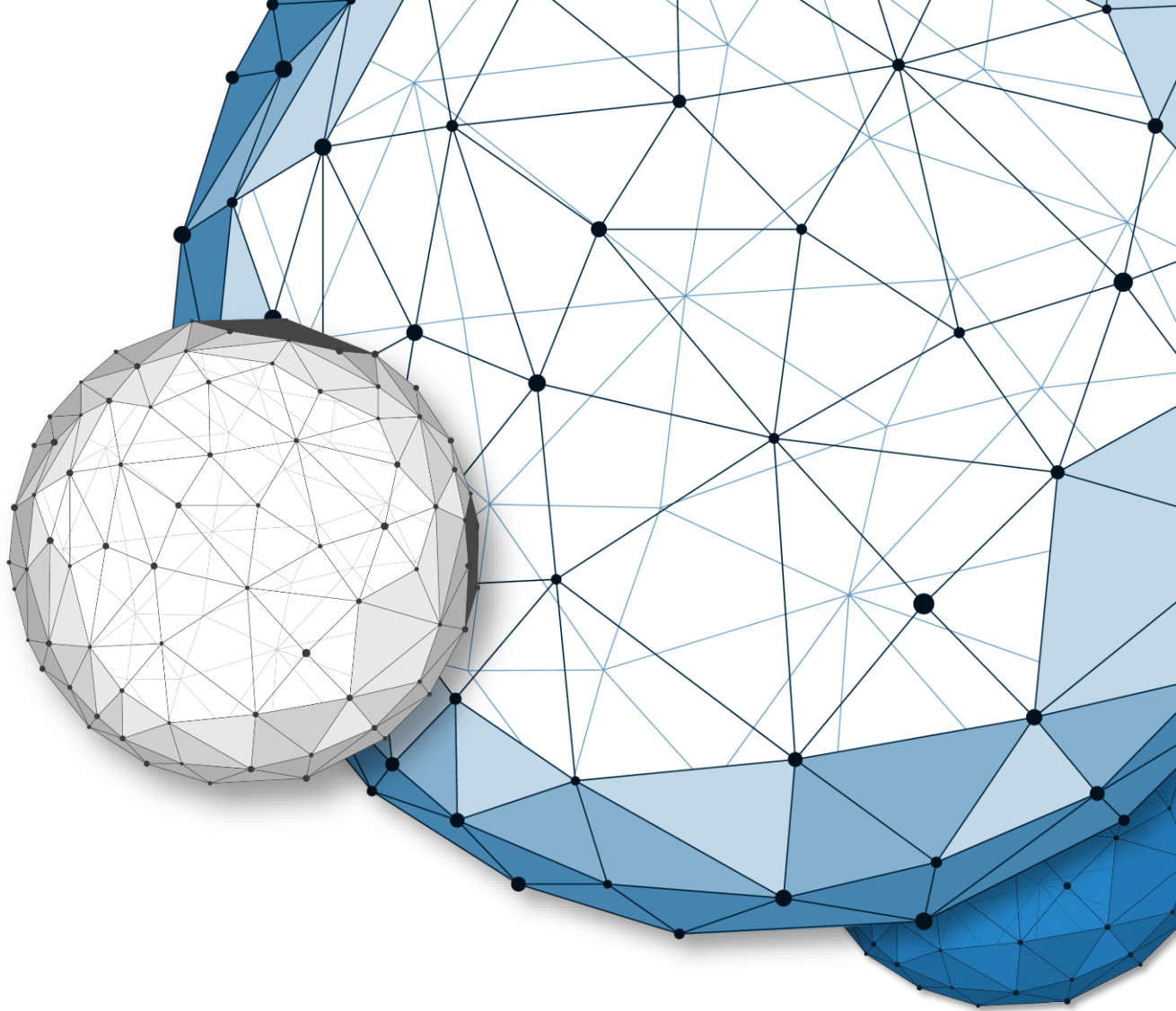


The **Experts**
in Exchange
Migrations



DOCUMENTATION

PF Toolbox Components

For Exchange On-premises and Office 365 Migration Scenarios



PF Toolbox?

The Priasoft PF Toolbox is a set of tools for working with Exchange Public Folders. This 'toolbox' contains components that help support a migration or synchronization of public folders between 2 deployments. The PF Toolbox supports public folders from either an on-premises environment or in Office 365 and all versions of Exchange from 2003 thru 2019 and Office 365.

PF Toolbox Components:

The following is a list of the current PF Toolbox components and their descriptions.

```
file:///C:/Projects/TFS/PMSE6/Source/Solutions/PFPM/PFPM/bin/Debug/PFToolboxConsole.EXE

Priasoft Public Folder Toolbox Console
CopyRight 2014 (c). All rights reserved.
Build Date: 2019-10-15 10:55:00

Select a migration task from the options below: [A-Z]
A: None
B: Load Configuration
C: Delta Extraction From Target
D: Forward Copy From Source
E: PF To PF Data Sync
F: Clear PFSync Tags
G: Mail Enabled Folder Migration
H: Mailbox To Mailbox Sync
I: Clear Mailbox Sync Tags
J: De Dupe Items
K: Pf Statistics Report
L: Sync Folder Attributes
M: Restructure Public Folder Tree
N: Create PF Sync Consistency Report
O: Create PF Mailbox Distribution Script
P: Bulk Modify Folder Types
Q: De Dupe Mailbox Items
R: Bulk Delete Items

Migration Task: _
```

Note that in the above listing, the set of options is derived from an internal enumeration of values. The first few options are legacy items that supported customers that were converting from an older version of our tools. Options A thru D are no longer used.

E: PF to PF Data Sync

This component of the PF Toolbox is used to create a SYNC JOB that is used to synchronize public folder structure, contents, and permissions.

This component is presented similar to a wizard in which a series of questions is asked that are used to build the configuration of a synchronization job.



F: Clear PF Sync Tags

This component is used to clear tracking info that has been set on folders from a prior sync. When a sync is performed, folders are marked in each public folder environment to create the “link” between the two systems and to record the state of the sync. When a subsequent sync operation is performed for the same folder, this tracking info is use to determine what changes have occurred since the last sync operation.

Clearing the sync tags places the folder(s) in an original state such that the folder(s) appear as if they have never been synchronized.

Use of this option should be used with caution and Priasoft recommends a separate live training session before first use of this option.

In most cases this option is not used. The most common use of this is to “reset” a folder to allow all items to be “recopied” to a destination. Priasoft recommends that any desire for concepts of “redo”, “resync”, “reset”, “start over”, etc. be started with a live support session to so that we may provide guidance for the situation.

Typically, after this first use and training, the concepts for clearing tags is well understood and future use can be independent.

Note also that this task only clears tags on the “source” environment chosen in the configuration. In order to clear the tags from both environments, this task would be run twice, with the second execution reversing the order of the environments such that the TARGET environment becomes the “source” in the task configuration.

G: Mail Enabled Folder Migration

This component is used to capture mail-enabled folder information from a “source” environment so that the same information can be updated on folders in a “target” environment.

This option can only be used for folders that have been previously sync’d using Option E as it relies on the sync tags to understand the source and target instances of folders.

This component, when executed, produces a powershell script file as its output. No changes to public folders are made using this component. The resulting powershell script would then be executed against the target environment in order to mail-enable the related folders.

Since the output of this component is a script file, it offers the chance to make edits as necessary/desired prior to updating the target folders. This can be valuable for excluding folders, changing or removing email addresses, and so on.

H: Mailbox to Mailbox Sync

This component uses the synchronization engine to sync folders between 2 mailboxes. Note that this is NOT a replacement for mailbox migration tools (from Priasoft, Microsoft, or any other). If a mailbox were to be migrated after the use of this option, there is a likely chance that the migration effort would duplicate the data since it would not have knowledge of the items previously sync’d.

The intent and purpose of this component is for long-standing synchronization efforts between 2 mailboxes that would not likely ever be merged. For example, a calendar folder that needs to be updated in another organization.



I: Clear Mailbox Sync Tags

This component performs the same tasks as option F above, but is specific to mailbox folders that have been sync'd by Option H.

J: De Dupe Item

This component can de-duplicate items in a folder, should such occur.

Each item in an Exchange environment, whether it be in a public folder or mailbox folder, has a special property that is globally unique for that item. This property (PR_SEARCH_KEY) is guaranteed unique when the item is first created. However, if a copy of the item is performed, this identifier is also copied. The result is that this property can be used to detect copies/duplicates of the same item.

This component uses this feature to detect duplicated items. When executed, the task will scan all items in a folder and for any items that share the same PR_SEARCH_KEY such items are grouped together and the item that is the oldest of the group is preserved and all others are deleted. This choice is made from the concept that the oldest item of the group is likely the original item and any others are copies that were made afterwards.

This task does NOT compare any other attributes for duplication. As such, this task is NOT a general purpose de-duplication tool, but is specific to actual cases of accidental duplication, such as a case of migrating a folder's data after a sync has already been performed.

K: PF Statistics Report

This component creates a report with important metadata about folders. The component allows for the selection of the initial folder at which the reporting starts such that the entire PF tree can be enumerated, or a selected subfolder/subtree at any level.

The generated report can be produced in one of two formats: HTML or CSV. The HTML output provides an indented treeview of the folders, and also includes row highlighting for folders with high item counts. The CSV output includes both the full folder path and the folder name which can be used for scripting efforts.

Both outputs include the following metadata properties:

- Item Count (this count is only of the items in the folder itself)
- Total Item Count (this is the count of items for the folder and the items from all of its child folders)
- Folder Size (this value is only of the items in the folder itself)
- Total Folder Size (this value is for the folder as well as all of its child folders)
- Mail Enabled (a YES or NO value)
- Visible in GAL (a TRUE or FALSE value indicating visibility in the Exchange Global Address List)
- Folder Type (a string that indicates the folder type, such as a calendar or tasks folder)
- Rights of Executing User



HTML Report Example:

C:\Users\migadmin\Documents\Source - All Public Folders.pfMetadata.html - Internet Explorer

C:\Users\migadmin\Documents\Source - All Public Folders.pfMetadata.html

Public Folder Metadata Report - Priasoft Inc.

Folder metadata is from: EX2003

Starting folder for report is: <Root of PF Tree>

Viewing Rows 1 thru 200 of 354

Folder Level	Folder Name	Immediate Children	Total Children	Item Count	Total Item Count	Folder Size	Total Folder Size	Is Mail Enabled?	Visible In GAL?	Last Modified	Folder Type	Rights of Executing User
0	All Public Folders	11	353	0	2,770	0	2,065,755,191	YES	True	2019-02-24T18:33:18	IPF.Post	RightsReadItems, RightsEditOwn, RightsDeleteOwn, RightsEditAll, RightsDeleteAll, RightsCreateSubfolders, RightsFolderOwner, RightsFolderContact, RightsFolderVisible
1	1248.0042	0	0	2	2	4,070	4,070	YES	True	2019-03-14T16:53:23	IPF.Appointment	RightsCreateItems, RightsCreateSubfolders, RightsFolderOwner, RightsFolderContact, RightsFolderVisible
1	APAC	14	98	166	168	3,147,054	3,154,535	NO		2018-09-28T21:35:51	IPF.Post	RightsCreateItems, RightsCreateSubfolders, RightsFolderOwner, RightsFolderContact, RightsFolderVisible
2	Accounting	4	16	0	1	0	5,547	NO		2018-12-19T16:56:31	IPF.Post	RightsCreateItems, RightsCreateSubfolders, RightsFolderOwner, RightsFolderContact, RightsFolderVisible
3	Calendars	0	0	1	1	5,547	5,547	NO		2018-09-28T23:25:46	IPF.Appointment	RightsCreateItems, RightsCreateSubfolders, RightsFolderOwner, RightsFolderContact, RightsFolderVisible
3	Contacts	0	0	0	0	0	0	NO		2018-09-28T23:26:16	IPF.Contact	RightsCreateItems, RightsCreateSubfolders, RightsFolderOwner, RightsFolderContact, RightsFolderVisible
3	Payables	6	6	0	0	0	0	NO		2018-09-28T23:27:18	IPF.Post	RightsCreateItems, RightsCreateSubfolders, RightsFolderOwner, RightsFolderContact, RightsFolderVisible
4	2010	0	0	0	0	0	0	NO		2018-09-29T00:55:49	IPF.Post	RightsCreateItems, RightsCreateSubfolders, RightsFolderOwner, RightsFolderContact, RightsFolderVisible
4	2011	0	0	0	0	0	0	NO		2018-09-29T00:56:25	IPF.Post	RightsCreateItems, RightsCreateSubfolders, RightsFolderOwner, RightsFolderContact, RightsFolderVisible
4	2012	0	0	0	0	0	0	NO		2018-09-29T00:57:01	IPF.Post	RightsCreateItems, RightsCreateSubfolders, RightsFolderOwner, RightsFolderContact, RightsFolderVisible
4	2013	0	0	0	0	0	0	NO		2018-09-29T00:57:37	IPF.Post	RightsCreateItems, RightsCreateSubfolders, RightsFolderOwner, RightsFolderContact, RightsFolderVisible
4	2014	0	0	0	0	0	0	NO		2018-09-29T00:58:12	IPF.Post	RightsCreateItems, RightsCreateSubfolders, RightsFolderOwner, RightsFolderContact, RightsFolderVisible
4	2015	0	0	0	0	0	0	NO		2018-09-29T00:58:48	IPF.Post	RightsCreateItems, RightsCreateSubfolders, RightsFolderOwner, RightsFolderContact, RightsFolderVisible
3	Receivables	6	6	0	0	0	0	NO		2018-09-28T23:28:19	IPF.Post	RightsCreateItems, RightsCreateSubfolders, RightsFolderOwner, RightsFolderContact, RightsFolderVisible
4	2010	0	0	0	0	0	0	NO		2018-09-29T00:59:24	IPF.Post	RightsCreateItems, RightsCreateSubfolders, RightsFolderOwner, RightsFolderContact, RightsFolderVisible
4	2011	0	0	0	0	0	0	NO		2018-09-29T01:00:00	IPF.Post	RightsCreateItems, RightsCreateSubfolders, RightsFolderOwner, RightsFolderContact, RightsFolderVisible
4	2012	0	0	0	0	0	0	NO		2018-09-29T01:00:00	IPF.Post	RightsCreateItems, RightsCreateSubfolders, RightsFolderOwner, RightsFolderContact, RightsFolderVisible

CSV Report Example:

testing.pfMetadata.csv - Microsoft Excel

File Home Insert Page Layout Formulas Data Review View

Clipboard Font Alignment Number Styles Cells Editing

C13 fx All Public Folders/testing/this/path/US/

Row Number	Folder Level	Parent Path	Folder Name	Immediate Children	Total Children	Item Count	Total Item Count	Folder Size	Total Folder Size	Is Mail Enabled?	Visible In GAL?	Last Modified	Folder Type	Rights of Ex
1	0	All Public Folders/testing		2	12	0	0	0	0	NO		2018-03-08T13:45:45	IPF.Note	RightsFolder
2	1	All Public Folders/testing/	this	1	10	0	0	0	0	NO		2018-03-08T13:46:13	IPF.Note	RightsFolder
3	2	All Public Folders/testing/this/	path	1	9	0	0	0	0	NO		2018-03-08T13:47:13	IPF.Note	RightsFolder
4	3	All Public Folders/testing/this/path/	US	2	8	0	0	0	0	NO		2018-03-08T13:47:13	IPF.Note	RightsFolder
5	4	All Public Folders/testing/this/path/US/	Accounting	4	6	0	0	0	0	NO		2018-03-08T13:47:13	IPF.Note	RightsFolder
6	5	All Public Folders/testing/this/path/US/Accounting/	Calendars	0	0	0	0	0	0	NO		2018-03-08T13:47:13	IPF.Note	RightsFolder
7	6	All Public Folders/testing/this/path/US/Accounting/	Contacts	0	0	0	0	0	0	NO		2018-03-08T13:47:13	IPF.Note	RightsFolder
8	7	All Public Folders/testing/this/path/US/Accounting/	Payables	2	2	0	0	0	0	NO		2018-03-08T13:47:13	IPF.Note	RightsFolder
9	8	All Public Folders/testing/this/path/US/Accounting/	2014	0	0	0	0	0	0	NO		2018-03-08T13:47:13	IPF.Note	RightsFolder
10	9	All Public Folders/testing/this/path/US/Accounting/	2015	0	0	0	0	0	0	NO		2018-03-08T13:47:13	IPF.Note	RightsFolder
11	10	All Public Folders/testing/this/path/US/Accounting/	2015	0	0	0	0	0	0	NO		2018-03-08T13:47:13	IPF.Note	RightsFolder
12	11	All Public Folders/testing/this/path/US/Accounting/	Receivables	0	0	0	0	0	0	NO		2018-03-08T13:47:13	IPF.Note	RightsFolder
13	12	All Public Folders/testing/this/path/US/	Documents	0	0	0	0	0	0	NO		2018-03-08T13:47:13	IPF.Note	RightsFolder
14	13	All Public Folders/testing/	US	0	0	0	0	0	0	NO		2018-03-08T13:47:13	IPF.Note	RightsFolder



L: Sync Folder Attributes

This component can sync folder metadata attributes. The following values are copied with this task:

- Display Name
- Folder Type
- Folder Comment

The purpose of this component is to handle rare cases where the folder properties from one side become out of sync from the other. It is rarely used, and Priasoft recommends requesting a support call/session to discuss before using.

M: Restructure Public Folder Tree

This component can provide an easier mechanism for moving folders from one parent folder to another.

Exchange PowerShell does not provide any Move-PublicFolder commands. As such, attempting to restructure a folder tree can be a frustrating task. While Set-PublicFolder can work for re-parenting a folder, it is slow and problematic.

This component allows for the identification of multiple folders, possibly from many different locations in the hierarchy, and establish a new parent folder for them. This operation is performed using MAPI methods and results in simple “pointer” changes for folders which is considerably faster than a copy/delete pattern.

N: Create PF Sync Consistency Report

The report created by this component provides details with regards to previously sync'd folders. The intent of this report is to show differences in item counts and folder structures. It is a complicated report by design, but does provide necessary data elements for understanding the convergence ration of two systems.

O: Create PF Mailbox Distribution Script

This component is used to create a PowerShell script that prepares a target environment for sync.

Exchange 2013 and later use what are called “Modern Public Folders’ and in contrast with earlier versions stores public folder data in special mailbox objects. These “Public Folder Mailboxes”, as they are called, do not require licenses, are not visible in the address book (GAL), and are only used a data containers.

Modern Public Folders have limits that are new and different than with legacy Public Folder Databases. Firstly, Microsoft does not support PF mailboxes larger than 100GB. Exchange 2013 and Office 365 can have up to 100 PF mailboxes, while Exchange 2016 and later can have up to 1000.

While multiple mailboxes can exist to support Modern Public Folders, such is only to distribute the contents of folders. The mailboxes are not used for any of the features of a normal mailbox and does not receive mail directly, does not have an Inbox, etc.

This task is used to calculate how many PF mailboxes will be necessary to distribute the source data into the new environment. The configuration will ask for a percentage of mailbox size for which to initially consume. When that consumed size is reached in calculation, a new mailbox is needed and so on.



For example, if the source PF data has an approximate size of 500GB, one would need at least 5 PF mailboxes to hold that data. However, a PF mailbox that has reached its capacity causes all folders assigned to that mailbox to become unusable. The task will use the percentage value requested to limit the initial load of data on each mailbox to a low number so that sufficient free space is maintained on each mailbox after the first sync. Priasoft recommends a 20-25% consumption of maximum, for which a 100GB max will mean about 20-25GB of initially consumed space.

At a 20% of capacity distribution of data, 500GB then will required at least 25 PF mailboxes (25 x 20GB = 500GB). The resulting PowerShell script from this task will contain all the commands to create these mailboxes, and will also handle the initial folder assignments to the mailbox in order to provide the 20GB per mailbox distribution.

IMPORTANT!!! A PF mailbox that reaches its size limit (100GB by default) creates a horrible user experience. Users are not informed that the PF mailbox has filled up. MAPI is unaware of the PF mailboxes and as such has no ability to report such. The information provided to users varies, but are very simplistic messages about failing to save or create items. In an on-premises Exchange environment, a PF mailbox at 100% capacity will remain that way until an administrator manually runs a command to split the mailbox in two parts. Exchange does not provide notifications of such an event, nor does it monitor growth rates of PF mailboxes. Such work is left to the administrator(s) of the system.

In Office 365, if a PF mailbox reaches its capacity, a backend trigger causes the mailbox to be “auto split”. However, regardless of whether the mailbox split action is automatic or manual, the duration of time for the split operation is incalculable, and the split action provides no progress, status, or logging. An administrator can only know whether the task is still running, or is completed. Additionally, during the split operation, all folders assigned to the mailbox become unusable and this duration can be from a few hours in length to over 2 weeks! Priasoft highly recommends avoiding this situation, if at all possible. This is also why it is suggested to only consume about 20% of capacity with the synchronization effort.

P: Bulk Modify Folder Types

This component of the PF Toolbox addresses a deficiency in the Exchange PowerShell command set: there is no ability to create a public folder as a specific folder type. For clarity as an example, it is impossible to create a Calendar public folder with PowerShell (or with the web management tools).

This component uses a text file containing a list of folder paths to change the folder type for each one listed.

This action is often used in conjunction with Option O above. When Option O must assign a folder to mailbox, it is unable to create a folder as a specific type. As a result, the script will add such a folder to a text file with the original folder's type. After the Option O script completes, the resulting text file is used with Option P to change those newly created folders to their appropriate types.

Q: De Dupe Mailbox Items

This component is the mailbox complement of the same task for Public Folders. Refer to the detail above for option J for more information.



R: Bulk Delete Items

This component provides a mechanism to bulk delete items in public folders. Note that items deleted with this task are permanently deleted – use with caution.

Exchange PowerShell does not provide any commands to delete items from folders. When faced with the need to cull data in order to bring down the total public folder footprint, one is presented with the challenge of “how” to do this efficiently. This component allows for the selection of items by several key attributes (subject, dates, etc.) and once identified can delete the marked items.

Also be considerate of the fact that Exchange’s database architecture is a transacted database. Each change made, whether it be and add, delete, or modify, is logged. If circular-logging is not enabled on the database hosting public folders, large delete operations can generate large quantities of logs. Priasoft recommends a review of the logging volumes for databases, free space on such, and backup operations and whether they truncate logs at the end.