
RingStor Cloud – File Synchronization

RingStor Enterprise 3.0 supports file synchronization among all DataAgent platforms, including Windows, Linux, Mac and ChromeOS.

IMPORTANT NOTE, File Sync is not File Backup. File Sync only maintains the most recent copy across all configured DataAgents. If files are infected by virus on one DataAgent, most likely same files on other DataAgents are infected too. File Backup stores backup data in a secondary storage: local storage or cloud storage, if file is infected by virus on DataAgent, clean historic copy can still be restored from the secondary storage.

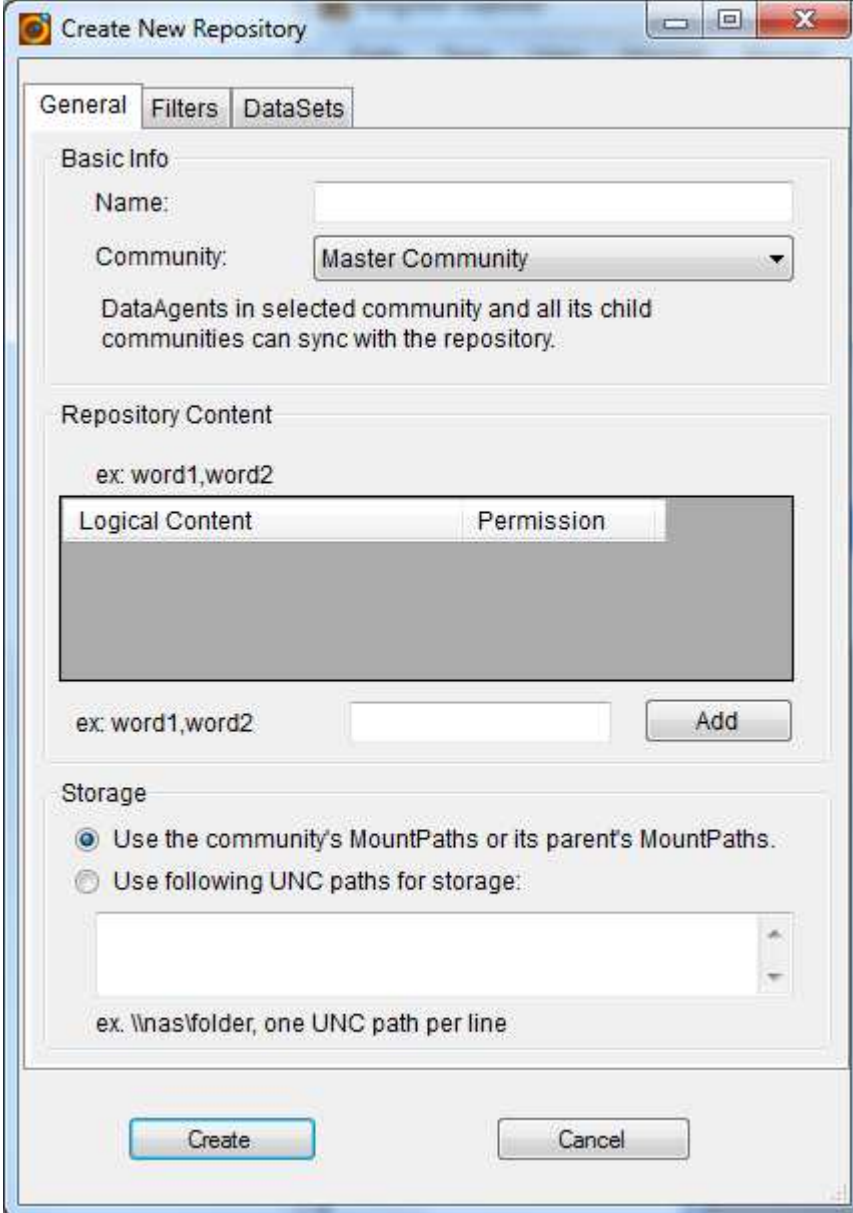
Following are quick steps to set up and use File Sync in RingStor:

1. Sync Repository

A sync repository is one or more folders residing at either MountPaths or specified storage path inside cloud. The folders must be accessible by both Cloud End Point and DataServer services.

The community that is selected when creating a new repository is the owner of the repository. DataAgents in this owner community and all its child communities can sync to the same repository.

To create a new sync repository, from RingStor Explorer, right click the community in DataAgent Explorer view, select Sync Repository -> Create New Sync Repository:



Create New Repository

General Filters DataSets

Basic Info

Name:

Community:

DataAgents in selected community and all its child communities can sync with the repository.

Repository Content

ex: word1,word2

Logical Content	Permission

ex: word1,word2

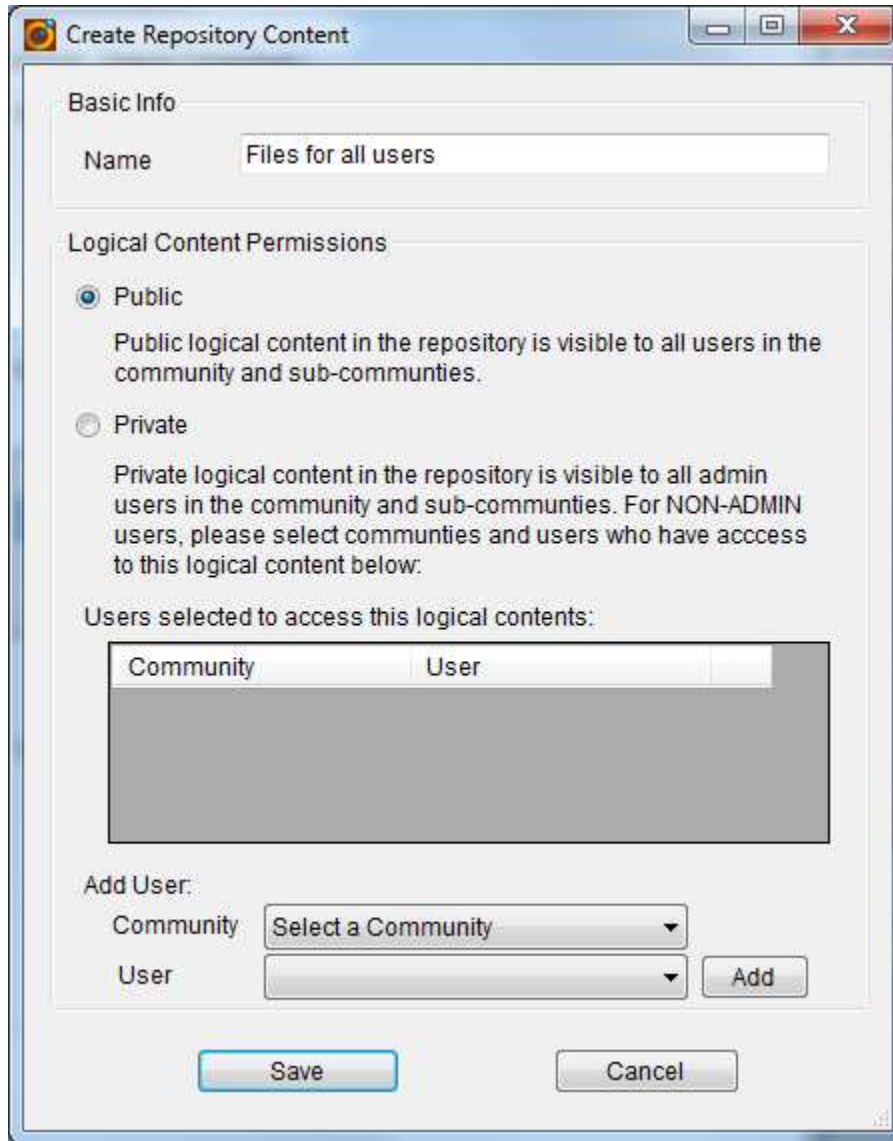
Storage

Use the community's MountPaths or its parent's MountPaths.

Use following UNC paths for storage:

ex. \\nas\folder, one UNC path per line

Logical Content can be either public or private. Public logical content is visible to all users in communities that have access to the repository. Private logical content is only visible to selected users. Click Add to set up the logical content permission:



Create Repository Content

Basic Info

Name: Files for all users

Logical Content Permissions

Public
Public logical content in the repository is visible to all users in the community and sub-communities.

Private
Private logical content in the repository is visible to all admin users in the community and sub-communities. For NON-ADMIN users, please select communities and users who have access to this logical content below:

Users selected to access this logical contents:

Community	User
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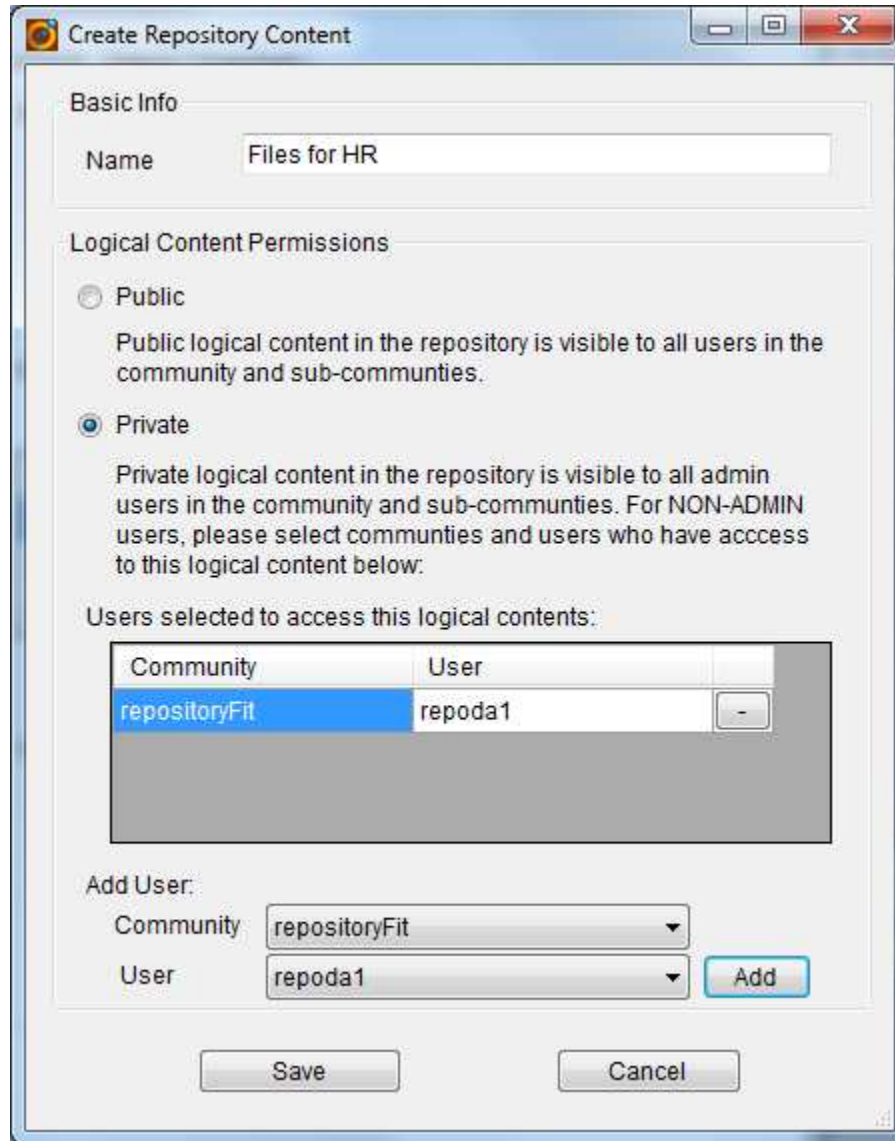
Add User:

Community: Select a Community

User: []

Add

Save Cancel



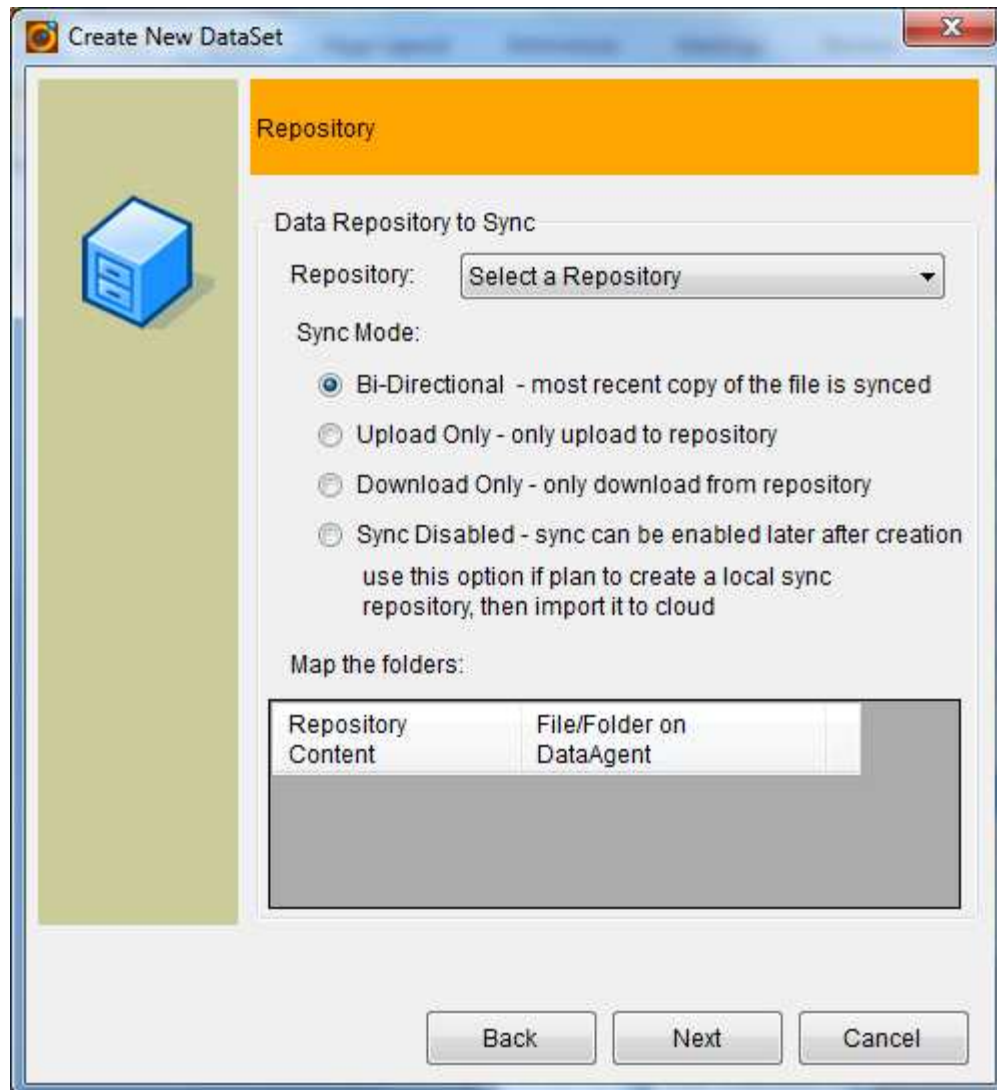
2. Install File Sync Agent to DataAgent

For new DataAgent install, choose File Sync agent at time of installation.

For existing DataAgent, please update to RingStor Enterprise 3.0 DataAgent, then from RingStor Explorer, use right menu for the DataAgent to install File Sync agent.

3. Create File Sync DataSet

From RingStor Explorer, right click File Sync agent under a DataAgent, start Create New DataSet wizard. At the step below, create a new sync repository or choose existing sync repository:



2.1 Select Sync Repository

Data in sync repository is stored inside RingStor private cloud. Sync repository contains one or more logical contents which is used to map physical folders or files in File Sync DataSet.

2.2 Choose Sync Mode

Sync mode dictates how data is sent between DataSet and Sync Repository.

- Bi-Directional – most recent copy of the file is synced
- Upload Only – only upload to repository
- Download Only – only download from repository

- Sync Disabled – use this option if you plan to run Base Line Sync that creates initial sync repository into a local hard drive, then import into cloud as first version of sync repository. The sync can be enabled later.

2.3 Specify folders/files in DataSet

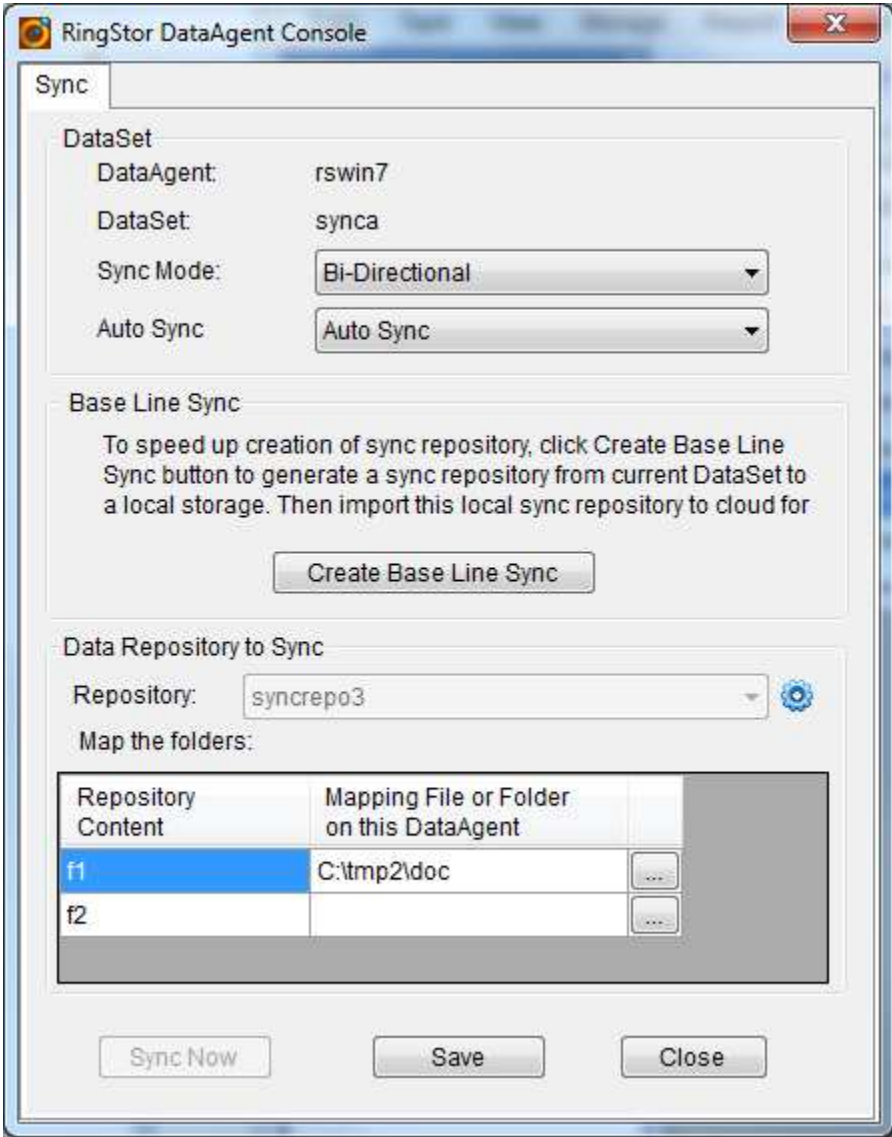
After a sync repository is selected, click to browse or type in folders/files on DataAgent for each logical content in sync repository. It is not required to provide folders/files for every logical contents in repository.

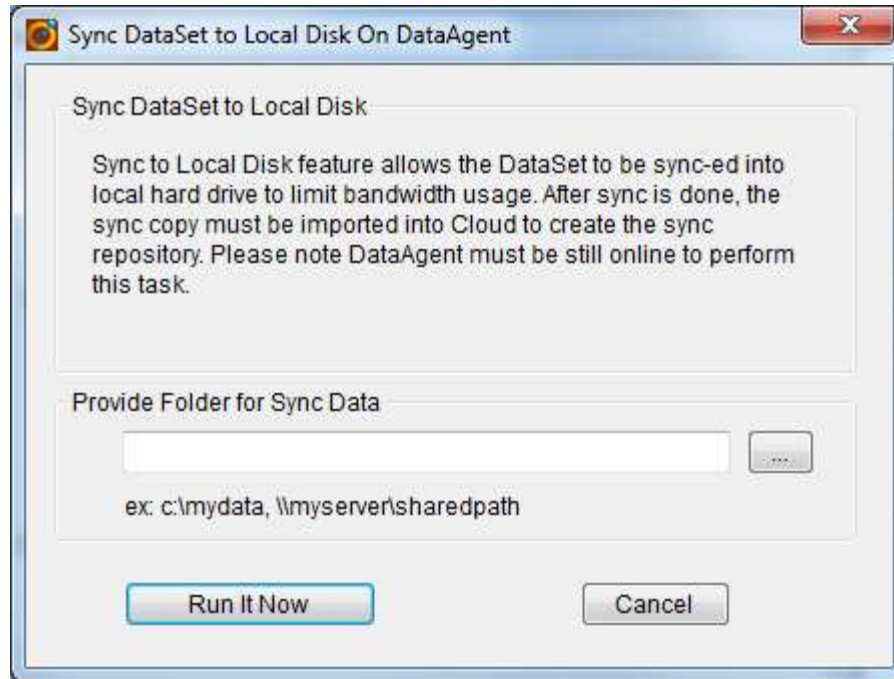
The folders and files in same logical content is sync-ed across all associated DataSets.

4. Base Line Sync

Similar to base line backup in RingStor, customer can kick off a base line sync from one File Sync DataSet, then import the base line sync into cloud to create first set of data for the sync repository.

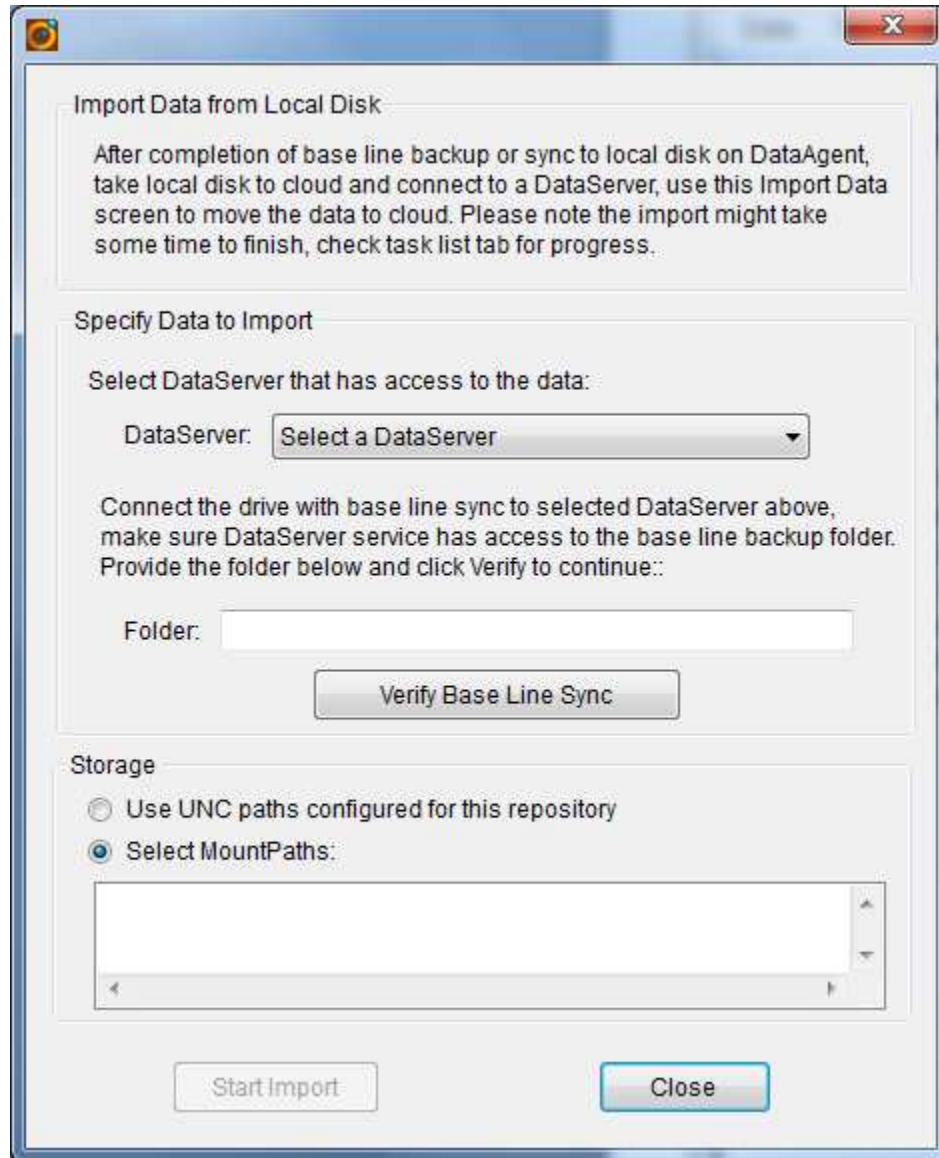
To create a base line sync, make sure all DataSets to the same sync repository have “Sync Disabled” selected, so no DataSet will automatically send any data to the repository. Choose a DataSet with initial set of data, right click the DataSet, select Sync menu:





Provide a local folder where the base line sync data will be saved.

At completion of the base line sync, take the storage device and plug it into a DataServer in cloud, from RingStor Explorer top menu, Data -> Import Data From Local Disk -> Import Base Line Sync:



Provide the folder where the base line sync data is.

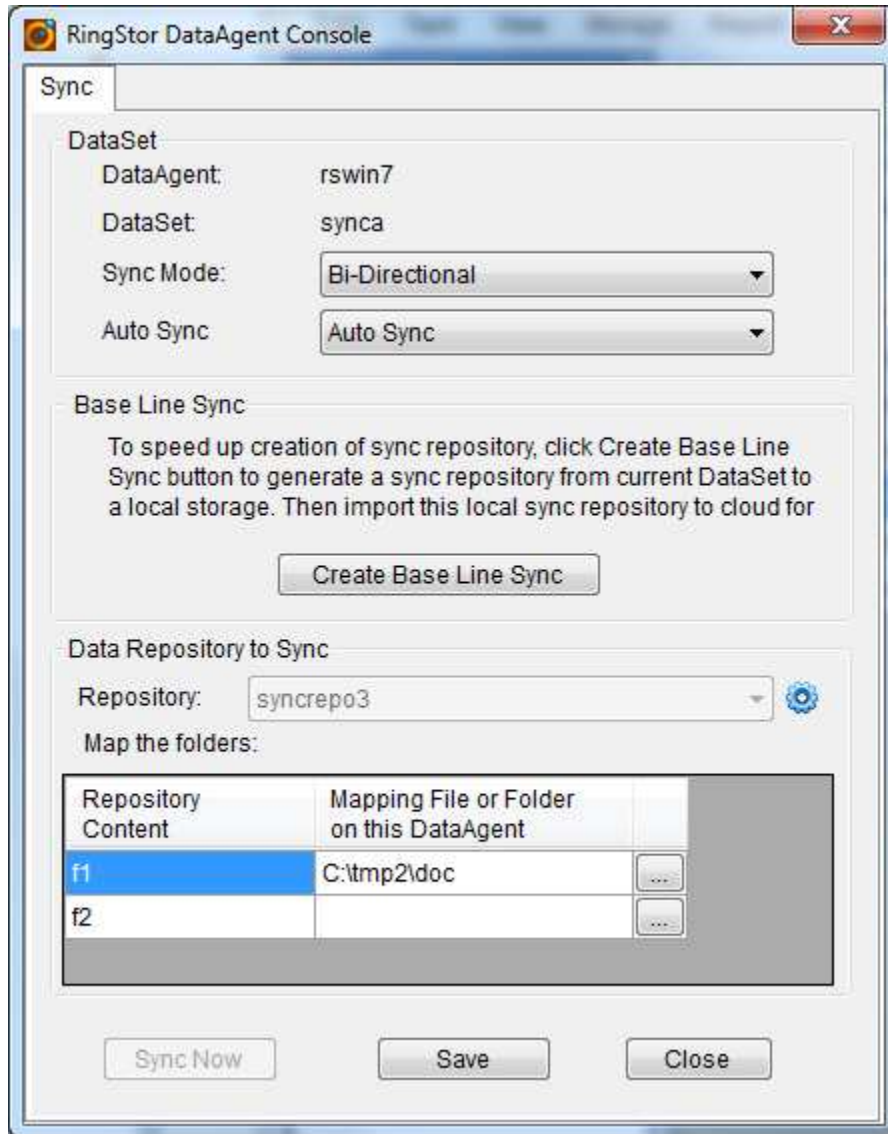
Click "Verify Base Line Sync" button to check the data, then click Start Import to import the base line sync to the MountPath or storage configured for the sync repository.

At end of import, please enable sync for all DataSets.

5. Manage File Sync DataSet

File Sync is a continuous job running on DataAgent, no schedules are needed.

To manage file sync activity, from RingStor Explorer, right click File Sync DataAgent, open Sync menu:



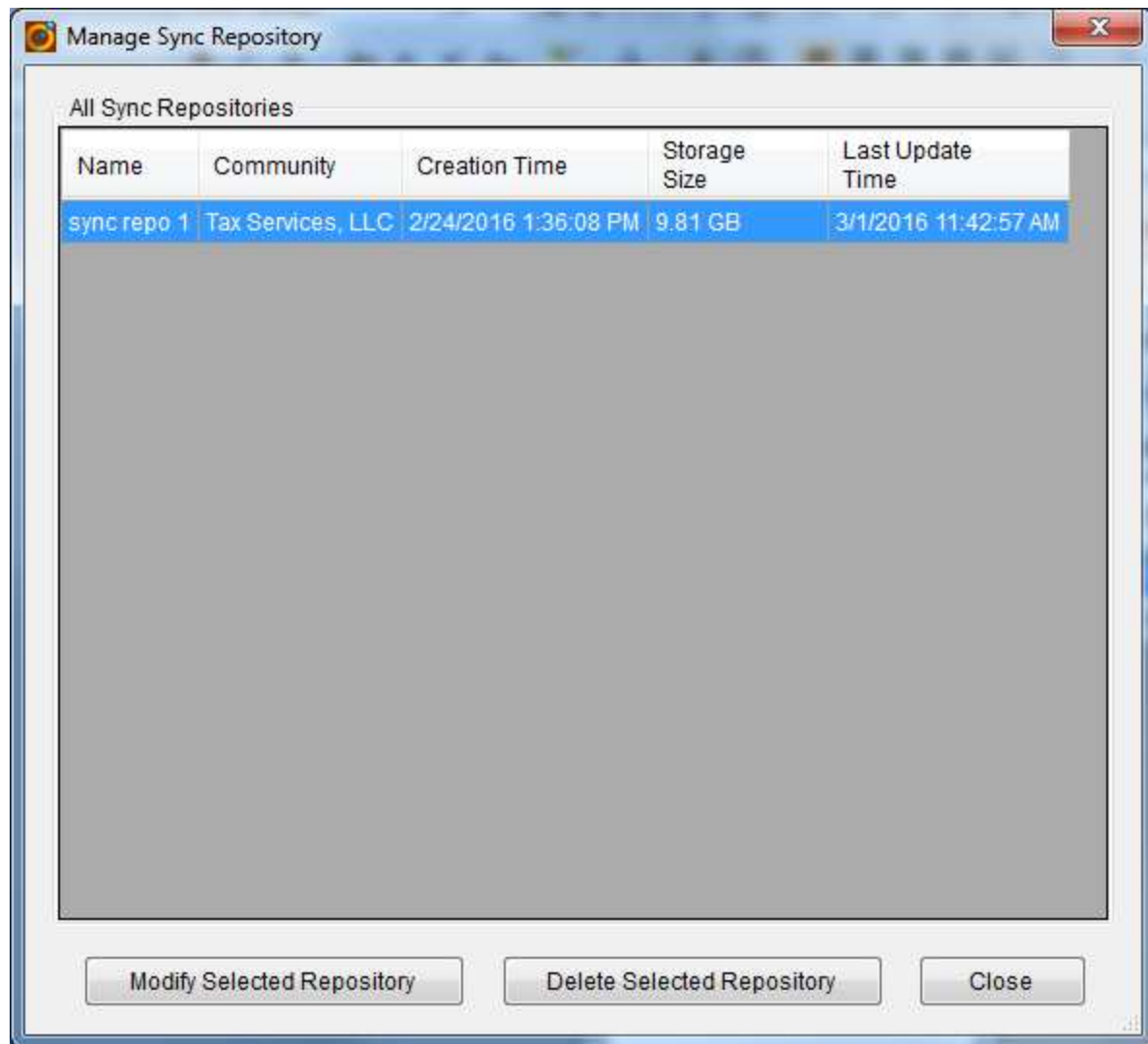
Change the sync mode to control the sync activity.

Create Base Line Sync - If DataSet in sync is large, you may create initial sync repository into a local attached hard drive, USB or local NAS. After base line sync is done, take the hard drive to cloud, plug into a DataServer, then use RingStor Explorer, Import Data From Local Sync to move it to cloud.

6. Manage File Sync Repository

Each community may have its own set of sync repositories. Child community has visibility to parent sync repository.

To manage sync repository, from RingStor Explorer, open DataAgent Explorer, right click a community, choose Sync Repository menu:



Storage Size shows the actual data storage for this repository in cloud storage.

File Sync Rules

Following are terminologies and rules applied in File Sync operation:

1. File Sync Repository is the storage residing inside Cloud system that holds the index and data sent from all associated File Sync DataSets.
2. Logical Contents are the “buckets” defined in File Sync Repository. A logical content can be either public or private.
3. File Contents are the local file or folders in a File Sync DataSet on a DataAgent. One file content is mapped to one logical content in selected repository. File Sync DataSet must map at least one file content to a logical contents in selected repository.
4. Owner DataSet is the DataSet that sends the latest version of the file by last modified time.
5. File Sync DataSet performs two phases during one full sync operation:
 - a. Download: if enabled, DataSet will download all index from repository, delete local files if not found in repository. File deleted can be moved to recycle bin if recycle bin is enabled for File Sync DataSets.
 - b. Upload: if enabled, DataSet will upload changed files based on its local index from last sync to repository. All files uploaded are owned by this DataSet.
6. If the file is missing in its Owner DataSet during upload, Owner DataSet will send missing file to Cloud. Cloud will mark the file missing from its File Sync Repository. The file will be permanently deleted from repository in next Repository Update.
7. Repository Update is run by DataServer every 30 minutes by default. This time interval can be configured. Repository Update will perform two operations:
 - a. If a newer version of a file is sent to repository, Repository Update will update index and remove older versions from repository.
 - b. If a file is marked missing, Repository Update will delete its index and data from repository.
8. If a local file content has been in sync, but is cleared in file content vs. logical content map, files in this local file content will stay and not included in future sync any more. File owned by this DataSet will not be marked missing in repository, thus these files will remain in other DataSet’s corresponding file contents.
9. If a local file content has been in sync, but is changed to a different folder in file content vs. logical content map, files in previous local file content will stay and not included in future sync any more. File owned by this DataSet in previous local file content will not be marked missing in repository, thus these files will remain in other DataSet’s corresponding file contents. Files owned by other DataSets will be synced down to this new local file content.
10. If a logical content is deleted from repository, files in associated local file content in all DataSets will stay and no longer included in future sync. The data for this logical content in repository will be purged when retention is met.

11. If a File Sync DataSet is deleted, files in its local file contents will stay and not included in future sync any more. File owned by this DataSet will not be marked missing in repository, thus these files will remain in other DataSet's corresponding file contents.

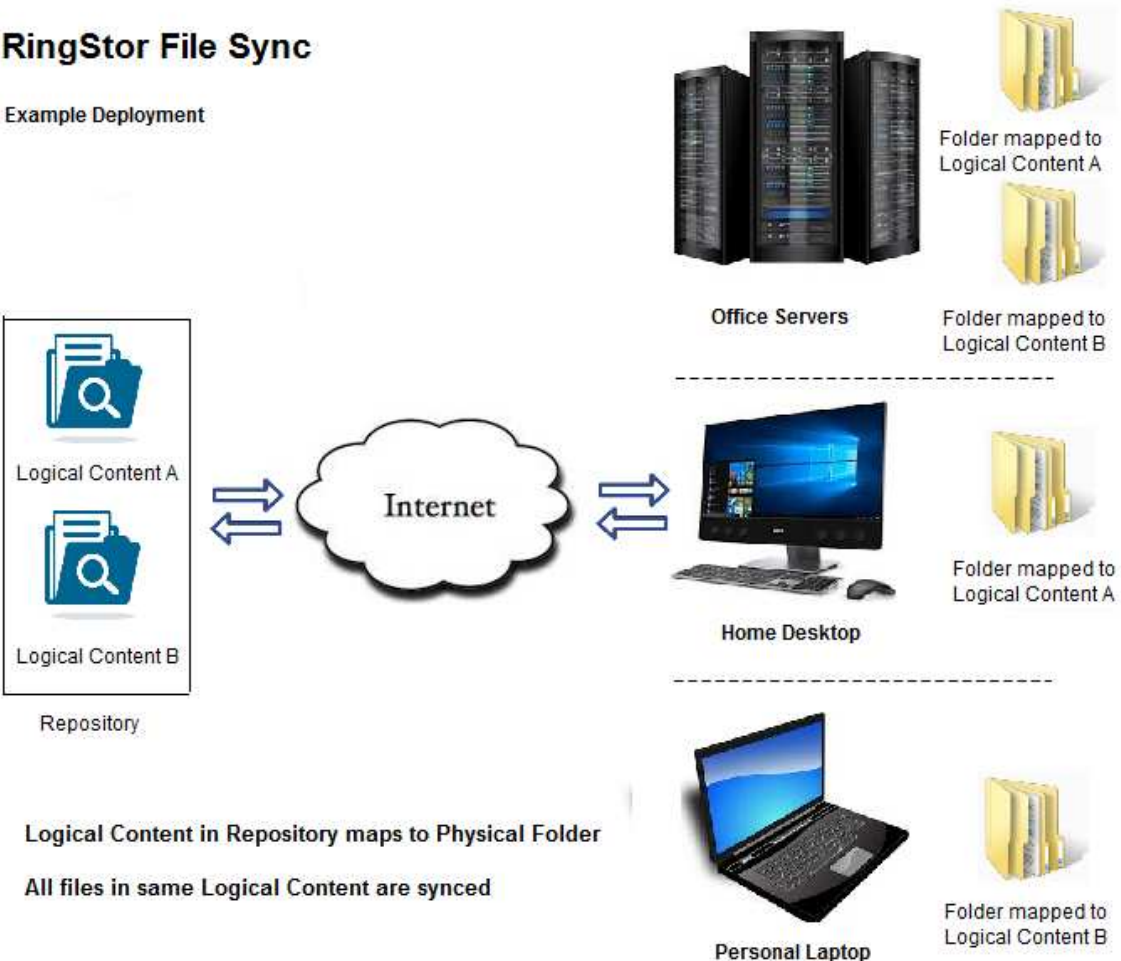
Example Deployment for File Sync

Sync files between office servers, home desktop and personal laptop:

Note: The DataSet on DataAgent may choose one or more logical contents to sync from repository.

RingStor File Sync

Example Deployment



Logical Content in Repository maps to Physical Folder
All files in same Logical Content are synced