

Newforma Project Center & Replicated File Systems Configuration Technical White Paper

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Purpose

This document is designed to provide an understanding of the recommended configuration and most common issues related to the integration with DFS Enabled **Replicated File Systems (RFS)** and **Newforma Project Center** and current best practices on such implementation.

Note: This document assumes customers are on version **11.5.7 or later of Project Center.**

When properly configured, Newforma Project Center and RFS solutions provide regional offices:

- LAN performance access to project information
- Optimized utilization of WAN bandwidth and performance characteristics.
- Seamless collaboration between multiple offices on Project Information

Technology Integration Overview - Indexing and Work Service

All Project Center Servers include a **Work Service** component which performs the 'heavy lifting' to populate and maintain data stored in Project Center's search and summarization features. Work Services crawls project folder targets for new and updated files, opens them, caches index information and finally reports the contents of those files back to the indexing role. In a multi-server environment (i.e. more than one Newforma Project Center or Work Service), the Work Service that is "local" to a file should be the one to work on that file.

In environments that do not include RFS solutions, Newforma Project Center will automatically determine which Work Service role will crawl files. When an RFS solutions is present and replicating files to multiple locations, replica copies of files appear local to the Work Service. This makes any version of that file "fair game" for a Work Service to process.

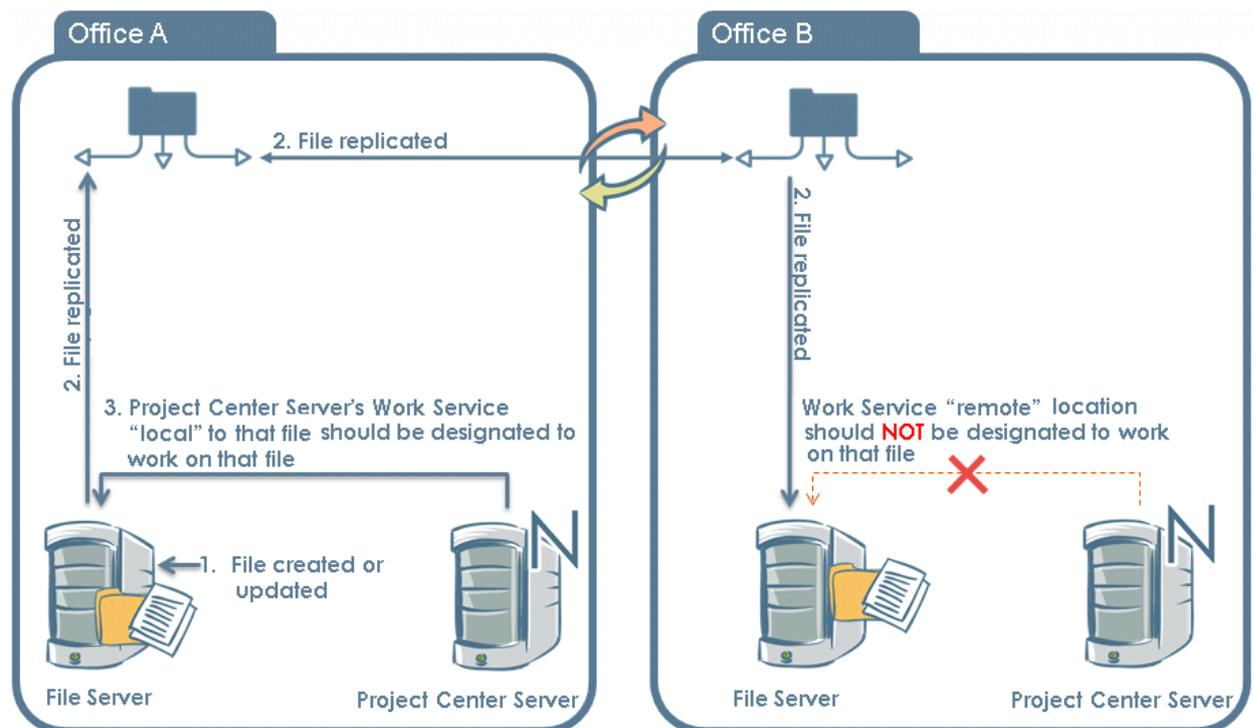


FIGURE 1

Performance Characteristics

Performance of indexing and file availability to user workflows within Project Center can be notably different between offices due to the inherent lag in replication between sites of new and updated files. The lag duration is dependent on a multitude of factors including, but not limited to:

- Large volume of file changes or additions by one or more users
- Large files added to a replicated store by one or more users
- Long backlogs of remote replication updates

When Project Center users save files to a local file server served by a local Project Center server, those files are available immediately to Project Center workflows and indexing.

By contrast, when Project Center users save files to a file server that is replicated and served by a remote Work Service and/or Project Center Server, there can be a delay in the availability of these files.

Transfer Upload Performance

A Project Center Server attempting to gather files for an Info Exchange transfer or workflow can fail when checking the remote replication partner file server for the requested files. The Project Center Server will retry the operation (if Project Center Server has to be properly tuned) until the transfer files are available or until a longer timeout has been reached.

Users may conclude erroneously that the transfer is hung. No action is required. The transfer will complete after the RFS replication is complete.

Transfer Download Performance

There is a similar “reverse situation” which can occur as well:

1. A user in **Office A** downloads a file from Info exchange for a project hosted in **Office B**.
2. That download is saved by the user to the file server local to the Project Center Server in **Office B**.
3. The downloaded files are replicated by the RFS to the file server in **Office A** where the user will be able to access it.

When replication of the downloaded files from **Office B** to **Office A** take an extended amount of time, users may observe that the files are not where they were saved if they check the save location prior to completion of the replication. The files will appear only when replication has completed. The RFS will generally not provide the user immediate indication as to the status of the replication.

Users may conclude erroneously that the save to the file server failed. No action is required. The save will complete after the RFS replication is complete.

Info Exchange Transfers of Replicating Files

Project Center users working on a project managed by a “remote” Project Center Server may experience delays transferring files that are being actively replicated by the RFS solution (see figure 1 below). This is normal behavior.

1. A user in **Office A** requests a file transfer via Info Exchange.
2. Files are placed on the file server in **Office A** in the project folder for transfer.
3. Those files are updated to via the RFS to the **Office B** file server where Project Center Server is located.
4. Project Center Server in **Office B** gathers the files from the file server in **Office B** and prepares them to be transferred to the Info Exchange Server.
5. The files are then transferred to the Info Exchange Server.

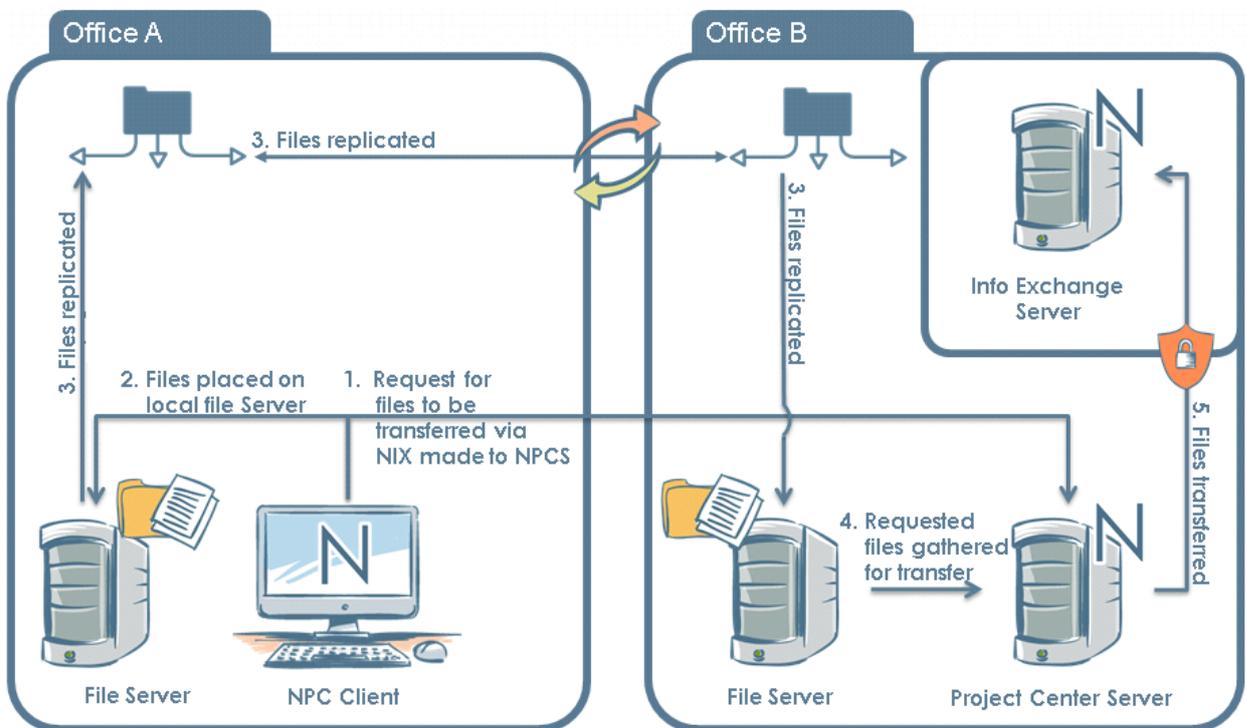


FIGURE 2

In most cases, a few extra seconds is all that is needed to allow the RFS solution to complete the replication. At sites with higher latency, additional time is required and additional configurations can be made to extend both the time between checks and the total time to check the file system for the updated files can be made (contact [Newforma Support](#) for details).

Configuration Best Practice

DFS Configuration

For Project Data to be properly indexed and function with Project Center, the RFS solutions should use a 3 part global DFS path that is broken down thusly:

\\Namespace\RootPath\Office\.

By adding and exposing the Office, the owner for the location required for Work Services is differentiated from the other offices. For example:

```
\\jma.local\Data\Portland
\\jma.local\Data\Seattle
\\jma.local\Data\New York
\\jma.local\Data\London
\\jma.local\Data\Singapore
\\jma.local\Data\Sydney
```

Each path distinguishes the office in which is the primary location for each project data store.

Note: By default, only a common \\Namespace\RootPath\ is made available and would be **the same at each site**. This configuration is not supported by Newforma Project Center for multi-site RFS solutions.

Replicated File System Configuration

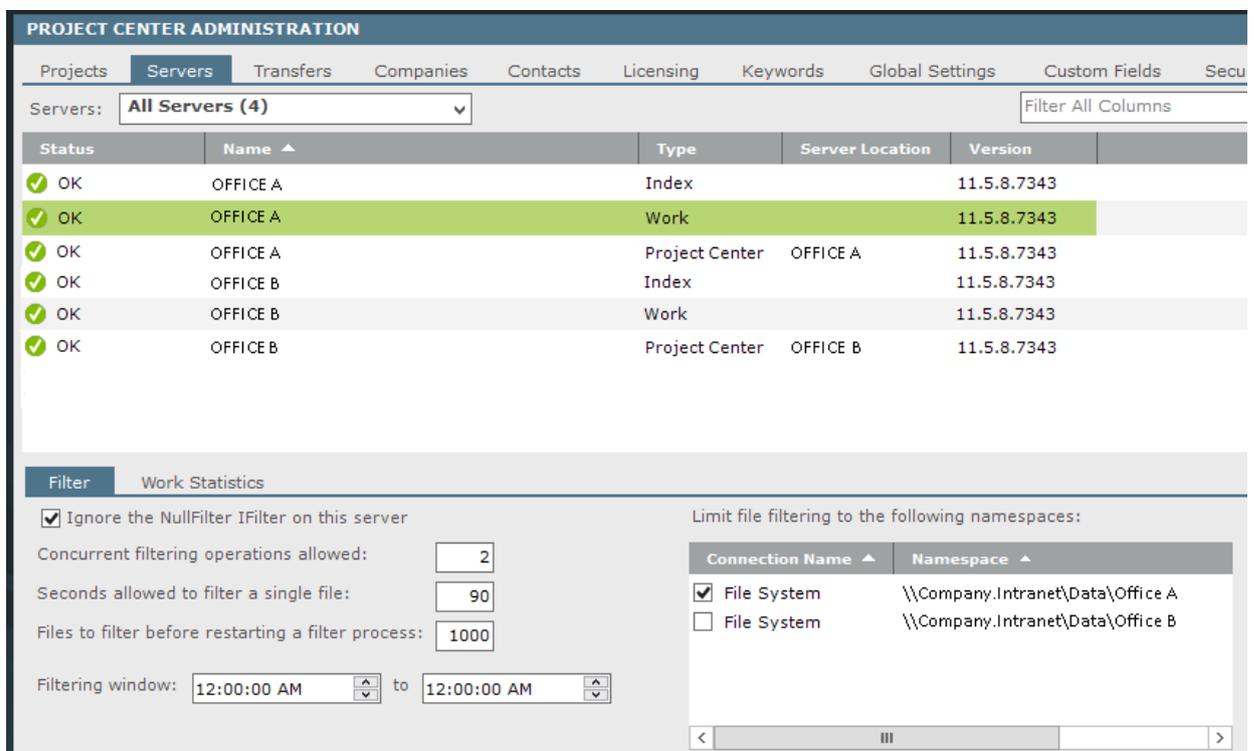
A Newforma Work Service on the LAN of the **primary** location for each distributed share must be used to crawl the distributed files and folders. The primary location must provide access to files and folders that are:

- Always present and indexing ready (i.e. not 'archived' or placeholders)
- Locked automatically based on global file locking rules
- Accessed by the same UNC path as all other partners

Project Center Work Service Configuration

Newforma Work Services must be configured to **filter only the namespaces of local files** for the local Project Center Server. Configure the Work Service for each location to “Limit the filtering to the...” appropriate paths.

In **Project Center Administration**, on the “Servers” tab, shown In Figure 2, the Work service for Office A is selected and file filtering is limited to only the `\\Company.Intranet\Data\Office A` file system (all other file systems would be unchecked). Similarly, for the Office B Work service, only the `\\Company.Intranet\Data\Office B` file system would be selected.



The screenshot shows the 'PROJECT CENTER ADMINISTRATION' interface with the 'Servers' tab selected. A table lists server configurations for Office A and Office B. The 'OFFICE A' Work service is highlighted in green. Below the table, the 'Filter' section is expanded to show configuration options for file filtering.

Status	Name	Type	Server Location	Version
OK	OFFICE A	Index		11.5.8.7343
OK	OFFICE A	Work		11.5.8.7343
OK	OFFICE A	Project Center	OFFICE A	11.5.8.7343
OK	OFFICE B	Index		11.5.8.7343
OK	OFFICE B	Work		11.5.8.7343
OK	OFFICE B	Project Center	OFFICE B	11.5.8.7343

Filter | Work Statistics

Ignore the NullFilter IFilter on this server

Concurrent filtering operations allowed:

Seconds allowed to filter a single file:

Files to filter before restarting a filter process:

Filtering window: to

Limit file filtering to the following namespaces:

Connection Name	Namespace
<input checked="" type="checkbox"/> File System	\\Company.Intranet\Data\Office A
<input type="checkbox"/> File System	\\Company.Intranet\Data\Office B

FIGURE 3

Project Center Server Performance Tuning

By following the instructions on [Optimizing Project Center Server for projects residing on updated file systems](#) for each Project Center Server in a domain, if the Project Center Server “does not find” the files on the first try, it will try again in a few seconds and continue to try for a couple of minutes before it will fail the transfer.

Additional Recommendations

The following recommendations will further improve end user experience and ROI of your Project Information:

- A fully commissioned WAN Accelerator solution to reduce effective latency and improve performance of common protocols over WAN connections between offices.
- Use of Archive settings on Project files within an RFS solution should be limited to projects that are set to Archived in Project Center.
- Project Center Servers should be configured liberally with CPU, high performance storage and memory resources per Newforma Best Practices.

Support Availability

Newforma has performed testing of RFS solutions provided by Nasuni and Panzura. When requesting support from Newforma for issues with RFS solutions, it is generally necessary to involve the RFS vendor and/or subject matter expert to triage issues. Most issues in a properly configured RFS implementation cannot be readily troubleshooted without the assistance of the RFS vendor.

Appendix A – Panzura Controllers Tuning

To configure Panzura as shown please contact your Panzura technical rep.

The following information is provided AS-IS with no warranty expressed or implied. Care should be taken by System Administrators to understand changes prior to implementation. Newforma assumes no liability for losses as a result of following these instructions.

The Panzura controllers can be tuned to provide a better end user experience and are related on how files are handled for transfer between sites. The following steps are presented as reference only. An Authorized Panzura Engineer must perform all tuning operations.

Instructions for PZOS 5.4.3.x

Login to the Panzura's Web UI as the administrator and select the "Maintenance" tab: Select "add-cifs-gcfg" and place this line in the parameter box.

```
pz_oplock disabled files = .dat .rvt .rws .dst .dwl .dwg .pdf .ntz
```

Select add-cifs-gcfg again and enter this line in the parameter box:

```
pz_replock read sync files = .dat .rvt .rws .dst .dwl .dwg .pdf .ntz
```

Select dsp-cifs-gcfg one more time and verify that you see:
CIFS global config template:

```
pz_oplock disabled files = .dat .rvt .rws .dst .dwl .dwg .pdf .ntz
pz_replock read sync files = .dat .rvt .rws .dst .dwl .dwg .pdf .ntz
(plus any config lines which were previously present)
```

Repeat for all controllers in the Cloudfs.

Instructions for PZOS 5.5.x.x

Login to the Panzura's Web UI as the administrator and select the "Maintenance" tab and run the following commands:

Note: The format of these commands has changed from for PZOS 5.5.

Select 'cifs-dsp-gcfg' and save results locally
Select 'cifs-clr-gcfg' (This deletes current settings)
Select 'cifs-add-gcfg', add the following line in the text box to the right of the command and hit run

```
pz_replock read sync files = .dat .rvt .rws .dst .dwl .dwg .dbl .dwl2 .db .db.tmp .db1
.db1.tmp .db1.bak .db2 .xml .xlsx .pdf .ntz
```

Select 'cifs-dsp-gcfg' again and ensure that the output reflects the change.

CIFS global config template:

```
pz_replock read sync files = .dat .rvt .rws .dst .dwl .dwg .dbl .dwl2 .db .db.tmp .db1
.db1.tmp .db1.bak .db2 .xml .xlsx .pdf .ntz
```

Instructions for PZOS 5.6.0.0 and 6.0.0.0:

Note: The string of extensions has a different format, and needs to be added in a different way.

As administrator edit /mnt/data/cifs_gcfcg_template as follow:

(The pz_relock setting is a single line including the extensions.)
[SA:<controller>]# vi /mnt/data/cifs_gcfcg_template

```
pz_relock read sync files =  
/%.dat/%.rvt/%.rws/%.dst/%.dwl/%.dwg/%.dbl/%.dwl2/%.db/$.db.tmp/%.db1/$.db1.tmp  
/$.db1.bak/%.db2/%.xml/%.xlsx/%.xlsm/%.pdf/%.ntz/
```

After saving the changes to /mnt/data/cifs_gcfcg_template, go to WebUI / Maintenance / Diagnostics page and execute cifs-dsp-gcfcg command. You should see the following settings echo back.

Also, be aware, cifs-clr-gcfcg WILL remove /mnt/data/cifs_gcfcg_template as well as remove the configuration change.

CIFS global config template:

```
pz_relock read sync files =  
/%.dat/%.rvt/%.rws/%.dst/%.dwl/%.dwg/%.dbl/%.dwl2/%.db/$.db.tmp/%.db1/$.db1.tmp  
/$.db1.bak/%.db2/%.xml/%.xlsx/%.xlsm/%.pdf/%.ntz/
```

Be aware, even with these settings, the performance may not be as desired or expected. In that case, contact Newforma support to have a delay inserted in the process. This is not a default setting, and they need to make the change.

Outstanding Issues

There are two known outstanding issues:

1. Panzura has recognized the **transfer download performance** behavior as a change and has plans to fix it in a future release.
2. For implementations of Panzura where ~Snapshots, hidden snapshots, etc. are being leveraged some additional learning by Newforma is required to help optimize the experience. Please contact [Newforma Support](#) to initiate a dialog on this topic.

Appendix B – Nasuni Controllers Tuning

No additional information is necessary for Nasuni Controllers.