

CUBEBROWSER

CONNECTION MANUAL

Contact:

Rystad Energy

Support Team

support@rystadenergy.com

+47 90 88 77 00

www.rystadenergy.com

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This manual explains how Cube Browser installs and connects to Rystad Energy servers.

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Installation

Cube Browser is the proprietary client developed by Rystad Energy for analyzing data from Rystad databases. The app runs under Windows.

Latest version of the installation file can always be downloaded from <http://www.rystadenergy.com/Databases/Support/Downloads>

The installation files are .msi files.
Installation files for 32-bit and 64-bit operating systems are available.

Installation on PC

Requires admin rights on PC.

Run the downloaded .msi file. Cube Browser will be installed (by default) under C:\Program Files\Rystad Energy\Cube Browser (Program Files (x86) for 32-bit)

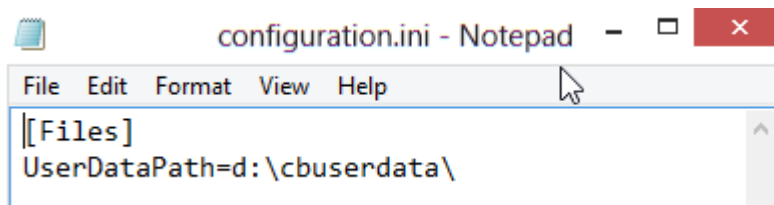
Two programs are installed

- CubeBrowser.exe – this is the application to access the databases
- CubeBrowserConfiguration.exe – used to configure communication

User data will by default be stored at

C:\Users\YourDomainUsernameHere\AppData\Local\Rystad Energy\CubeBrowser

User data can be redirected using the configuration.ini file in the program folder:



More on files below.

Central deployment

The msi file can be installed silently and be deployed to relevant users:

Run `msiexec /i RystadCubeSetup.msi /quiet`

The above also applies here. Redirection can also be done on the command line:

`msiexec /i CubeBrowserSetup_x64_1_18_20.msi`

`USERDATAPATH=d:\cbuserdata\`

Central installation

Cube Browser will also work when installed on a server. Users will log into server remotely and start Cube Browser with their own credentials. Users will share some basic settings, but not session related data, such as “restart from last session”.

Files

When the user logs in to the database the system will check if all required files are available on the on the user side. Missing files will be downloaded, and outdated files updated. These files are:

- Cache files – structure files that speed up use of Cube Browser
- Templates – predefined queries to help users get started, and report templates
- Map layers and projections – for Cube Browser version <2.0
- User set-up files - last session, connection, color selections, user saved templates, etc.

These files will be updated regularly, so the application must have access to the userdata area. If the user doesn't have these rights on his PC, the userdata may be redirected to eg a shared disk where the user has these rights.

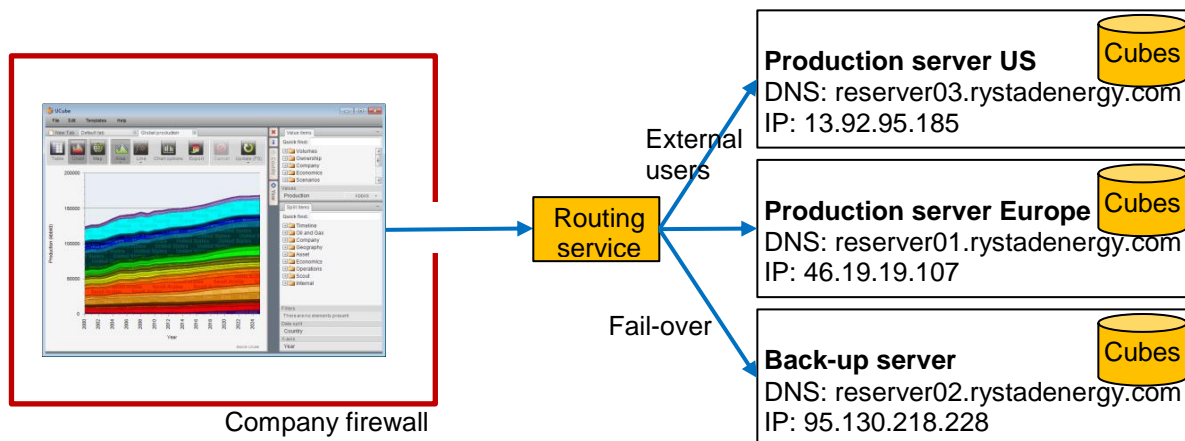
The application does not write to the program folder.

Overview of connection system

The Cube Browser application needs to access the cube servers.

The cubes system is outlined below:

There are currently 3 mirrored sites; Production servers US and Europe are intended for clients in Western and Eastern hemisphere, and if these servers for



any reason should fail users will be redirected to the back-up server. The DNS's and IPs of these servers are shown above.

Cube Browser connects to the cube servers over the Internet. In some cases this requires some configuration of the communication or adjustment of the firewall.

Getting through the firewall

When starting Cube Browser after installation, if you are allowed to write in the log-in window the connection is OK and there is no further need for configuration. Your active connection is shown in the lower right corner. This is the test to do when testing different connections.



If the connection is unsuccessful, the log-in field turns grey, and the status says "could not connect to server". In this case you will need to configure Cube Browser to work with your firewall.

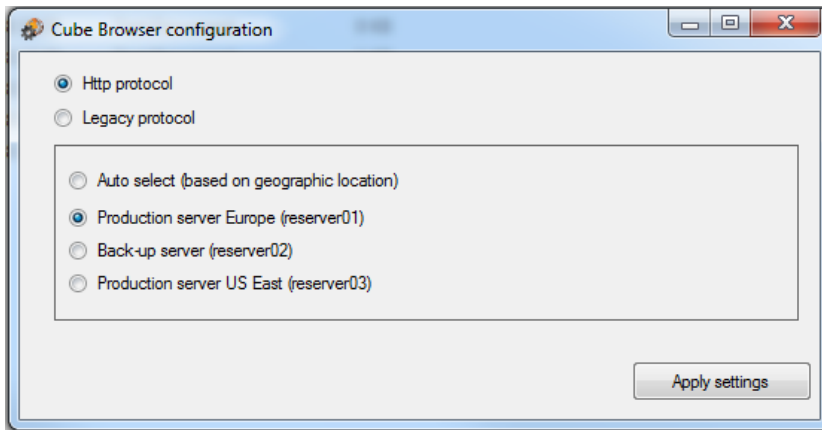
Two main protocols

Because company firewalls only allow traffic on specific protocols to pass, Cube Browser supports several protocols, defined in the table below. The are two main protocols:

“Http protocol”

With the http protocol, Cube Browser works more or less like a browser. It uses the “Internet Options” configuration and queries data from our servers using standard http requests over SSL. It uses cookies to maintain the session. This protocol works out of the box for most users. When starting the CubeBrowserConfiguration program in http mode, it shows:





The user can select which server to connect directly to, or use Auto select, which mainly does an IP look-up to select a best server. At a later stage this may include load balancing, but for now users are best served by testing which servers give the fastest response, and select that. Press "Apply settings" to try out the new selection. The protocol settings are stored in the file Settings.config in the userdata folder.

Legacy protocol

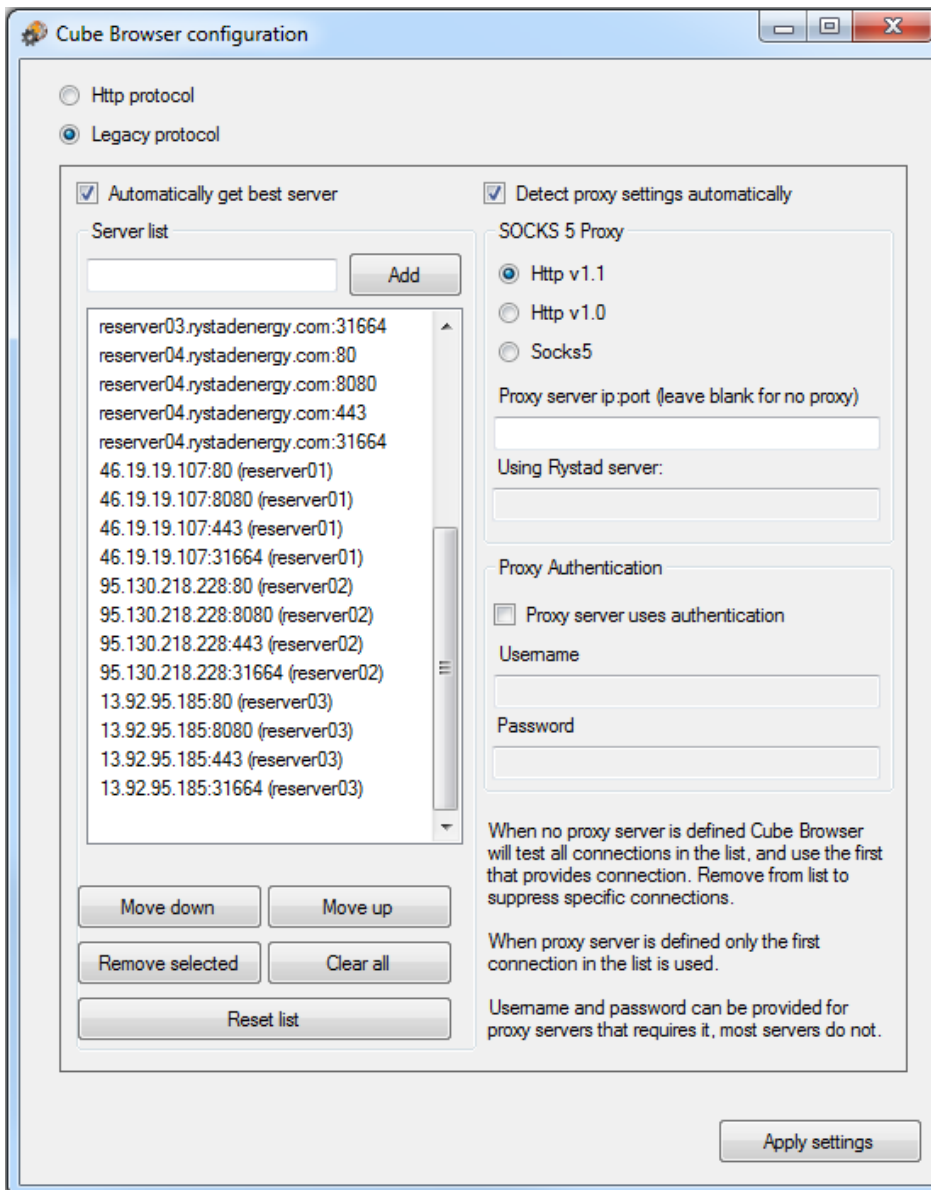
The legacy protocol has been developed over time to adapt to different firewall requirements. If the http connection is unsuccessful, the legacy protocol gives the options to define the addresses to use and adapt to proxy servers. The user will normally need to refer to the IT department for the protocol details to fill in to the Cube Browser Configuration program, ie which IPs or ports can be used with the firewall, or details of proxy servers. When the connection is successful, it is sufficient to distribute the Settings.config file to other users in the company for them to get the same settings.

The legacy protocol works with 4 ports: 31664 – a proprietary, encrypted protocol; 80 and 8080, where the proprietary protocol is wrapped in http for default and default proxy server internet ports; and 443, which uses SSL encryption.

CubeBrowserConfiguration lists all the connections (see below, left hand side). By default Cube Browser will start on the top of the list and try all connections, and use the first to respond. It is advised to conclude on one connection to use, and then remove the other connections. If the selected connection does not respond

Cube Browser will anyway attempt to connect on the Back-up server. The full list can be retrieved using the Reset list button.

Proxy server configuration can be done on the right hand side in the CubeBrowserConfiguration app. Three proxy server protocols are supported, and the IP:port of the proxy server can be specified. Some companies require proxy server authentication. Then the user must enter his domain credentials in the setup. Needless to say, this information stays behind the firewall. Again, details should be provided by the IT department.



List of all protocols:

http-protocol:	Cube server	Protocol detail
https://reserver01.rystadenergy.com/	Prod server Europe	Uses https/SSL
https://reserver03.rystadenergy.com/	Prod server US	Uses https/SSL
https://reserver02.rystadenergy.com/	Back-up server	Uses https/SSL
Legacy protocol:		
reserver01.rystadenergy.com:443	Prod server Europe	Uses https-Connect/SSL
reserver01.rystadenergy.com:80		Http-Connect, default internet port
reserver01.rystadenergy.com:8080		Http-Connect, default proxy internet port
reserver01.rystadenergy.com:31664		Proprietary protocol, faster with no firewall
46.19.19.107:xxxx		IP, can be used to replace the DNS
reserver03.rystadenergy.com:443	Prod server US	Uses https-Connect/SSL
reserver03.rystadenergy.com:80		Http-Connect, default internet port
reserver03.rystadenergy.com:8080		Http-Connect, default proxy internet port
reserver03.rystadenergy.com:31664		Proprietary protocol, faster with no firewall
13.92.95.185:xxxx		IP, can be used to replace the DNS
reserver02.rystadenergy.com:443	Base	Uses https-Connect/SSL
reserver02.rystadenergy.com:80		Http-Connect, default internet port
reserver02.rystadenergy.com:8080		Http-Connect, default proxy internet port
reserver02.rystadenergy.com:31664		Proprietary protocol, faster with no firewall
95.130.218.228:xxxx		IP, can be used to replace the DNS

Other communication and environment

The protocols described above relate to the core functionality of sending requests and retrieving data from the cube servers. However, Cube Browser uses web calls to retrieve tool tips and contextual help information, and includes useful links to our web pages. Cube Browser also supports sending emails to Rystad support, or for sending tabs (analyses) to other users. If firewall or policy blocks these queries or emails, this functionality will not be available to the users.

Cube Browser has powerful functionalities that require Microsoft Office to be installed on the same machine. If not installed this functionality will not be available. This includes exports of charts and tables (but clipboard can be used), but also generation of factsheets and UCube Economic Model.

On the server side Rystad Energy monitors the user activity, i.e. the number of queries, but not which queries the user makes. No user-related information is shared with third parties. Rystad Energy is GDPR compliant.

Firewall work-arounds

As described above, Cube Browser is set up to pass through all firewalls encountered. However, due to strict IT policies trial users often experience that IT will not support a trial - either they do not allow installation of new software on PC's behind their firewalls, or they will not spend time on an application just for testing purposes. In these cases the following work-arounds have been used for trials:

- Cube Browser has been installed on a stand-alone PC connected to internet, but not to the company network.
- This PC is often a laptop using WLAN or mobile broadband.
- Some users have installed Cube Browser on their home PC's or private laptops for testing. This is compliant with license agreement, which relates to users, and not to where the user accesses the cubes.