

R-1

Deployment Platform

Rollback Guide

Software Version 4.1.1

For Windows, Linux and UNIX operating systems

July 1, 2009

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Table of Contents

1. INTRODUCTION	1
R-1 ROLLBACK.....	1
2. RECORDING CHANGES	3
3. ROLLING BACK	5
4. USING THE CLI	6
ROLLBACK DEFINITION QUALIFIERS.....	6
REPLICATION_ROLLBACK COMMAND.....	9
DISTRIBUTION_ROLLBACK COMMAND.....	12

1. Introduction

The purpose of this document is to outline how RepliWeb R-1 can be configured to effectively provide comprehensive deployment level recovery by rollback of content. Rollback can be an integral part of content deployment, allowing a system to return to a previous state if the need arises.

R-1 Rollback

Rollback functionality provides a means of effectively undoing the effects of multiple replications and distributions on a target system to a user-specified 'point-in-time'. The benefit of such a system over a simple 'archiving' of specific files is its ability to specify a time relative to the targets (i.e. 8 hours ago) and systematically undo the effects of all scheduled or event-driven changes that were replicated.

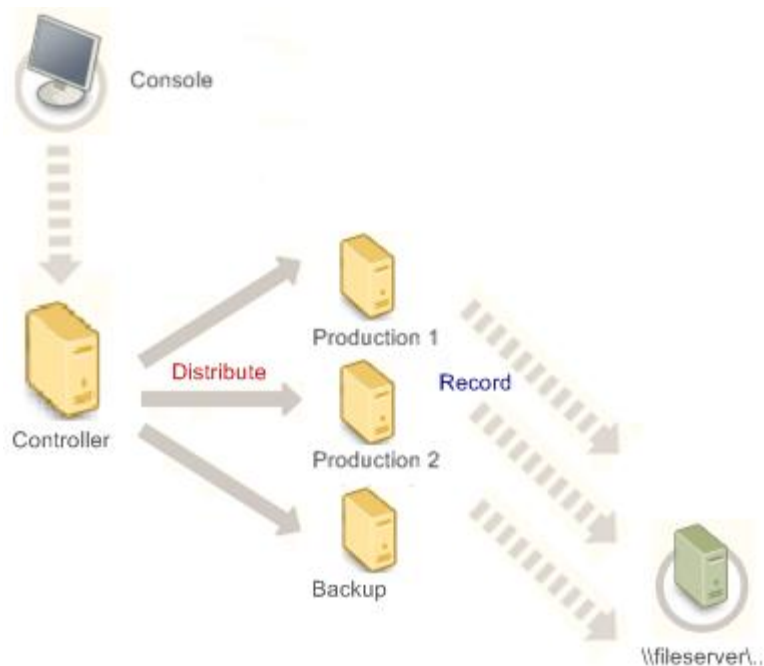


Figure 1: Sample Topology

Rollback functionality is employed through the 'recording' of all replication related changes on a target system, followed by potentially 'rolling back' the content at a later time. The recording phase occurs prior to any propagation of changes to a target system and includes the recording of creation, deletion and modification to files and directories (including ownership and permission changes). Recording can be defined to take place locally on each target system, or on a network-wide file server defined through a UNC share-point (i.e. \\nasstorage\R1_recording) – effectively providing unattended and efficient tape-less backup and restoration. System administrators also custom define the

recording history to a time relative to the present, for example, specifying that a distribution should be able to rollback to a state 24 hours in the past. R-1 will then only keep the changes that occurred in the last 24 hours, and automatically purge recorded changes that have expired.

2. Recording Changes

To record your changes, set the distribution job to record all changes. The recording phase occurs during the replication or distribution job, prior to any propagation of changes to a target system and includes the recording of creation, deletion and modification to files and directories (including ownership and permission changes).

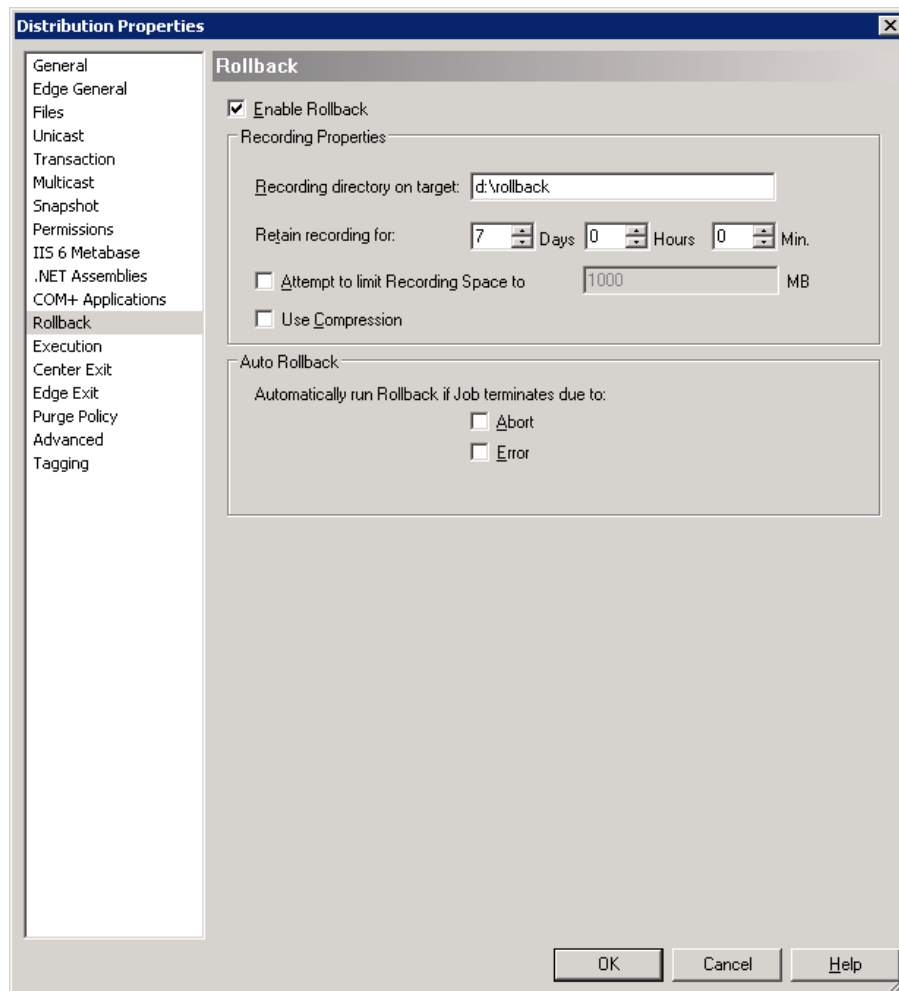


Figure 2: Rollback Definition

Set the job to record enable rollback recording on the target.

Recorded information includes:

- Files and directories created on the target
- Files and directories removed from the target
- Files and directories modified on the target (including modified permissions, ownerships and Windows ACLs)

NOTE: Recording only applies to data impacted by a replication or distribution as defined above – it does not record a complete copy of the target directory.

You will need to specify where the recorded data will be stored. The recording directory may be specified as a path on the target machine (`D:\r1_recordings`, `/var/rollback/`) or a network share (`\\nasstorage\R1_recording`).

Since the recording operation takes place on the target (i.e. an Edge during an upload job or a distribution, or the Center during a download job), the recording directory must be accessible for read and write with the credentials used to access the target file system. This refers to the Edge user defined in an upload or distribution job, or the Center user (i.e. the username used to connect to the Console, or used in the command line) in a download job.

Next, define how long recorded information should be kept for. This directly relates to how far back a job can be rolled back. For example, a time of 18 hours will allow the job to undo all replication related changes that took place on the target system for the last 18 hours.

Recorded data can be kept in a compressed form. While preserving disk-space, this feature will increase recording and rollback times.

3. Rolling Back

A **Rollback** job may be submitted from R-1 for jobs that had the **Enable Rollback** option checked in the **Rollback** tab. Additionally, Scheduled or On-demand jobs can be rolled back one instance from the R-1 Web UI, For more information, refer to the [R-1 Web UI User Guide](#).

When the job is completed (successfully or not) using the right mouse menu or the main menu you can select to recover previously recorded data. The Rollback Job allows point-in-time recovery capabilities.

A rollback is similar to an undo function. It enables you to return content to its previously replicated state. Rollbacks are performed on target machine. You cannot roll back content on the source.

Figure 3: Recovery

For **Scheduled** and **Continuous Updates** jobs, you can rollback to instances of the job. In **Distribution** jobs, you can roll back the complete distribution process (for all Edges), or roll back individual Edges from the **Distribution Details** screen.

Rolling back, (recovering data) is performed by selecting a point-in-time to return to, in addition to various job properties that can be set to define the rollback process. This includes standard job properties like pre/post commands, recovery options, etc.

NOTE: Jobs that use the Rollback functionality can be rolled-back only after the job completes (successfully or not). In order to rollback a job, the job cannot be running. To rollback an instance of a **Scheduled** or **Continuous Updates**, the scheduled job itself needs to be aborted; it is not sufficient that the instance is completed.

The Rollback job can be set to perform Pre/Post commands both on the target and the source, as well as standard R-1 Exit procedures like sending Email and reports and the completion of the Rollback job.

4. Using the CLI

Rollback Definition Qualifiers

Rollback functionality is employed through the 'recording' of all replication related changes on a target system, followed by a potential 'roll back' of the content at a later time. The recording phase occurs prior to any propagation of changes to a target system and includes the recording of creation, deletion and modification to files and directories (including ownership and permission changes).

The following qualifiers are used to define the properties of the recording phase of a job. To actually activate a rollback job, see the **Rollback Job Qualifiers** description below.

NOTE: Submitting a Distribution job, the Rollback Definition qualifiers may be used in the Modifier file only and not in the submit command itself.

-rb_enable|norb_enable

Use this qualifier to enable rollback recording on the target.

Recorded information includes:

- Files and directories created on the target
- Files and directories removed from the target
- Files and directories modified on the target (including modified permissions, ownerships and Windows ACLs)

NOTE: Recording only applies to data impacted by a replication or distribution as defined above – it does not record a complete copy of the target directory.

-rb_location=recording_folder

Specify where the recorded data will be stored. The recording location may be specified as a path on the target machine (D:\r1_recordings) or a network share (\\nasstorage\R1_recording)

Since the recording operation takes place on the target (i.e. an Edge during an upload job or a distribution, or the Center during a download job), the recording directory must be accessible for read and write with the credentials used to access the target file system. This refers to the Edge user defined in an upload or distribution job, or the Center user (i.e. the username used to connect to the Console, or used in the command line) in a download job.

This qualifier must be specified when using the **-rb_enable** qualifier.

-rb_retain=n in minutes
 Specify in minutes how long recorded information should be kept for and directly relates to how far back a job can be rolled back. For example, a time of 18 hours will allow the job to undo all replication related changes that took place on the target system for the last 18 hours.

By not utilizing the `-rb_retain=n` qualifier, the default setting for retained recordings which is seven days will be used.

-rb_compress|-norb_compress
 Using `-rb_compress` will store all recorded data in a compressed form. While preserving disk-space, this feature will increase recording and rollback times. The default is `-norb_compress`.

-rb_enable_disk_space_limit|-norb_enable_disk_space limit replication | edge default | override
 Use the `-rb_enable_disk_space_limit` to enforce space limits used for the job's recording during the Rollback process .

After the recording phase, the size of the recording repository is checked; if it is larger than allowed by the job configuration, R-1 will start deleting the oldest recordings until it reaches the size limit. The last recording is never deleted, even if it is larger than allowed on its own.

-rb_max_rec_dir_size=dir_size in MB replication | edge default | override
 Set the rollback directory's maximum size. If the rollback directory passes the limit, R-1 will delete old recordings. (In the worst case all recordings but the last one will be deleted).

-auto_rollback_on_abort|-noauto_rollback_on_abort
 Specify whether to perform automatic rollback in case the job aborts.

-auto_rollback_on_error|-noauto_rollback_on_error
 Specify whether to perform automatic rollback in case the job encounters an error.

Replication Example

The following command is used to submit a Replication job that records Rollback information on a network share drive.

```
>r1 submit -center=34.0.25.71 -center_user=rwroot
-center_pass=***
-replication_name=\"Web Site Update\" -edge=152.163.12.2
-user=user_name -password=password
-source_dir=/usr/backup -target_dir=d:\data\content
-rb_enable
-rb_location=\\nasstorage\R1_recording
R1API-S-SUS, job <4155> successfully submitted
```

Distribution Example

The following command is used to submit a Distribution job that records Rollback information on a network share drive; each Edge's data is recorded on a different location.

NOTE: Submitting a Distribution job, the Rollback Definition qualifiers may be used in the Modifier file only and not in the submit command itself.

```
>r1 submit -center=34.0.25.71 -center_user=rwroot
-center_pass=***
-distribution_name=\"Sites Update\"
-user=user_name -password=password
-source_dir=d:\web_site\content -target_dir=e:\data\content
-mod=c:\webmod.txt
website1,website2,website3
>edge_default set -rb_enable -rb_retain=600
-rb_location=\\nasstorage\recording

>edge_override website1 mod -rb_location=\\nasstorage\recording\web1

>edge_override website2 mod -rb_location=\\nasstorage\recording\web2

>edge_override website3 mod -rb_location=\\nasstorage\recording\web3
R1API-S-SUS, job <4157> successfully submitted
```

The file `c:\webmod.txt` will look like:

```
# Enable Rollback to all Edges
edge_default set -rb_enable -rb_retain=600 -
rb_location=\\nasstorage\recording
# Specify a different recording folder to each Edge
edge_override website1 mod -rb_location=\\nasstorage\recording\web1
edge_override website2 mod -rb_location=\\nasstorage\recording\web2
edge_override website3 mod -rb_location=\\nasstorage\recording\web3
```

Replication_Rollback Command

This command is used to rollback a Replication Job. A **Rollback** job may be submitted for jobs that had the **Use Rollback** option checked in the `submit` command. When the job is completed (successfully or not) you can select to recover previously recorded data. The Rollback Job allows point-in-time recovery capabilities.

A rollback is similar to an undo function. It enables you to return content to its previously replicated state. Rollbacks are performed on target machine. You cannot roll back content on the source.

For **Scheduled** and **Continuous Updates** jobs, you can rollback to instances of the job using the `replication_rollback` command. In **Distribution** jobs, you can roll back the complete distribution process (for all Edges), or roll back individual Edges using the `distribution_rollback` command.

Rolling back, (recovering data) is performed by selecting a point-in-time to return to, in addition to various job properties that can be set to define the rollback process. This includes standard job properties like pre/post commands, recovery options, etc.

NOTE: Jobs that use the Rollback functionality can be rolled-back only after the job completes (successfully or not). In order to rollback a job, the job cannot be running. To rollback an instance of a **Scheduled** or **Continuous Updates**, the scheduled job itself needs to be aborted; it is not sufficient that the instance is completed.

Examples:

Absolute Time Example:

The following command is used to Rollback a scheduled upload job to an absolute time. Data will be rolled back to 10:30 PM according to the Target machine (in this case the Edge):

```
>r1 replication_rollback -job=3212 -name="Rolling back"  
-description="Rolling back due to..." -center=center_name  
-center_user=user_name -center_password=password  
-user=user_name -password=password  
-rollback_to_time=2230  
R1API-S-SUS, job <4121> successfully submitted
```

NOTE: If you are using different credentials than those used in the original job, make sure there are sufficient access rights to the recording location and the target directory.

Relative Time Example:

The following command is used to Rollback a scheduled Upload job to a relative time. Data will be rolled back to its state 4 hours ago:

```
>r1 replication_rollback -job=212 -name="Rolling back"
-description="Rolling back due to..." -center=center_name
-center_user=user_name -center_password=password
-user=user_name -password=password
-rollback_to_time="-4 hours"
R1API-S-SUS, job <421> successfully submitted
```

Replication_Rollback Qualifiers

-job=job_id

Use this qualifier to specify the job that needs to be rolled back. Note that you can only roll back completed jobs.

-name=rollback_job_name

The `-name` qualifier defines the name of the replication rollback job.

-description=rollback_job_description

The `-description` qualifier provides a description of the replication rollback job.

The rollback process will bring the target directory to its state before the replication took place. The following qualifiers may be used for scheduled jobs only. To rollback other jobs omit both the `-rollback_to_time` and the `-number_of_instances_to_rollback` qualifiers from the command.

NOTE: For non-scheduled Replication jobs, this is the only option available.

-rollback_to_time=time_expression

Specify the date and time to recover from. This can be an absolute or a relative time.

NOTE: The time specified is calculated at the Target machine (Edge in case of an Upload job, Center if it's a Download job). It is never the Console time.

This qualifier may not be used in conjunction with the `-number_of_instances_to_rollback` qualifier.

This qualifier is applicable for Scheduled jobs only.

- **Absolute time on target** – Specify the exact time to roll back to. Format supports most standard time formats like: "ddmmyyyhhmm". For a complete list of supported time formats, see the **Relative Time Expressions** section in Appendix B of the [R-1 User Guide](#).

In case a rollback instance is not found at the exact time specify, R-1 will roll back to the nearest recorded data, without passing the time specified.

- **Relative time on target** – Specify how long to roll back to, in days / hours / minutes. Here, too, the calculated time to roll back from is calculated on the target machine. For relative time format, see the **Relative Time Expressions**

section in Appendix B of the [R-1 User Guide](#).

`-number_of_instances_to_rollback=number_of_instances n`
Specify how many Job instances to roll back to.

This qualifier is applicable for Scheduled jobs only.

This qualifier may not be used in conjunction with the `-rollback_to_time` qualifier.

Additional Qualifiers

- **Center Connection qualifiers**
- **Edge Connection qualifiers**
- **Execution qualifiers**
- **Exit Procedure qualifiers**
- **Output Control qualifiers**

Distribution_Rollback Command

This command is used to rollback a Distribution Job, including all Edge jobs belonging to it. A **Rollback** job may be submitted for jobs that had the **Use Rollback** option checked in the **submit** command. When the job is completed (successfully or not) you can select to recover previously recorded data. The Rollback Job allows point-in-time recovery capabilities.

A rollback is similar to an undo function. It enables you to return content to its previously replicated state. Rollbacks are performed on target machine. You cannot roll back content on the source.

In **Distribution** jobs, you can roll back the complete distribution process (for all Edges), or roll back individual Edges. For **Scheduled** and **Continuous Updates** jobs, you can rollback to instances of the job using the **replication_rollback** command.

Rolling back, (recovering data) is performed by selecting a point-in-time to return to, in addition to various job properties that can be set to define the rollback process. This includes standard job properties like pre/post commands, recovery options, etc.

NOTE: Jobs that use the Rollback functionality can be rolled-back only after the job completes (successfully or not). In order to rollback a job, the job cannot be running. To rollback an instance of a **Scheduled** or **Continuous Updates**, the scheduled job itself needs to be aborted; it is not sufficient that the instance is completed.

Examples

Rollback of a Single Edge Example:

While specifying a distribution job, not all the Edges were set to have rollback capabilities. To Rollback just one Edge, the following command should be used, specifying the Distribution Job's ID and the Edge's name:

```
>r1 distribution_rollback -job=3212 MyEdgeName  
-name="Rolling back"  
-center=center_name -center_user=user_name  
-center_password=password -user=user_name -password=password  
R1API-S-SUS, job <4121> successfully submitted
```

Absolute Time Example:

The following command is used to Rollback a distribution job to an absolute time. Data will be rolled back to 10:30 PM according to the Target machines (in this case the Edges):

```
>r1 distribution_rollback -job=3212 -name="Rolling back"
-description="Rolling back due to..." -center=center_name
-center_user=user_name -center_password=password
-user=user_name -password=password
-rollback_to_time=2230
R1API-S-SUS, job <4121> successfully submitted
```

NOTE: If you are using different credentials than those used in the original job, make sure there are sufficient access rights to the recording location and the target directory.

Relative Time Example:

The following command is used to Rollback a distribution job to a relative time. Data will be rolled back to its state 4 hours ago:

```
>r1 distribution_rollback -job=212 -name="Rolling back"
-description="Rolling back due to..." -center=center_name
-center_user=user_name -center_password=password
-user=user_name -password=password
-rollback_to_time="-4 hours"
R1API-S-SUS, job <421> successfully submitted
```

Distribution_Rollback Qualifiers

-job=job_id

Use this qualifier to specify the job that needs to be rolled back. Note that you can only roll back completed jobs.

-name=rollback_job_name

The **-name** qualifier defines the name of the distribution rollback job.

-description=distribution_job_description

The **-description** qualifier provides a description of the distribution rollback job.

The rollback process will bring the target directory to its state before the replication took place. The following qualifiers may be used for scheduled jobs only. To rollback other jobs omit both the **-rollback_to_time** and the **-number_of_instances_to_rollback** qualifiers from the command.

NOTE: For non-scheduled Replication jobs, this is the only option available.

-rollback_to_time=time_expression

Specify the date and time to recover from. This can be an absolute or a relative time.

NOTE: The time specified is calculated at the Target machine (Edge in case of an Upload job, Center if it's a Download job). It is never the Console time.

This qualifier may not be used in conjunction with the `-number_of_instances_to_rollback` qualifier.

This qualifier is applicable for Scheduled jobs only.

Absolute time on target – Specify the exact time to roll back to. Format supports most standard time formats like: “ddmmyyyhhmm”. For a complete list of supported time formats, see the **Relative Time Expressions** section in Appendix B of the [R-1 User Guide](#).

In case a rollback instance is not found at the exact time specify, R-1 will roll back to the nearest recorded data, without passing the time specified.

Relative time on target – Specify how long to roll back to, in days / hours / minutes. Here, too, the calculated time to roll back from is calculated on the target machine. For relative time format, see the **Relative Time Expressions** section in Appendix B of the [R-1 User Guide](#).

Rollback all recorded content – Using this option, the rollback process will bring the target directory to its state before the replication took place. To use this option, omit the `-rollback_to_time` qualifier from the command.

NOTE: For non-scheduled distribution jobs, this is the only option available.

`-number_of_instances_to_rollback=number_of_instances n`
Specify how many Job instances to roll back to.

This qualifier is applicable for Scheduled jobs only.

This qualifier may not be used in conjunction with the `-rollback_to_time` qualifier.

Additional Qualifiers

- **Center Connection qualifiers**
- **Edge Connection qualifiers**
- **Execution qualifiers**
- **Exit Procedure qualifiers**
- **Output Control qualifiers**
- **Synchronization qualifiers**

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