Metalogix® Replicator 7.4

September 2023

Replication of Workflows

Workflows are used to automate specific behaviours within SharePoint. They are a convenient way in which to maintain full functionality of your SharePoint environment, allowing you to keep continuity of operations at a maximum. Take for example a geo-replication scenario where a document has been changed in the Corporate office, and then approved by the supervisor in the London office, this workflow approval is then seamlessly replicated back to Corporate, ensuring all data is up-to-date on both farms. This Knowledge Based article will outline the details of how workflows work with Metalogix Replicator.

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Workflow Replication Process

Workflows begin with a definition: the set of conditions and actions used by the workflow to manage your business process. This is essentially **what** your workflow does.

An association is the assignment of a workflow to an object. This is **where** you want to run your workflow.

An instance is the act of starting the workflow. This **is** your running workflow.

With regards to workflow definitions, Replicator replicates the creation and modification of SharePoint Designer workflow definitions. Replicator does not replicate the creation or modification of workflow definitions in visual studio. We do, however, replicate the activation of workflow features, associations and instances of visual studio workflow definitions that have been deployed on both source and target.

SharePoint users can interact with the workflow instance and associated workflow tasks on any server, and the updates and impacts are replicated to all target servers.

When a supported workflow is started for a document or list item on a server, the workflow instance is captured and replicated to the target servers. The workflow tasks and history items associated with the workflow are neither captured nor replicated. These workflow artifacts are created on the target servers when the replicated workflow instance is initiated for the document or list item.

It is vital to note that Replicator requires that the workflows be installed and enabled on all web applications where the workflow will be processed. Many built-in workflows require that certain features be activated in order to be used.

Supported Workflows

Metalogix Replicator is able to replicate list scoped and site scoped workflows, including workflow instance and associations. Replicator supports the replication of SharePoint out of the box, SharePoint Designer, Visual Studio, and Nintex list and site-scoped workflows.

Creation and modification of Workflow definitions in SharePoint Designer - Nintex included - **are** also replicated. Visual Studio definition creation and modification **are not** replicated.

Replicator does not install workflows for you. For SharePoint designer reusable workflow templates, which are workflows that are already available in SharePoint, Replicator will replicate any associations and instances.

Enabling Workflow Replication

Workflow replication is not enabled by default on map families. Enabling workflow replication is done at the Map Family level when setting up Replicator on your farms. By checking the Workflow checkbox under the Replication Events section of the Configure Replication Map Settings page, you enable the replication of workflows. In order to specify exactly what kind of workflow events are replicated click **Advanced** for further options. For more information about enabling replication for specific workflow events, see the *Metalogix Replicator Reference Guide*.

Replicator requires that the workflows be installed and enabled on all web applications where the workflow will be processed. Many built-in workflows require that certain features be activated in order to be used. Note that Replicator will push feature activation, but initial startup might require additional steps.

Workflows can be manually invoked on any web application in the replication network. The workflow setting to automatically start a workflow on list items is not replicated. This is because it is a best practice to only start workflows on one location. Replicator automatically does this for you by not replicating this setting.

Duplication of Workflow Actions

Replicator cannot interact or influence what happens in an engine. This means that the workflow instances on both the source and target farms perform each configured action fully as they work through the workflow.

If a workflow action creates a task, then Replicator can detect it and not duplicate the work; however, any other actions that a workflow performs on both web applications may be duplicated. Workflow actions include email notifications, the creation of SharePoint objects like list items, or the modification of anything outside of SharePoint.

For example, the generation of email notifications for a workflow occurs entirely within the SharePoint Workflow engine.

Replicator is able to capture and rationalize SharePoint artifacts, such as tasks and column changes, but email notifications occur outside of our scope and are therefore duplicated.

If you are creating custom workflows in SharePoint Designer or Visual Studio, then we recommend creating separate workflows, where one sends an email notification and the other does not. You can also build logic into the workflow to detect where the event originated and only send emails from that farm. Alternatively you can prevent duplication of workflow actions by using ReplicatorAlertFlag - please see this section for more details.

If you are configuring Replicator for disaster recovery, where the Disaster Recovery (DR) farm is quiet until an outage occurs, then we recommend disabling outgoing email from the DR farm. As a part of your fail-over steps, you can enable outgoing emails on that farm, which allows workflow alerts to be sent as expected when the primary farm is unavailable. This prevents SharePoint from sending duplicate alerts from your DR farm.

In the event that you have a workflow that creates list items or documents automatically, Replicator replicates them to both sides, creating duplication of the item. To prevent this from occurring, we recommend that you create your workflow with a unique field. You can then use this unique field to create a rule which will skip replication on the specified unique list item column condition. This rule will prevent the items created by the workflows from being replicated.

Preventing Duplication of Workflow Actions

When creating custom workflows in VisualStudio or SharePoint Designer do the following in order to prevent the unwanted duplication of workflow actions:

1. Create a Boolean in the workflow association data called "ReplicatorAlertFlag". This property should be included in the association data xml as follows:
      <ReplicatorAlertFlag>true</ReplicatorAlertFlag>
   When this is included in the association data and set as 'true', Replicator will automatically set it as 'false' on all targets.

2. Apply this property in the workflow definition in order to control whether workflow actions are performed from a particular instance.

Site Scoped Workflows

Site scoped workflows do not replicate the instance for the following two out of the box workflows:

- o   Schedule web analytics alerts
- o   Schedule web analytics reports

These two instances are not replicated for site-scoped workflows as the workflow sends email notifications based on local site conditions. Replicating the workflow instance in this case could result in the sending of duplicate emails.

Content Type Workflows

Replicator replicates site content type and list content type associations and instances. As workflows are associated with site content types or list content types, any related SharePoint objects are also replicated and synchronized on the replicated farm.

Replicating Workflows with Express Edition

Workflow replication is available for the Replicator Enterprise and Standard editions. If you are mixing farms with any of these editions and Replicator Express edition, then you can still replicate workflows, with the following considerations:

- Workflows can only be associated and instantiated from the farms running Enterprise or Standard edition.

- Workflows can be updated through tasks on any farm. For example, in an approval workflow, you can approve a document through its task on the Express edition farm. For complex or custom workflows, this may not be possible, depending on how the workflow instance interacts with SharePoint objects that are replicated.

Queuing In-Process Workflows with Replicator

It is important to note that Replicator does not replicate entire workflows when replicating workflow actions. This means that when you queue a workflow that has already started processing, you will have to manually progress through the workflow on the target until it has reached the same state as the source workflow.

If Replicator captures the start of a workflow and any subsequent changes, then the workflow state will be the same on the source and target.