

Creating Replication Rules

This section outlines how replication rules are created. Replication rules define which files get replicated, from where, to where, and when. These rules are checked when a file is downloaded from a vault server (this happens when users get or view a file), when a file is uploaded to a vault server (this happens when users add or modify a file), and when requested programmatically. Replication rules are created for each vault server, and can be written to move files to another vault server or copy files to multiple vault servers. User Default Vault and Read Priority settings, as mentioned in the prior chapter, interact with Replication rules, so care must be taken in defining both to work together to give the desired results.

Replication rules are checked by the Aras Innovator Server, and any match causes the creation of replication transaction record(s) for the specified file and source vault to each target vault specified in the rule. These transaction records are regularly checked by the Aras Innovator Server based on the settings determined in how the Replication Transaction thread was configured (in Section 2), and sent to and executed by the vault servers per the date/time the transaction is due to execute.

Adding a Replication Rule

To add a replication rule:

Click null to edit the source Vault for the files (Administration>File Handling>Vaults).



Default x

Default ☆

Edit ↻ ↺ ⌵ 📊 ⌵ ⌵ ⋮

^ Vault

Name
Default

Vault Uri Pattern
\${HTTP_PREFIX_SERVER}\${HTTP_HOST_SERVER}\${HTTP_PORT_SERVER}\${HTTP_PATH_SERVER}/vault/vault:

Vault Uri
http://localhost/Support/InnovatorServer12/vault/vaultserver.aspx

^ Replication Rule Conversion Server Priority

🧬 Identities ☆

📄 ✖ 🔍 ⌵ Hidden ⌵ 🖥 ⌵ ⌵

	Name	Initiator Type	Replication ...	Filter [...]	Replication T...	Is Active	Label
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On the new Replication Rule tab, click the Add Identities icon null . The Identity search dialog box appears.

Select Items

□ ×

 Identities ▾

  Simple ▾

	Name	Description	Is ...	Classification
▾				...

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OK Cancel

Click the Search icon null and select the identity that executes the initiating event. Usually, this is set to World. If you would like to replicate files that are read or updated in the vault by only a particular group of users then specify that identity on the 'Replication Rule'; otherwise set the identity to 'World'.

1. Right click on the new entry, and click **Replication Rule>Open**. The **Replication Rule** form appears.



Replication Rule...

Replication Rule 1

Save

Done

Delete

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Replication Rule

Initiator Type

Filter Method

Replication Mode

Replication Type

Copy

Is Active

☐

Replication Time

Timeout

0100

Label

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File Types
Target Vaults

FileTypes

Hidden

Name

Description

Ext.

2. You may set the following properties:

- Initiator Type defines the initiating event to run this rule. The options are:
 - onDemand**, for cases where a user belonging in the rule's related identity tries to get the physical file. In this case, target vault is the highest priority "read" vault of the user initiating this request, and related Target Vaults (see below) are ignored. If a file already exists in more than one vault, keep in mind that the rule may or may not create a replication transaction, depending on which vault the file is retrieved from.



Therefore, you should usually have similar onDemand rules for each vault to get consistent behavior.

- **onChange**, for cases where the physical file is added or changed by a user belonging in the rule's related identity.
- **onEvent**, for cases where a method explicitly requests replication checks be performed. The user must belong in the rule's related identity, or must be granted special temporary credentials in the method through a GrantIdentity() call. onEvent replication rules are checked when AML of the form "<Item type='File' action='replicate' id='...' />" is sent to the Aras Innovator server for a specific file ID. Optionally, preferred vault(s) to replicate from may be specified by adding the Located relationship(s) in preference order to the AML. However, if none of the vaults specified have a copy, or no vaults are specified, Aras Innovator checks for the first vault with a copy.

OnDemand and **onChange** events are automatically checked when a get or upload, respectively, occurs for a specific file on a vault. To replicate files for any situation other than these, use a method to pass File Item ID(s) with a replicate action, and create a matching **onEvent** rule.

- **Filter Method** identifies a server method which is used to determine if a file having a replication transaction record should be replicated at the time the replication transaction is about to execute. It references a method with signature Item Method (Item file) that gets an IOM.Item of type File with the file ID set, and returns an IOM.Item with AML `<Result> 1</Result>` in case the file must be replicated, or any other AML if the replication should not occur. The method is called immediately before executing a replication transaction created based on the rule and is not when the replication rule is checked, nor when the replication transaction is created. The reason for this is the necessity to check file properties (or properties of other items to which the file could be related) immediately prior to executing the transaction, as the properties could change since the replication transaction is created. If the filter method determines that the replication should not occur, it is recommended that the result be set to a text value indicating why, so this reason appears in the replication transaction log.

Important

In case the method returns "`<Result> Do NOT replicate the file</Result>`" the transaction is discarded (i.e. its status is set to Discarded) and the content of the returning `<Result>` tag is set on the ReplicationTxn.error_msg property.



- **Replication Mode** specifies the timing for executing a replication transaction.
 - **Immediate** sets the execution time to the moment the transaction was created.
 - **Delayed** sets the execution time to the moment the transaction was created plus the defined Replication Time.
 - **Scheduled** sets the execution time to the UTC time specified in the Replication Time field defined below for today, or tomorrow if that UTC time has already passed for today.
 - **Manual** does not set an execution time, and the transactions are held until executed programmatically through a call to a special new method in the form -
`Aras.Server.Replication.Queue.Process(XmlDocument inDom, XmlDocument outDom)`.
 Note, a single call of `Aras.Server.Replication.Queue.Process(...)` only runs one iteration of the replication queue processing, so if there are more 'Manual' replication transactions than could be executed in a single replication queue processing iteration, some are not be completed, so you must take that into account in your code. See the *Programming Notes* section for more detail on Manual Replication.
- **Replication Type** determines if the file is left in the source vault or not
 - **Copy** leaves the file in the source.
 - **Move** removes the file from the source vault after copying it to the target vault. Note that you should only have one target vault (or none chosen for onDemand Initiator types) when this option is chosen.
- **Is Active** allows specific replication rules to be either in use or ignored for debugging and other administrative purposes. Those set to active are checked, and those not set are ignored.
- **Replication Time** is relevant for **Delayed** and **Scheduled** Replication Modes only. For **Delayed** modes, it is the quantity of time in hours and minutes from when the rule creates a transaction record to the earliest that transaction should execute. For **Scheduled** modes, it is the hour and minute of the day in UTC Time (today if later than the present time, tomorrow if that time has already passed for today) representing the earliest the transaction should execute. Format for both modes is hhmm with 0000 representing immediately for **Delayed**, and midnight for **Scheduled** modes. The maximum allowed value for **Scheduled** modes is 2359, and any value not recognized is treated as 0000.
- **Timeout** represents the maximum amount of time allowed from when a transaction execution request is sent to a vault server and accepted (and the transaction is set as Pending) until it completes either successfully (Completed) or not (Failed). Transactions not completed in the allotted time are automatically failed (Failed). A default value of 0100 (one hour) is set and assumed. Note that the vault server may be processing multiple requests. Format is hhmm.



- **Label** is an arbitrary text field that is output on the replication transaction log. Labeling the rules may be helpful in searching and reading the logs.

Two relationships are made in the Replication Rule:

- **File Types** specifies and restricts which types of files are replicated using the rule. If no file types are specified, all file types are included.
- **Target Vaults** specifies the vault or vaults to copy the file to. This relationship is not appropriate, and is ignored, for rules where the Initiator Type is onDemand since the target is set to the initiating user's highest 'read' priority vault. Only one vault should be specified where the Replication Type is Move. Having more than one target results in transaction errors since the file no longer exist in the source vault after the first completed 'Move' transaction.

Removing a Replication Rule

You can set a replication rule as Inactive (refer to the description of the Is Active property) and you can delete a replication rule completely. However, if there are any outstanding Replication Transactions, you cannot delete a rule until they are completed and put into the Transaction Log. If you wish to delete a rule, you can first set it as Inactive, to inhibit the creation of any new replication transactions, wait for any existing transactions using that rule to complete or manually delete them, then delete the replication rule.

