In the Ports editor change IPv4 port properties to:
 - a. Port type: **DyNet2**
 - b. Mode: **Client**
 - c. IP Address: <IP address of PDDEG-S configured above>
 - d. Port Number **50443**
 - e. Protocol: **TCP**
 - f. Secure port: **True**
 - g. Connection: **Trunk**
4. Upload site private key.
 - a. Right-click the DDBC320-DALI and select **Manage Certificate**
 - b. Select Certificate Type **Sign using site private key**



5. Save Configuration to Device.
6. Drag the DDBC320-DALIs under a PDDEG-S in System view.

Note: To secure the system, in Ports editor, ensure that no additional un-secure IP ports are configured.

4. Configure the Ethernet Trunk

1. In SB job level Connection Settings editor, select **Use Ethernet Trunk**.
2. Check **Web Socket if available**.
3. Click **Connect**.
4. Test sign-on to the PDDEG-S.
5. Test sign-on to each DDBC320-DALI under a PDDEG-S.

Connection Settings

Use machine connection settings
Configure...

Use job specific connection settings
Configure...

Use Ethernet Trunk Connection
 Websocket if available

Use Serial Trunk Connection

Use Online Gateway Connection
Configure...

Set all EGs to localhost

Starting Port: 50000

Current Connection Properties

Connection Type	Ethernet trunk connection
Status	Connected
Connection count	1

Ethernet Trunk Connection Settings

Connected	Enabled	Bridge Name	Box Number	IP Address	Port	Routing	Tx Delay	Status
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	PDDEG-S #42	42	192.168.1.3	4252	None	20	Connected