

## NINTEX WORKFLOW BACKUP AND RESTORE OVERVIEW

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### SUMMARY

This document details the standard administrative methods for restoring SharePoint data that utilises Nintex Workflow.

### DATA STORAGE OVERVIEW

Nintex Workflow provides the ability to design SharePoint declarative workflows. SharePoint treats Nintex Workflows no differently to workflows created by SharePoint designer, and as such, the SharePoint content database is responsible for storing and persisting data associated with a running workflow instance. This can include workflow history items, workflow tasks and workflow state management. The workflow association and definition is also stored in the SharePoint content database.

The Nintex Workflow content database stores additional workflow logging and tracking data to allow for more advanced workflow reporting. This database is also used to keep track of workflow action and task states in a way that can be reported on by Nintex Workflow.

The Nintex Workflow configuration database stores settings such as which activities are allowed on which sites, workflow constants, workflow schedule definitions, message templates and the global settings found in central administration.

In a default install, the Nintex Workflow configuration database also acts as the first content database, therefore the configuration database also contains the schema for a workflow content database.

## RESTORATION GRANULARITY

Nintex databases are not directly linked to the SharePoint content databases, however, all of the workflow tracking data for a particular site collection can be found in a single Nintex Workflow content database. You can set up SharePoint content database to Nintex Workflow database mappings pro-actively via SharePoint Central Administration to enable informed backup and restore decisions. When backing up a SharePoint content database, the corresponding Nintex Workflow content should also be backed up at the same point in time. When restoring a SharePoint content database, the Nintex Workflow content database backup from the same point in time should also be restored to ensure consistency between the workflow state (SharePoint database) and the logging/tracking data (Nintex Workflow database).

If possible, you should map (1 to 1) a Nintex Workflow content database with a SharePoint content database. For greater granularity, as with SharePoint, provision different site collections in different content databases (as required). See [Appendix A](#) for instructions on how to implement a 1-to-1 mapping for an existing site collection already utilizing Nintex Workflow.

## FULL FIDELITY BACKUP AND RECOVERY PROCESS

The supported 'full fidelity' restoration method, of both SharePoint and Workflow data, is to have each SharePoint site collection mapped to a single SharePoint Content Database, and have a one-to-one mapping to a Nintex Workflow Content Database. Any restoration tasks will then need to be performed at the SQL database level.

### Backup

Backup using a SQL maintenance plan. Ensure SharePoint content db's and Nintex Workflow db's are backed up together.

### Individual SharePoint Content Database & Nintex Workflow database restoration process

- Restore SharePoint Content Database as per Microsoft's guidance.
- Restore Nintex Workflow Content Database which is mapped to the associated SharePoint Content.
- Restart IIS and SharePoint Timer Service on all servers.

### Full (catastrophic) DR high-level process

- Restore SharePoint without attaching content databases
- Install Nintex Workflow
- During configuration, attach to existing NW database(s)
- Attach SharePoint content databases.
- Restart IIS and SharePoint timer services on each server

## STSADM BACKUP/RESTORE METHOD

Restoring SharePoint site collections via the STSADM backup/restore commands has several implications with respect to associated Nintex Workflow state and meta-data. Two scenarios are covered below, detailing an In-Place restore; a site collection is restored in the same location that it already exists in, and an Out-of-place restore; a site collection is restored to a different location within the same SharePoint Farm.

### In-Place Restore

- **Workflows definitions**

A restore of a site collection using SharePoint's STSADM -o restore command will bring across the definition and association data of all workflows within the site collection. Any Nintex Workflows, started after the restore process, will execute normally.

- **Running Workflows**

When performing an STSADM backup/restore, unfortunately there is a limitation within SharePoint pertaining to running workflows continuing after a restore of a site collection. Once a site collection is restored, any workflows in a waiting state will error when they try to continue. The reason is that the workflow instance data in SharePoint contains a reference to the ID of the site collection in which it was started. After restoring the site collection, the ID changes and when the instance data loads and uses the stored ID, it fails. Users will see the "Error Occurred" status. This is the standard behaviour with workflows created for SharePoint and is not specific to Nintex.

- **Current Workflow State**

State information is brought across for all current workflows.

- **Workflow History**

SharePoint's workflow history is restored when utilizing the STSADM backup/restore commands. Specifically, the standard Workflow History data that is maintained within the SharePoint database, as can be viewed by clicking on the dropdown menu of a SharePoint item and selecting 'Workflows', will be preserved when performing the STSADM backup/restore method. However, as you are restoring only the SharePoint data, the Nintex Workflow data existing within the Nintex Workflow database is not present, and as such the 'View Workflow History' link of a list item, which draws its data from the Nintex Workflow database, will be empty.

- **Nintex Workflow History**

Nintex stores additional logging information in its own database and there is no option to restore this data on a per site collection basis. For workflow instances to restore correctly, entire database restores are the only option for SharePoint and Nintex workflows. Note: This will affect workflows in progress. Newly started workflows, after the restore, will work fine.

### Out-of-Place Restore

- **Workflows definitions**

A restore of a site collection using SharePoint's STSADM -o restore command will bring across the definition and association data of all Workflows within the site collection. Any Nintex Workflows that

have references to data within the old location of the site collection will need to be republished from within the Nintex Workflow designer. For example, in the situation where a Workflow contains a 'Set a Variable' action, that performs a 'List Lookup' on data within the given site collection, these references will still point to the old location of the source site collection – they are not remapped as part of the restore process. Therefore, Workflow designers will need to, as part of a post [Out-of-Place] restore, republish each workflow.

- **Running Workflows**  
Same outcome as In-Place site collection restore.
- **Current Workflow State**  
State information is brought across for all current workflows.
- **Workflow History**  
Same outcome as In-Place site collection restore.
- **Nintex Workflow History**  
Same outcome as In-Place site collection restore.

## RESTORING A SITE VIA STSADM EXPORT/IMPORT

Restoring SharePoint site collections via the STSADM export/import commands has several implications with respect to associated Nintex Workflow state and meta-data. Two scenarios are covered below, detailing an In-Place Import; a Site or group of Sites is restored in the same location that they already exist in, and an Out-of-place Import; a Site or Group of Sites is restored to a different location within the same SharePoint Farm.

### In-Place Import

- **Workflows definitions**  
A restore of a Site(s) using SharePoint's STSADM -o import command will bring across the definition and association data of all Workflows within the Site(s). There are two additional administrative steps that must be completed before and after the export/import steps, these are:
  1. Run the command NWAdmin -o preparesiteforexport, before executing STSADM -o export on your Site(s).
  2. Run the command NWAdmin -o fixsiteafterimport, after executing STSADM -o import on your Site(s).

Performing the above steps will ensure referential integrity of the Workflow to all SharePoint objects within the workflow definition. Specifically, the STSADM import process generates new GUIDs for all SharePoint objects: Sites, Webs, Lists, ListItems. In order to remap the imported workflows to the newly generated GUIDs, we provide the preparesiteforexport and the fixsiteafterimport to work around this issue.

- **Running Workflows**  
Running workflows are not brought across when using the STSADM export/import process.

- **Current Workflow State**  
State information is not preserved in the imported site.
- **Workflow History**  
Workflow history is not preserved. This limitation is due entirely to the STSADM import/export process being incompatible within preserving referential integrity to existing workflow data within SharePoint.
- **Nintex Workflow History**  
Nintex Workflow history is not preserved.

## Out-of-Place Import

- **Workflows definitions**  
Same outcome as In-Place import method, with the understanding that any Nintex Workflows that have references to data within the old location of the site collection will need to be republished from within the Nintex Workflow designer. For example, in the situation where a Workflow contains a 'Set a Variable' action, that performs a 'List Lookup' on data within the given site collection, these references will still point to the old location of the source site collection – they are not remapped as part of the restore process. Therefore, Workflow designers will need to, as part of a post [Out-of-Place] restore, republish each workflow.
- **Running Workflows**  
Running workflows are not brought across when using the STSADM export/import process.

### Current Workflow State

State information is not preserved in the imported site.

- **Workflow History**  
Workflow history is not preserved. This limitation is due entirely to the STSADM import/export process being incompatible within preserving referential integrity to existing workflow data within SharePoint.
- **Nintex Workflow History**  
Nintex Workflow history is not preserved.

## APPENDIX A: HOW TO SETUP A 1-TO-1 MAPPING OF AN EXISTING SHAREPOINT SITE COLLECTION

In environments where all SharePoint site collections are using a single Nintex Workflow database to store all their Nintex-specific data, the Administrator is limited in their restoration approach.

In the event that you wish to split out site collections to maintain a 1-to-1 mapping between SharePoint Content Database and Nintex Workflow Content Databases, this can be achieved via the STSADM mergecontentdbs command, introduced in Service Pack SP2, providing the ability to move a site collection to an arbitrary Content Database whilst preserving all SharePoint GUIDs.

If you have SP2 in your farm, you should already have this command available.

The specific KB describing this command from MS is available here: <http://support.microsoft.com/kb/939035>  
The Mergecontentdbs command help sheet: <http://technet.microsoft.com/en-us/library/cc262923%28office.12%29.aspx>

Before performing the below steps, it's best to bring down the entire farm, following MS's best practices on what to stop, see <http://technet.microsoft.com/en-us/library/cc512725.aspx>

With this approach, the steps are:

1. stsadm -o mergecontentdbs : To move the specific site collection into its own (hitherto created) database. This will keep all guids including SiteID.
2. Create new Nintex Workflow content database in Central Admin, via the database setup page.
3. Run a utility we provide to move Nintex Workflow data between NW databases; nwadmin -o movedata  
Please refer to our NWAdmin guide for further details:  
[http://connect.nintex.com/files/folders/white\\_papers/entry1900.aspx](http://connect.nintex.com/files/folders/white_papers/entry1900.aspx)
4. Map the new SP content database to the new Nintex Workflow content database in Central Admin, via the database setup page.

## Caveats

There is a risk involved in this approach, due to known issues with Microsoft's mergecontentdbs command, as described in this MS KB article: <http://support.microsoft.com/kb/969242>

Furthermore, ensure that the [April 2009 CU](#) from Microsoft is installed, as it corrects critical issues that can arise with the mergecontentdbs command. Specifically, it corrects the following behavior:

- If a site collection is very large, an attempt to delete the site collection from a Web application fails. This causes the stsadm -o mergecontentdbs command to fail when you try to move site collections from one content database to another. Therefore, both the source content database and the destination content database contain orphaned copies of the site collection. SharePoint cannot access orphaned site collections. This issue is resolved by adding an optional -gradualdelete parameter to the stsadm -o deletesite command. If this parameter is present, SharePoint marks the site collection as deleted to prevent further access while a SharePoint Timer job gradually deletes the data in the site collection. After you install the hotfix package that this article describes, the stsadm -o mergecontentdbs command uses this gradual delete functionality by default.
- When you try to attach a content database, the operation fails because of process interruption. When this problem occurs, the database is left in an unworkable state in which the content database can neither be fully attached nor detached.
- Data in lookup columns that contain multiple values is lost after you move site collections to a new content database by using the stsadm -o mergecontentdbs command.

## APPENDIX B: MAP AN OUT-OF-PLACE SITE TO A NEW NINTEX CONTENT DATABASE

When configuring the association of a SharePoint Content Database to a different Nintex Workflow Content Database, the effects in relation to site collections are:

- Any site collections created henceforth will store their data in the new NW Content Database.
- Any existing site collections will continue to store their data in the previous NW Content Database.

Existing site collections continue to use the previously mapped NW Content Database by design, as any previous workflow data is not migrated across when re-configuring the database mapping. To move existing workflow data and set the existing site collection to use the new NW content database, see Scenario 1.

Refer to Scenario 2 if you don't have any existing workflow data in the parent site collection that the (out-of-place) site is to be migrated into.

### Scenario 1

In the situation where you require existing site collection workflow data to be moved to the new NW Content Database, and any new instances of workflows within the site collection to also utilize the new NW Content Database, you will need to run the NWAdmin -o moveData command to both move the existing workflow data, and to reconfigure this specific site collection against the new NW Content Database.

Please refer to our NWAdmin guide for further details on what you must do when running the moveData command: [http://connect.nintex.com/files/folders/white\\_papers/entry1900.aspx](http://connect.nintex.com/files/folders/white_papers/entry1900.aspx)

After which, perform an IISReset to refresh any mapping records that are cached. At this point, you can perform your import of the site.

### Scenario 2

If you are not concerned with the existing site collection workflow data, to associate an import site with the new Nintex Workflow Content Database:

1. Reconfigure the Nintex Workflow database mapping in Central Admin, to associate the existing site collection with the new NW Content Database.
2. Restart IIS to force a refresh of cached mapping records.
3. Stop 'Windows SharePoint Services Timer' service on all SharePoint front-end servers.
4. Disable the Workflow Timer job (via Central Admin) for the necessary web application.
5. Import your site(s) to the destination Site Collection.
6. Re-Activate the Nintex Workflow site collection feature to set this existing Site Collection to use the new Nintex Workflow Content Database
7. Restart IIS to force a refresh of cached mapping records.
8. Start 'Windows SharePoint Services Timer' service on all SharePoint front-end servers.
9. Enable the Workflow Timer job (via Central Admin) for the necessary web application.