

Tutorial 3. Remote access to FreeSCADA channels

Contributed by Michael
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Sometime there is a need to distribute data from single "server" box with a number of devices connected to several clients without physical access to server. If so, then you might be interesting in remote access feature of FreeSCADA. It allows you to setup dedicated server, specify appropriate connections to devices using standard protocols (OPC, MODBUS) and retranslate these channels to several clients. Our internal protocol is HTTP based which technically allows you to access this data from other sub networks. For example retrieve data over Internet.

Starting from version 2.0.0.8 FreeSCADA distribution includes CLServer module and appropriate communication plugin which will allow you to establish these connections. In general you need the following:

- Create empty project and define connections to devices. It will be used by server.
- Start server application and make sure that appropriate ports are opened for remote access.
- Create project with visual stuff and connect it to the server.
- Distribute project with visual schemas to clients.

For the first step open designer and create data channels you need. You can use any of available plugins.
MODBUS

In this example I will use Simulator data as a bit simpler thing to reproduce.

So, I defined several variables for the project and now it can be saved. Let's call it "server-channels.fs2"

Next step is to start CLServer. It has several command line options:

Option	Description
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--help, -h, -?	Displays help on available commands
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-f, --project-file	The server will get all information on communication channels from this file.
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-p, --port	Specifies TCP port for the server. Default value is 8080
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Type
the following
in command line:

```
clserver.exe  
--project-file="d:\server-channels.fs2" --port=8081
```

If server started successfully
you should see
the following:

```
Command line FreeSCADA server version 2.0
```

```
Copyright (c) FreeSCADA project
```

```
Initializing communication plugins... Done.
```

```
Server address http://localhost:8081/
```

```
Press <ENTER> to terminate
```

In
some
cases operation system doesn't allow application to register new HTTP
namespace
for the server. If you see such error message, look for OS
documentation of how
to fix that. In general, if you start this server using Administrator
account,
everything should be fine.

So,
the
server is now running and we can proceed to next step and create new
project
with visual schema which displays data from our server. Start Designer
and open
"FreeSCADA remouting properties..." window and click on "Import" button.
There we
need to specify our server address and port number. After clicking
"Connect" it
should show a tree of server channels like on the picture.

That's
it.
Now click "ok". That will save our settings and make it available for
visual
schema.

For
new
schema I placed 3 textboxes with "variable N = " labels.

Then
associate these labels with channels using binding command.

On
the
binding window select "Text" property on the left list and "Bind to
string type"
option from combobox on the top. Then click "Create association". It
will
create new binding, but it still empty. Double click on variable from
right
tree view to add new argument into the association and modify text
template
like on the picture (insert "{0}" into appropriate position).

Repeat
this
for next two labels. Then save the project and open in Runtime module.
You will
see how these variables are changing over time.