SPECTRA LOGIC BLACK PEARL PARTIAL FILE RESTORE

INSTALLATION & CONFIGURATION – DECEMBER 2016

INSTALLATION

PRE-REQUISITES

USER ACCOUNT CONTROL

User Account Control must be set to Never Notify or Off. Settings are implemented on a restart of the machine.

To open User Account Control Settings do the following:-

- From the Start menu, type UAC in the Search programs and Files box.
- Set the slider to Never Notify.
- Restart the machine.

.NET

This installation step is necessary on Windows Server 2008 and later. (This operating system comes with .NET installed but disabled.) Before beginning the PFR installation, you must enable the .NET feature.

USER ACCOUNTS

The PFR Services require a specific user account to run the Services.

This user account must have full read and write access to the cache storage in order to perform partial file retrievals. The same user account is used for all components.

Note: On Windows platforms your local user account MUST have Administrator privileges. PFR may not operate correctly if your user account is not recognized as a local administrator.

NETWORK SHARE

The PFR solution will make use of a network shared storage location.

This location will be used to hold the media files that are being indexed (temporarily) and the index files that are created (permanently).

This share will also be used as the location that the Marquis services will create the final output file produced by a partial restoration process.

SYSTEM COMPONENTS

The following components are included within the solution.

These are shown as one of two types:-

- Windows Services: Software running as a background service
- GUI Application: Application that will either configure of view the details of the background services

WINDOWS SERVICES

INDEXATION SERVICE

Type: Windows Service – "BlackPearl PFR Index Service"

This service creates the "Index" files for all media files that are passed to the storage.

For the BlackPearl PFR system, all communications to the system are passed through the Indexation Service. It will handle all of the API calls and responses.

As all instructions are passed within calls there is no configuration necessary for the Indexation Service.

Once the index has been created it will be written back to the cache storage. This index file should not be removed or truncated.

This service should always be running.

PFR CONTROL SERVER

Type: Windows Service – "Medway Sync"

This is the main processing service for the Partial File Restore workflow. It will manage the processing of partial requests and the creation of the output files.

This service is based on a constrained configuration set of the Marquis Medway application. The service found in the system is named "Medway Sync". This service also controls the licencing of the system.

This service should always be running.

PFR TRANSFER ENGINE

Type: Windows Service – "Medway Engine Server"

This windows service handles the processing of media files. It is controlled by the Medway Sync service (PFR Control Server) and tasked to process files when needed.

This service should always be running.

PFR LOG SERVICE

Type: Windows Service – "Medway Log Service"

The system log service. The Indexation Service, PFR Control Server and PFR Transfer Engines will all write into this log.

This service should always be running.

GUI APPLICATIONS

INDEX SERVICE CONFIGURATION

Type: GUI Application – "PFR Indexer Configuration"

This is the configuration application for the Indexation service and while it does allow a set of watch folder to be configured to allow automated indexing, this is not required for the BlackPearl integration. All processing commands are passed through API calls.

The application does however allow the Indexation service to be stopped and started.

This application does not need to be left running.

PFR CONFIGURATION

Type: GUI Application – "PFR Configuration"

The application that will configure the PFR system. The BlackPearl solution has been designed to be as simple as possible to install and configure and there are only minimal details needed to set up the system.

On completion the configuration will be updated and the system service restarted. New configurations will not be activated until the configuration is saved and the services are restarted.

This application does not need to be left running.

PFR STATUS GUI

Type: GUI Application – "PFR Log Viewer"

The "Client" application for the restoration processing. It can run and connect to the 'Control Server' and shown the progress and status of the system.

The first time it is started it may ask for the location of the Medway Server. It is requesting the host name or IP address of the Control Server. This will only need to be entered once.

This application does not need to be left running.

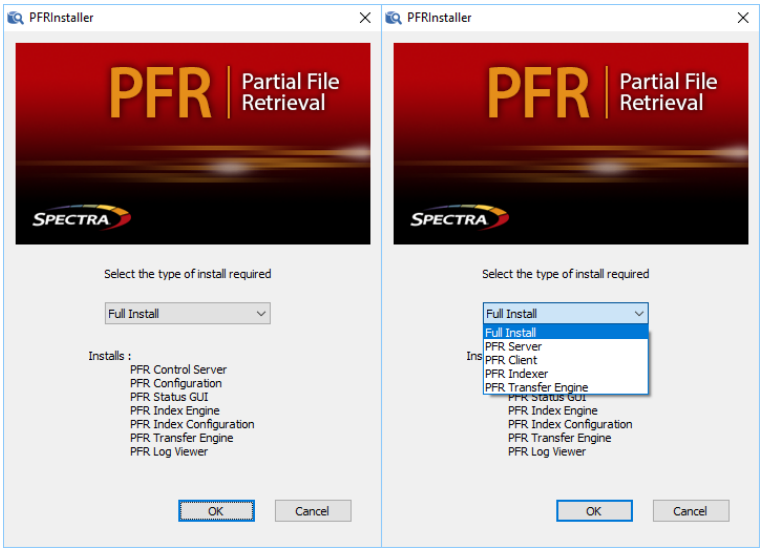
PFR LOG VIEWER

Type: GUI Application – "PFR Status GUI"

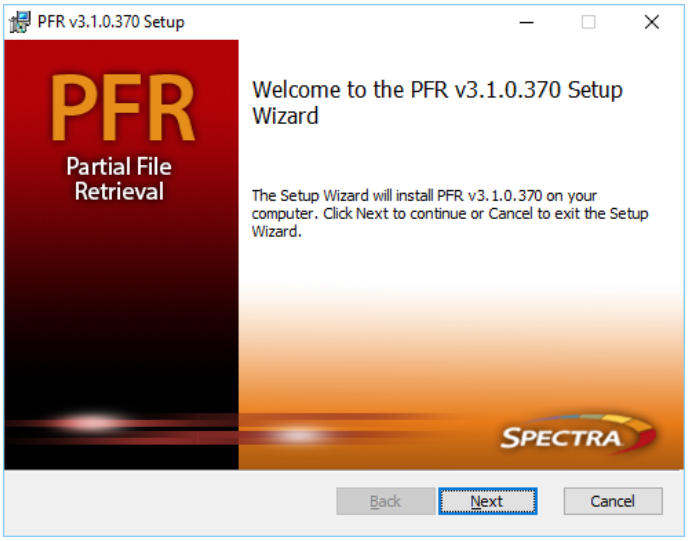
A log viewing application. The PFR system makes use of the "Marquis Log Service" windows service top capture the details of the system processing.

The log view will allow the accessing of these log files. This application does not need to be left running.

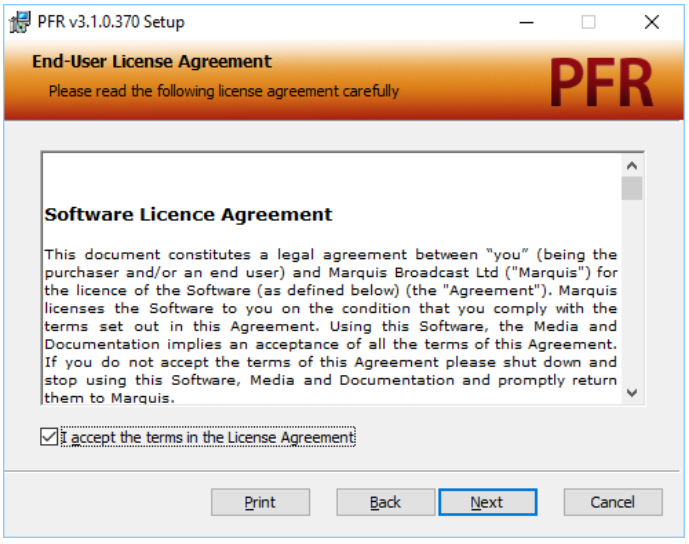
Run setup.exe, this will open the following dialogue:-



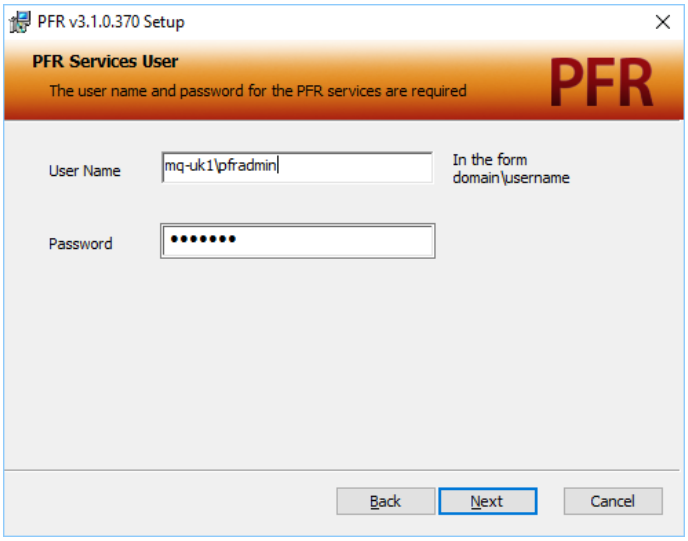
Choose “Full Install” and follow the next steps.

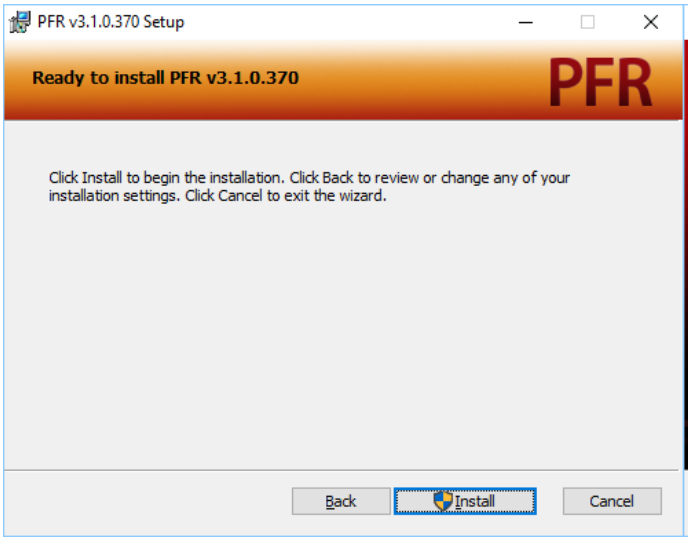


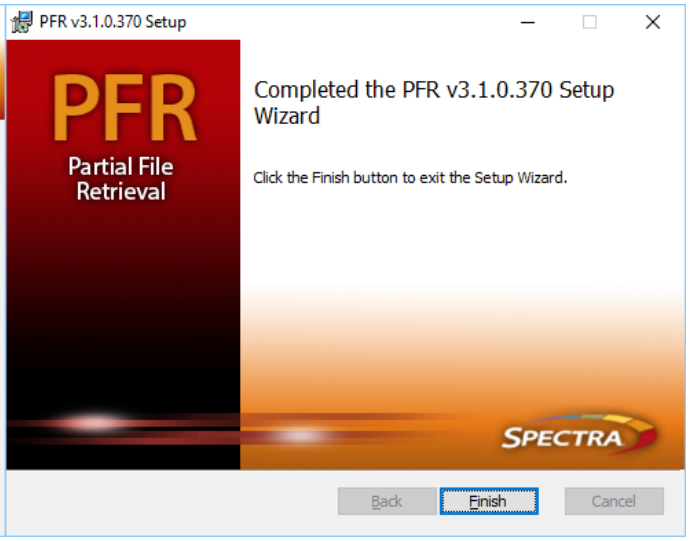
Agree to the software licence.



Enter the User Name and Password. This requires the details for the user account that the PFR services will run on. It requires the full domain or machine path to be entered. This user will require read/write/delete access to the storage and to be a local administrator on the host machine.





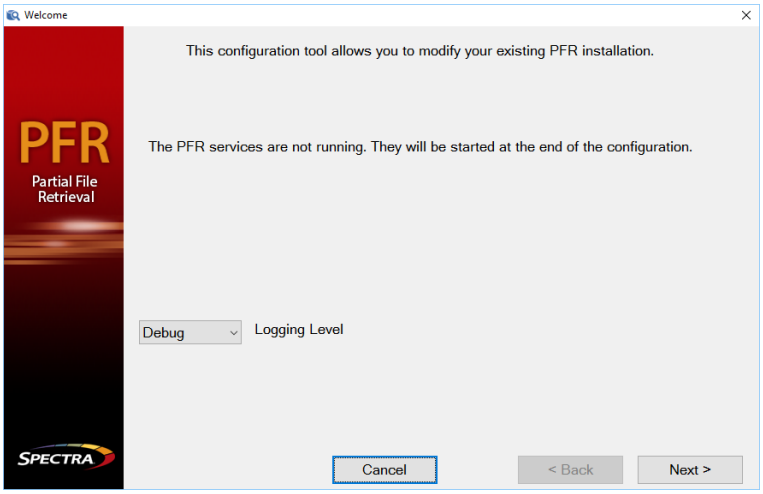


On the desktop of the machine you will now see the following shortcuts:-

- PFR Configuration
- PFR Log Viewer
- PFR Indexer Configuration
- PFR Status GUI

CONFIGURATION – 1 – PFR CONFIGURATION

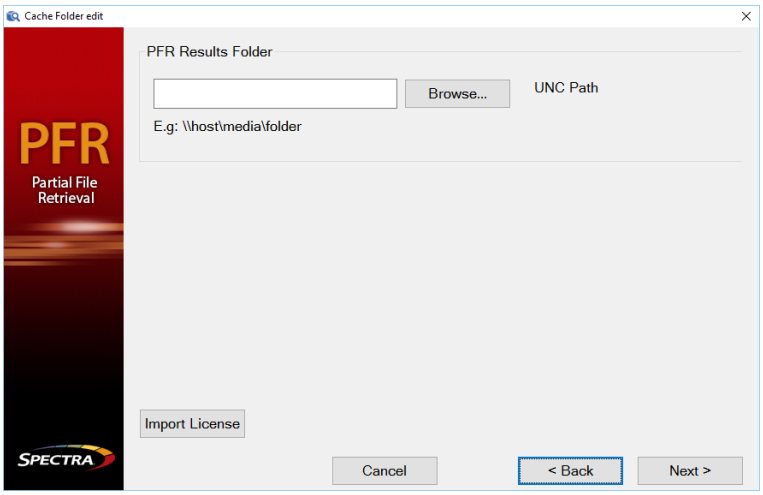
Run the “PFR Configuration” application from the shortcut on the desktop. Right click and choose “Run as Administrator”.



This screen will initially allow the logging level to be set, the maximum is “Debug”. Select ‘Next’

CACHE FOLDER CONFIGURATION

The following dialogue allows the details of the Cache Folder share to be entered.



The PFR solution will make use of a number of folders based on a network share location.

This share will contain the saved Index files and the output files from the process as well as all of the ‘working’ folders for the system.

The required folders will be created by the services when they are first run.

The ***PFR Results Folder*** requested will be the path to the folder that will be used by Marquis to write the completed partial file at the end of the process.

The UNC path will be in the format \\hostname\sharedfolder\outputmediafolder and should exist before making the link.

From this the PFR application will derive the shared folder name and create the required folders for its internal processing in this location.

FOLDERS CREATED BY PFR

On the root of the share, PFR will create two folders, PFR-INDEX and PFR-REQUEST.

The Indexation Service uses the PFR-INDEX folder and will create the index files in here. It will create these in a folder structure that matches the source folder structure of the item being indexed.

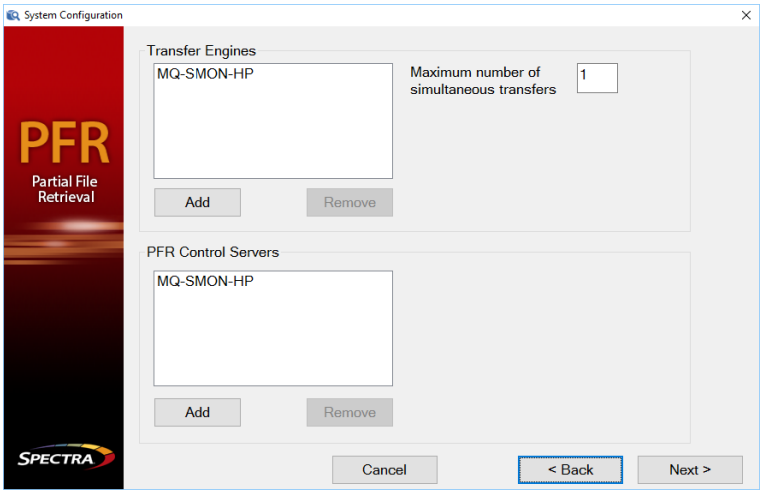
The Media processing services uses the PFR-REQUEST folder for their internal processing. There is no need for these folder to be accessed by any external user or process.

IMPORT LICENCE:

A button is shown on this page to allow the licence to be applied to the system. By default, a trial period will be given to a new installation. Beyond this, a licence file will be provided by Marquis which can be placed on the local machine and imported through this dialogue.

Once completed press “Next” to continue.

“SYSTEM” CONFIGURATION

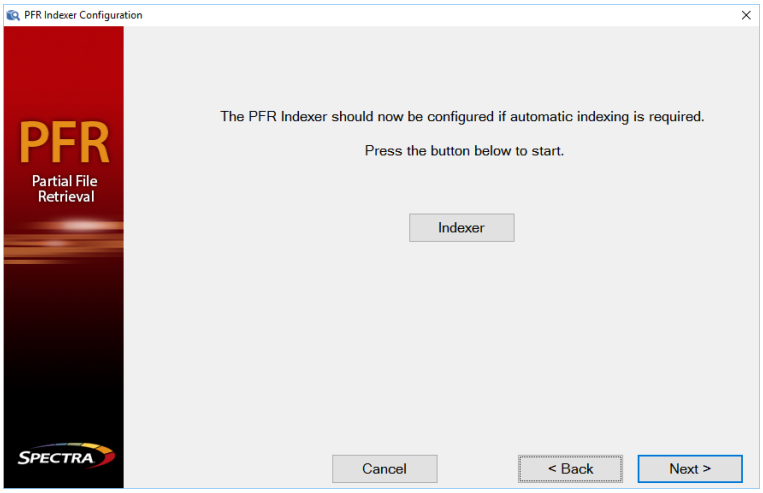


The PFR system is expandable to allow greater redundancy and throughput. In this page it is possible to detail other servers that are running additional Transfer Engines (for greater throughput and redundancy) and additional Control Servers (for redundancy).

By default the details of the current local machine are entered automatically and do not need to be adjusted.

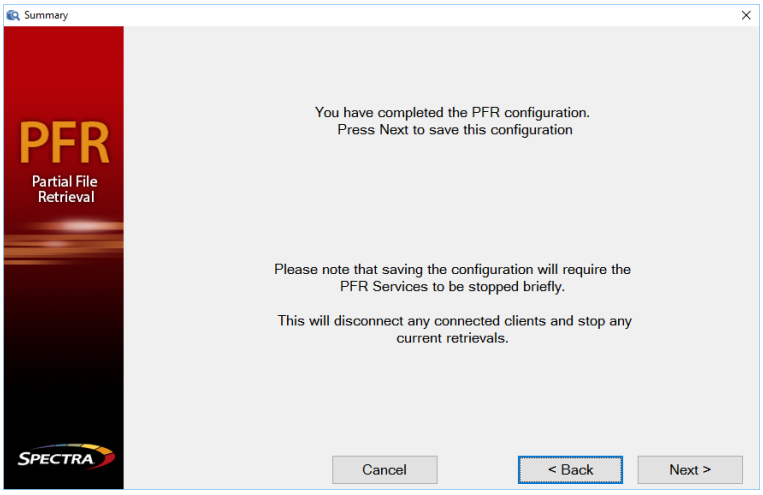
Maximum Number of Simultaneous Transfers: This is set to instruct how many simultaneous restores are processed by the system. The default is one.

Press ‘Next’ to continue.



The application will then give the user the chance to open the configuration application of the PFR Indexer. This does not need to be configured in this solution, but the application does give the option to start and stop the service. This will be covered in a later section.

Press 'Next' to continue.



The final screen is shown once all of the configuration has been entered. Pressing 'Next' now will save the configuration and start the PFR services.

If you are re-configuring an existing setup, this action will stop the services, save the configuration and restart the services.

If a Client GUI is open at this point it will be closed. It can be reopened as soon as the service has restarted.

CLIENT GUI

The Client PFR Status GUI can be started whenever the services are running. It can be configured to show the either both the requests and the restores or just the restoration progress.

The Right portion of the screen shows the restore actions and the tabs at the base of the panel will show each of the restoration "Job Result" folders that are configured.

CONFIGURATION – 2 – PFR INDEXER

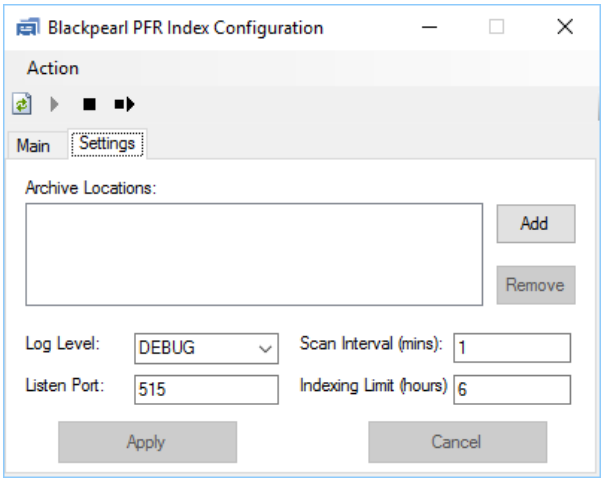
The Indexer is implemented as a Windows Service. The configuration and monitoring of the service are combined into this application.

Note: The Indexer service continues to run in the background, even when the PFR Index Configuration application is not running.

This application can be launched either via the main configuration tool (if they are on the same Windows server machine) or via the Start button.

This application contains two tabs: one for configuration and one for monitoring. The second tab is for the configuration (settings).

Note: As the Black Pearl PFR solution uses the Web Services API entirely no configuration needs be entered here.



This application does include the “Play”, “Stop” and “Restart” buttons that will allow the service to be controlled directly. This can also be performed from the Windows Services controls.

SOLUTION OVERVIEW

This section will discuss the overall processing workflow, based on the calls that will be made to the Marquis part of the system.

CALL 1: INDEX FILE

- This call will pass the details of a file that should be indexed by the system.
- At this point, the file will be stored temporarily on the network 'Cache'
- API call includes the path to the file
- The Index Service reads the file and creates an Index file
    - Index file is created in PFR-INDEX folder on the root of the share
    - Index file is created in a sub-directory structure that matches that passed in the request
- If there are any problems the failure will be passed back in the call

CALL 2: FILE STATUS (OPTIONAL)

- A separate call can be passed to query the status of a file
- This will return the status of the file and if it has been indexed
- The responses to this call are largely the same as the response to the initial Index request

CALL 3: FILE OFFSETS

When the Black Pearl system wants to start a partial restore process, it will need to query the Marquis system to ask it to convert timecode based in and out points to byte offsets.

- The call will pass the details of the file being queried (the original file path) and the timecode information.
- Marquis will check the index file and identify the required offsets
- Marquis return the byte offsets

CALL 4: PARTIAL FILE

Once Black Pearl has the byte offsets, it will be able to restore a portion of the original file. This restored file segment will not be a valid media file at this point.

Black Pearl will then call the Marquis system and request that it creates a valid media file from the segment.

- Call sent to Marquis which details the original file, the partial segment, the timecode information for the required partial and the output file name to be used
- The Marquis service uses this information to generate an internal XML which is delivered from the web service to the Media Processing service
    - An XML file is created within the PFR-REQUEST folder (for MXF or QT are applicable)
- The media processing services pick up the XML and process the file segment into a valid media file
    - This is managed by the Control Server and processed by the Transfer Engine
- The output media file is created in the ***PFR Results Folder*** detailed in the configuration

CALL 5: PARTIAL FILE STATUS

The processing of call 4 can be monitored by use of the ***partialfilestatus*** call, which will monitor the processing and respond with the percentage completion for each stage of the process.