



User Guide

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1 Overview

1.1 netPump™ service

The netPump™ service enables efficient transferring of files between host machines. It acts as a conduit between machines for transferring of files over standard internet infrastructure.

1.2 Concepts

1.2.1 Sender / receiver

The *origin* is the machine where the files originate from. This is synonymous with the *sender*.

The *destination* is the machine where the files will be written to. This is synonymous with the *receiver*.

The netPump™ service is installed on each machine which will be a sender and/or a receiver of files. Any given netPump™ service can act as both a sender and a receiver of files.

To transfer files from a sender to a receiver, the user issues a command to initiate the transfer from the receiving end.

1.2.2 Sessions

When a user requests the transfer of files, it is represented as a transfer *session*. When a 'start transfer' request is created, a unique session ID (GUID identifier) representing the session will be returned in the response. After the session has been created, the user can use the session ID to retrieve further information about the session in progress or to pause/resume a session.

Multiple transfer sessions can run in parallel. The performance at which files are transferred may be impacted if many sessions are in progress concurrently.

1.2.3 Transfer of files

Individual files requested for transfer within a session will be retrieved sequentially.

1.3 netPump™ service clients

The netPump™ service provides a web Application Programming Interface (API) which enables web-enabled applications such as a graphical user interface (UI), provided automation scripts, and tools such as cURL to interact with the netPump™ service.

A high-level application such as the netPump™ UI is suitable for most end users. It is a graphical user interface which has most of the functionality to initiate and monitor the transfer of files. It is discussed in detail below.

Mid-level applications include Bash and Powershell scripts. The provided scripts are specifically for initiating file transfers and is suitable for scheduling/cron jobs.

Low-level applications include tools such as cURL, Fiddler or Postman. These applications allow fine-grained control of interactions with the netPump™ service.

2 Setting up the netPump™ service

2.1 Prerequisites

2.1.1 Operating system requirements

The following operating system requirements are needed to run the netPump™ service and graphical user interface (UI).

- 4GB RAM
- Multicore CPU
- Windows 8.1+ or Windows Server 2008 R2+

2.1.2 .NET Core Runtime

The .NET Core Runtime is required to run the netPump™ service.

Open a browser and navigate to: <https://dotnet.microsoft.com/download/archives>

Download the installer (.exe) suitable for the target machine. Select the most recent Long Term Support (LTS) version (2.1.8 at the time of writing).

Double-click on the installer file. It will guide you through the installation process.

2.1.3 Access to internet

Internet access is required for usage reporting purposes.

2.2 Installation

For a minimal installation, the following steps are sufficient to get the service running:

1. Download the netPump™ archive package and credentials file from Pacbyte.
2. Download and install a suitable 7-zip file archiver if one is not already installed.
3. Extract the netPump™ package using the 7-zip archiver to a suitable location e.g. `C:\netPump`. This location will be the root installation folder where all necessary resources will reside. The archive is password-protected. When extracting the files, enter the password stored in the credentials file.

For setting up netPump™ as a service daemon and/or configuring the service to run behind a reverse proxy server, see the Administration guide for further details.

2.3 Configuration

The authorization secret allows a netPump™ service to authenticate and communicate with other netPump™ services installed on different machines. Setting this field is mandatory.

To set/modify this value, open the `appsettings.json` file under the root installation directory. The relevant field to change is `netPumpApiSecret`:

```
"ServiceSettings": {  
  "netPumpApiSecret": "AUTH_SECRET",
```

```
    },  
    ...  
}
```

Replace **AUTH_SECRET** with a suitably secure text value.

Other netPump™ settings can be modified in this file. Changing the file requires a server restart. Refer to the Administration guide for further details about configuring the netPump™ service.

2.4 Start the service

2.4.1 Recommended start up

It is recommended the netPump™ service be run using a reverse proxy server such as IIS or Nginx. See the Administration guide on how to configure IIS/Nginx with HTTPS support.

2.4.2 Start up for testing purposes

For testing purposes, the netPump™ service can be run directly. To do this, run the netPump™ service with the dotnet runtime:

```
"C:\Program Files\dotnet\dotnet.exe" netPump.Service.dll
```

The service should start and bind to `http://localhost:5000/` by default.

Note: the user account under which the netPump™ service runs determines the files which are available for transfer. It is recommended the service be run under an account with appropriately limited access.

2.4.3 Check the service is running

Open a browser window, cURL or other HTTP client and request the endpoint:

```
http://<hostname>:<port>/status
```

If the service has been installed correctly, the page will return a 'Running' status.

2.5 End user licence agreement

The current end user licence agreement can be viewed online by navigating to the URL:

```
http://<hostname>:<port>/eula.html
```

2.6 Uninstalling the service

Shut down the service. Delete the installation directory.

If the server has been set up behind a reverse proxy, consult the administrator - additional steps are required to completely remove the service from the reverse proxy server.

3 netPump™ Data UI

The netPump™ Data UI is a graphical user interface for initiating file transfers between two netPump™ services. The UI communicates with the destination netPump™ service.

Ensure the netPump™ service is running before using the UI.

3.1 Windows

3.1.1 Installation

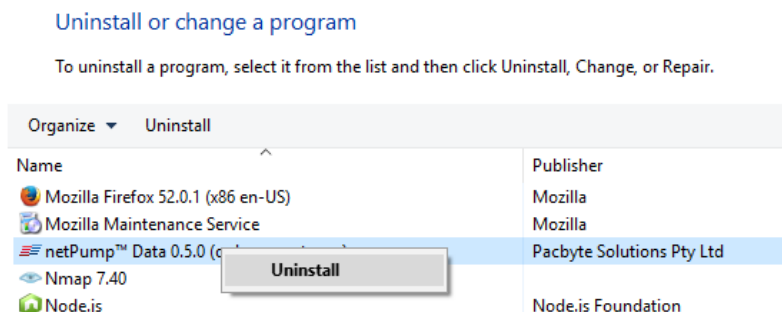
1. Download and extract the installer file e.g. netPump Data-1.2.0-win-setup.exe to a folder of your choice.
2. Double-click on the installer file to run it. It will guide you through the installation process including the selection of an installation directory.

Shortcuts should be available in the start menu and on the desktop.

Once the UI has been installed, double-click on the shortcut or navigate to the installation directory and run the application by double-clicking on the executable file e.g. netPump Data.exe.

3.1.2 Uninstallation

Open the Control Panel and select Programs and Features. In the list of programs, find the netPump™ service. Right-click on it, click Uninstall.



The uninstaller dialog will open. Click through when prompted to uninstall the application.

3.2 Linux

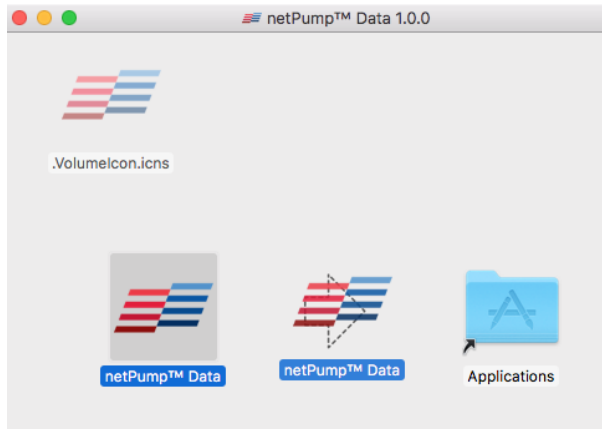
TODO

3.3 Mac OS X

3.3.1 Installation

Download the installer .dmg file.

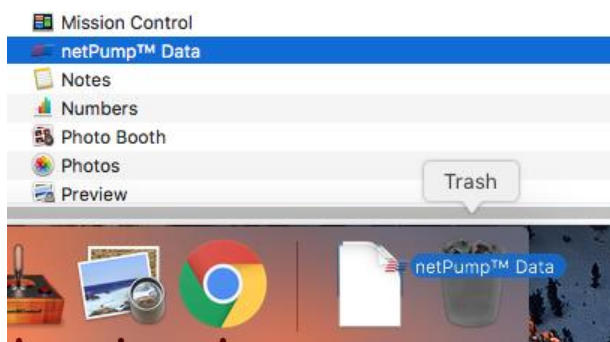
Double-click on the .dmg file and drag the app into the Applications folder.



To start the app, click on the shortcut on the desktop or the icon via the Launchpad.

3.3.2 Uninstallation

Delete the program from the Applications folder on the hard drive. To do this, either right-click on the app, click 'Move to trash' or drag the app into the Trash icon.



3.4 Walkthrough

3.4.1 Input text fields

When the UI is opened, there are a number of input text fields which must be populated.

If all fields are not populated correctly, the netPump™ service will not work.

Authorization: this is the secret stored in the netPump™ services.

Default unsecure service port: this is the port which combined with the service host will be used to communicate with the netPump™ service. The default is 80.

Default secure service port: this port will be used to communicate with the netPump™ service over TLS/SSL. The default is 443.

Origin service: the service from where files will be sourced. This accepts the format:

```
<hostname or IP address>[:<port number>]
```

Examples:

```
localhost
```

```
machine-01  
12.6.7.130  
machine-01:6000
```

If a port number is provided, it will be used instead of the default port.

Note: 'localhost' is a hostname which references the local machine where the netPump™ service has been installed.

Origin directory: the full name of the remote directory where files are located. For example, on a Windows machine:

```
C:\path\to\files
```

And a Linux machine:

```
/home/path/to/files
```

Destination service: the URL of the server from where files will be sourced. This takes the form:

```
<hostname or IP address>[:<port number>]
```

Destination directory: the full name of the destination directory where files will be written to. Each file will be written to the location:

```
<destination directory><path separator><path to the file on the  
origin server>
```

For example:

Given the destination server folder is on Windows: `C:\received`

And the file to be transferred is on a Linux server: `/home/send/a.log`

Then the file will be stored on Windows as: `C:\received\home\send\a.log`

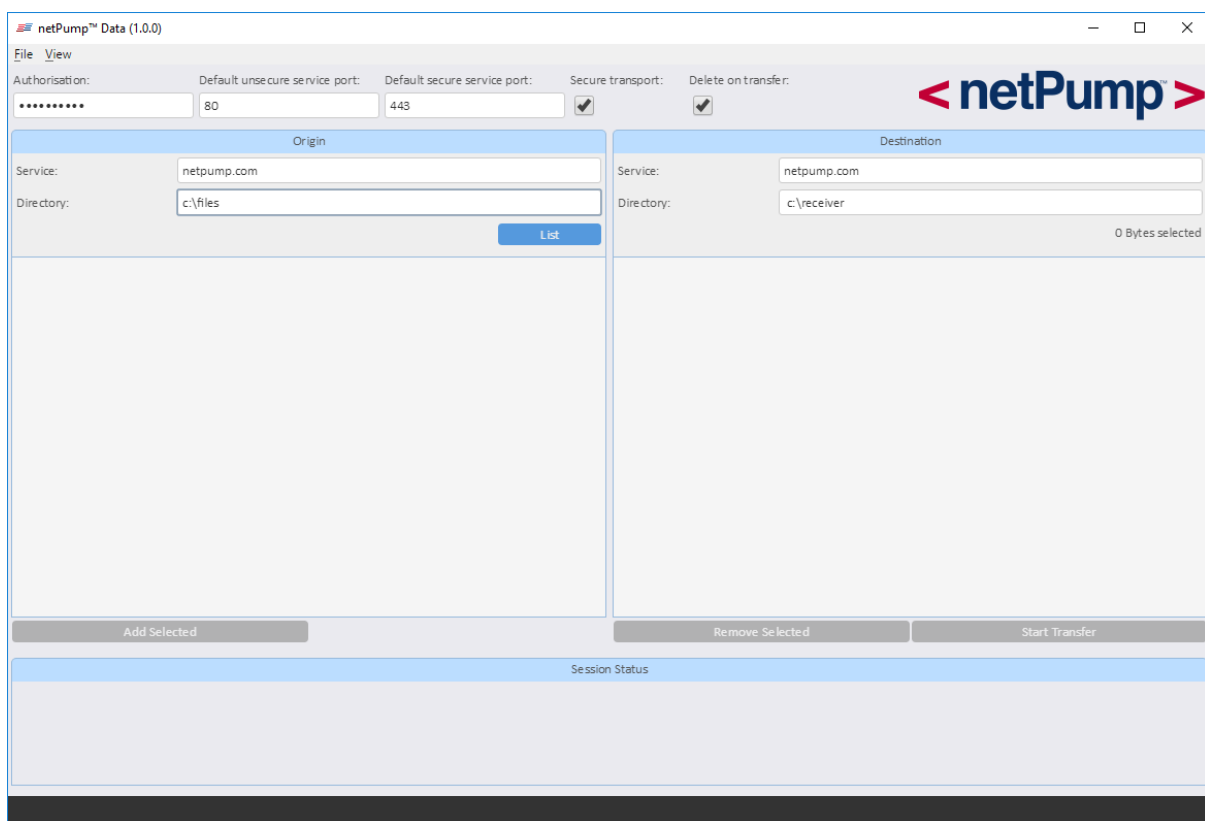
3.4.2 Checkboxes

There are two checkboxes which provide optional support for secure transfers and deletion of files respectively:

Secure transport: When unchecked, the service will use the insecure HTTP protocol. When checked, the service will use TLS/SSL via the HTTPS protocol to communicate with the netPump™ service. For SSL support, the server must be set up and running behind a reverse proxy server such as IIS or Nginx.

Delete on transfer: When checked, the service will delete the files/directories from the origin server after they have been copied to the destination server. This is equivalent to a moving of files. Files/directories will only be deleted if the transfer was complete. If a directory is transferred and one or more files within that directory was not successfully transferred, the whole directory will not be deleted from the origin server.

The UI should look similar to this once the input data has been entered:



3.4.3 List files on origin machine

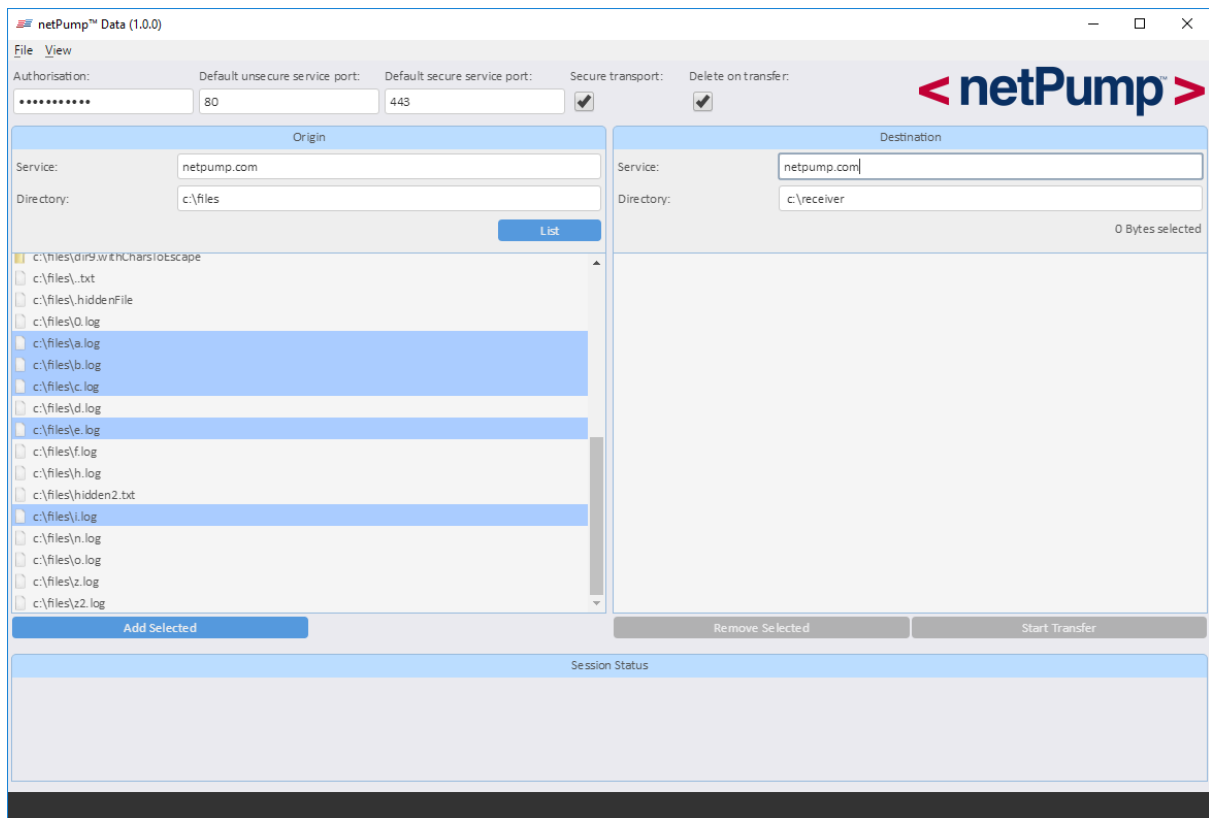
Once the fields have been entered, click the 'List' button to display the directories and files contained in the origin directory.

Note: the files and directories listed will be those which the netPump™ service running on the origin server has the relevant permissions to view.

3.4.4 Add files for transfer

Either files *OR* directories can be selected for a single transfer but not both.

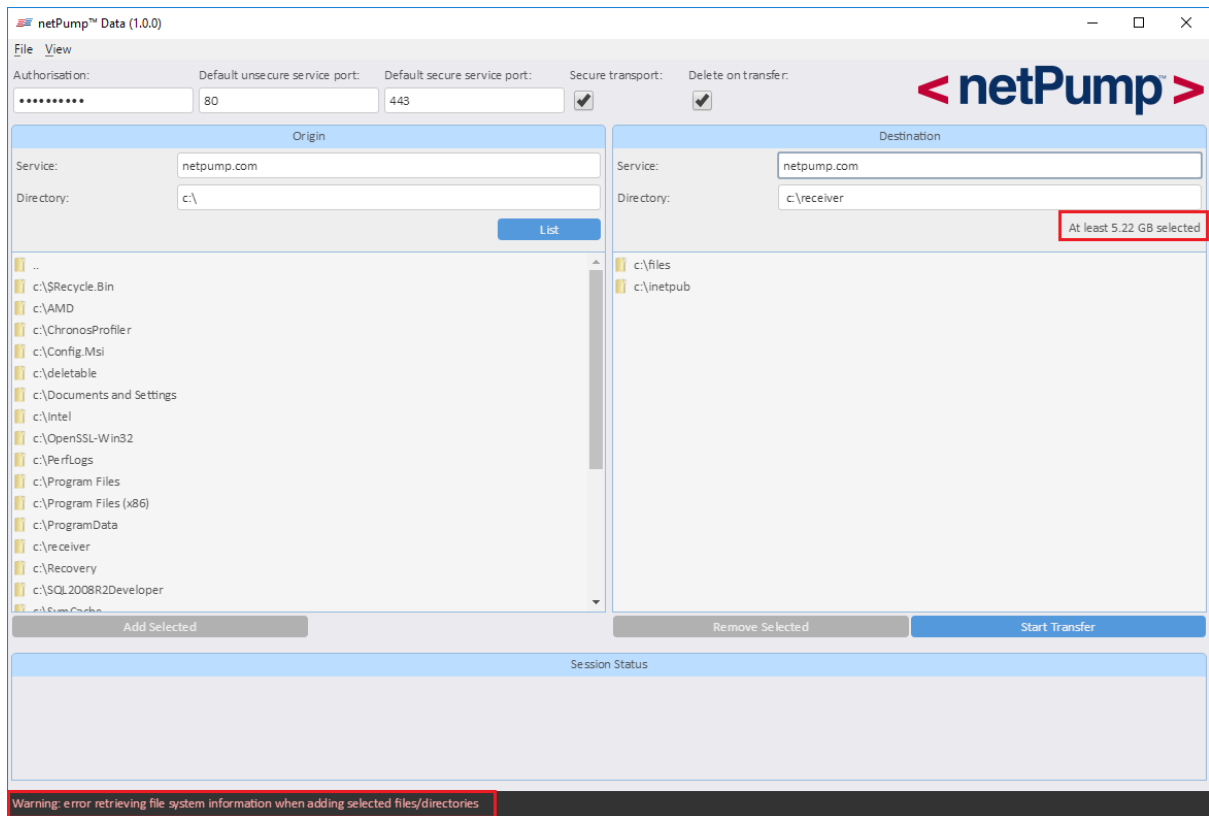
For example, to select multiple files, hold down the Ctrl key then click on several files. A range of files can be selected by clicking on the first file in the range then holding down the Shift key while clicking on the last file in the range. Selected files are highlighted in light blue.



Clicking 'Add Selected' adds the highlighted files to the destination list on the right-hand side. Further files can be added to the batch. These may be from a different folder on the origin server.

A label is provided which estimates the total size of the files to be transferred.

Note: if you attempt to add directories containing sub-directories or files for which access is unauthorised, the service will not be able to provide specific details about the updated size of files to be transferred. In this case, the label which specifies the bytes to be transferred will be updated to give a conservative approximation. In addition, a warning will be displayed at the bottom of the screen:

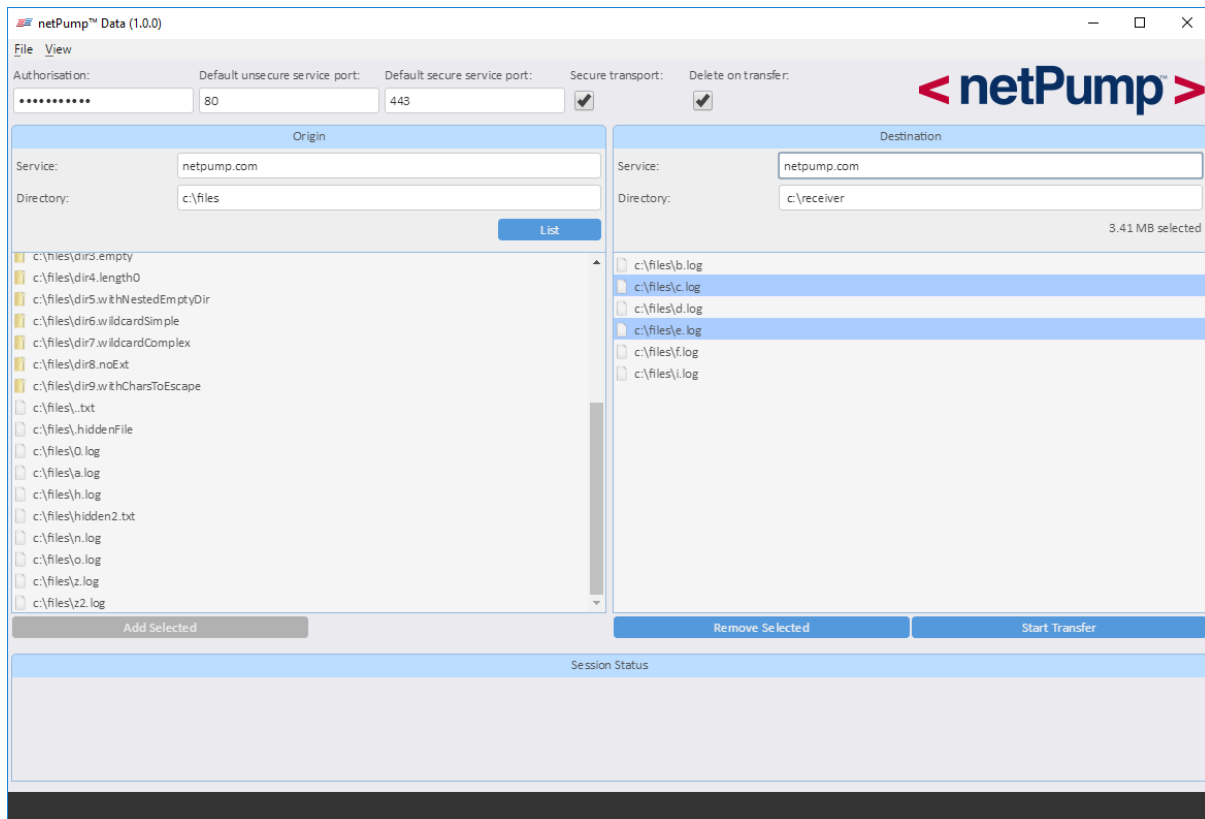


Note: you can select either files or directories but not both. An error will be displayed at the bottom of the screen if this is attempted.

Note: Selecting a directory will result in *all* files in that directory and sub-directories being transferred.

3.4.5 Remove files from selection

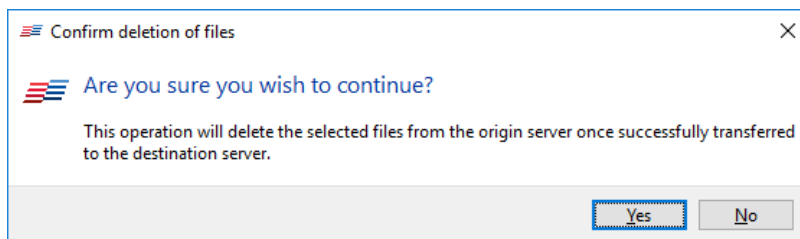
If you wish to remove files from the selected list, click once on each file on the right-hand side then click the 'Remove Selected' button.



3.4.6 Start the transfer

Once all relevant files (or directories) have been selected for transfer, click the 'Start Transfer' button. This will send a request to the destination netPump™ service to start the transfer.

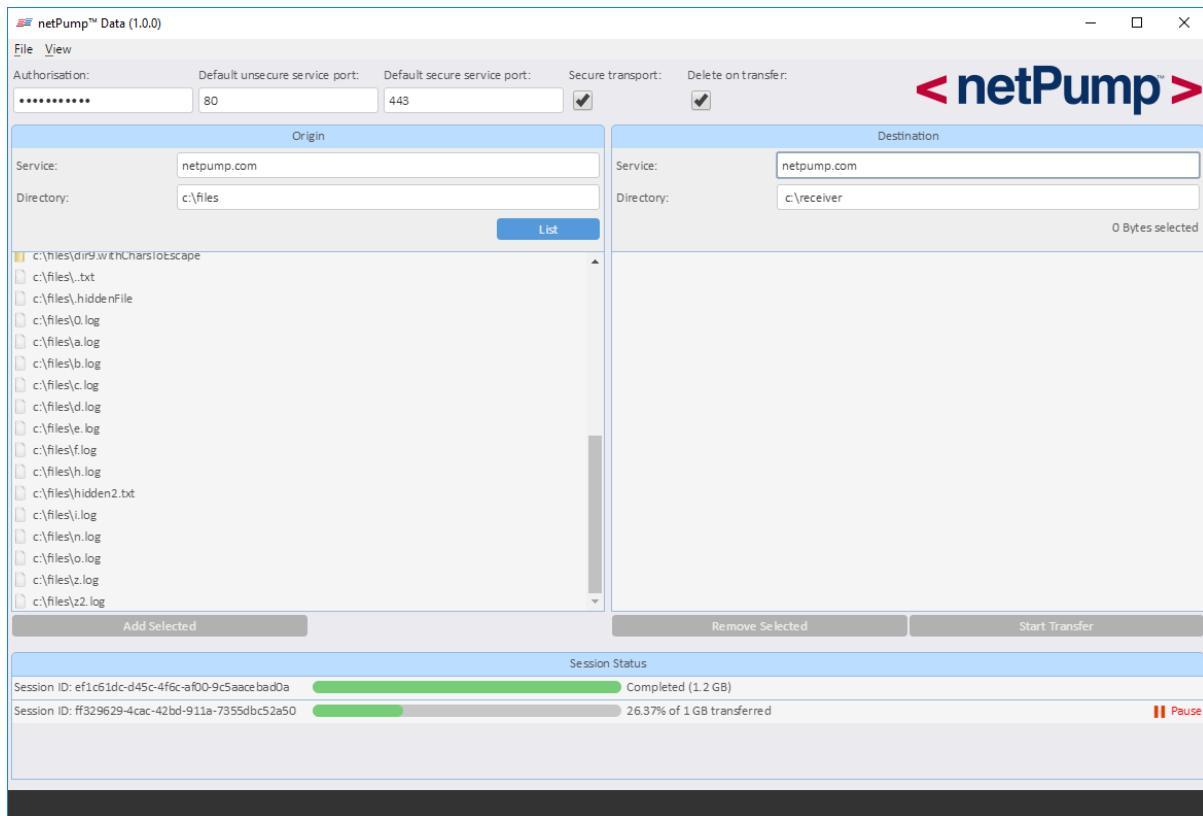
If the 'Delete on transfer' box has been checked, a dialog box will appear asking for confirmation to proceed with the transfer:



Click 'Yes' if you wish to proceed.

If the destination machine does not have enough memory to accommodate all the files to be transferred, an error message will be displayed at the bottom of the screen indicating the problem. Remove one or more files/directories from the selection and try again.

Once the input parameters are validated, a transfer session is created. The progress of the transfer can then be tracked in the bottom panel of the interface.



3.4.7 Pause/resume the transfer

To pause the transfer of files in a particular session, click the 'Pause' button. A 'Resume' button will then appear. Click 'Resume' to resume the transfer.

Note: after clicking 'Pause', the progress bar will continue briefly while it is flushing downloaded segments of the file to disk.

3.4.8 End of transfer

When the transfer session has ended, the session status in the UI will indicate the outcome.

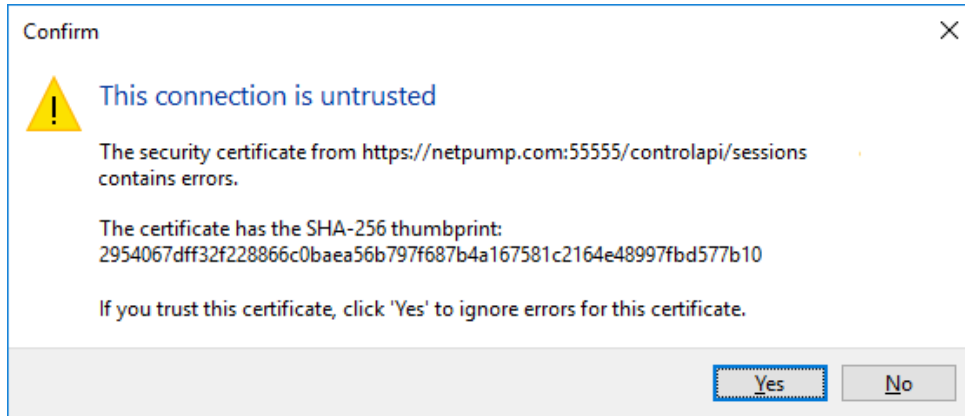
Completed: the session completed with all files successfully transferred.

Completed with errors: the session ended with one or more files failing to be transferred.

Faulted: the session was halted prematurely. When a number of files encountered errors consecutively e.g. network connectivity, processing of files is stopped and the session is faulted.

3.5 Warnings

If the following warning is received, the UI has received a certificate with errors. This implies the certificate cannot be trusted. In some cases (such as in an environment with no certificate authority) the user may want to explicitly trust the certificate after confirming it is from a trusted source:



The thumbprint displayed can be compared against a SHA-256 thumbprint generated using the source certificate.

If the certificate is accepted (clicking 'Yes'), normal operations can proceed and no further warnings will be raised.

If the certificate is rejected (clicking 'No'), the UI will be unable to initiate transfers using the secure transport protocol for the lifetime of the UI application running (unless the netPump™ service is restarted with a valid SSL certificate). The user will still be able to initiate transfers using the insecure transport protocol. The next time the UI is started with the secure protocol in use, the user will be prompted again to accept or reject the certificate.

4 Known limitations and restrictions of file transfers

4.1 File path collisions

4.1.1 Transfers from multiple origin filesystems

When transferring files from two separate filesystems attached to an origin service, if the files share a common path aside from their drive letter, share root, etc, one file will be transferred and any remaining 'collisions' will be flagged and not transferred.

For example, a transfer of:

C:\Data\Files\Example.dat
D:\Data\Files\Example.dat

Will result in one of the above files only being written to the nominated folder on the destination service filesystem, for example:

C:\TransferIn\Data\Files\Example.dat

The file which is not transferred will be marked as errored.

4.1.2 Transfers into destination filesystems with existing files

If an attempt is made to transfer a file to a location on the destination filesystem having the same path as an existing file with the same name, the transfer file will be marked as errored.

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