

RepliWeb[®]

R-1

Version 3.3

**Centralized
One-To-Many Distribution System
Over Dynamic IP Networks**

Installation and Setup Guide

For Windows and UNIX operating systems

RepliWeb, Inc.



R-1 Version 3.3

Setup & Installation Guide

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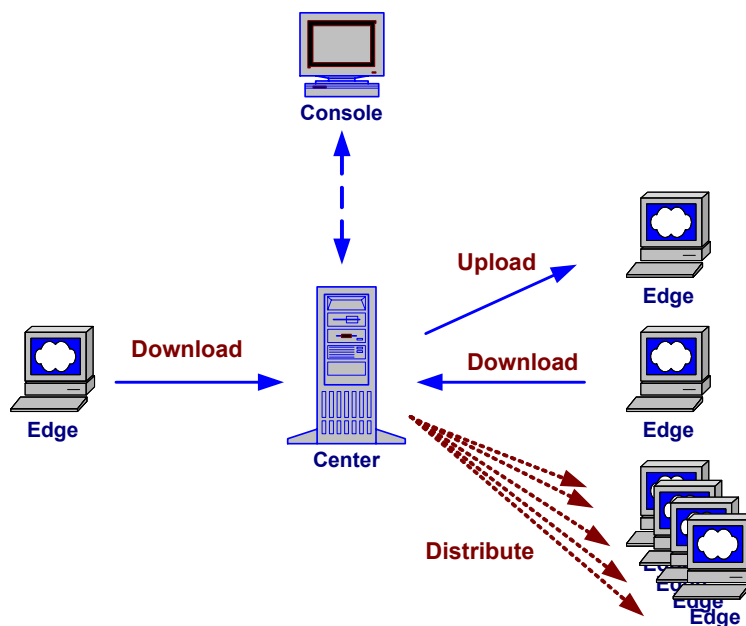
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1. Introduction

Installation and Setup Guide for R-1 provides information about and instructions on how to implement the technical operating environment (system platform) described in the *System Guide* for R-1.

R-1 is a centralized, high-level, one-to-many distribution system, engineered to perform in complex and dynamic IP networks (LAN, WAN, Internet, eCDN, Edge based, over Unicast and Multicast). R-1 provides unattended, Center-to-Edge data deployment and synchronization that scales in volume of data, number of processes and number of target machines, employing heterogeneous (cross-platform) server environments (Microsoft Windows™, UNIX).



R-1's flexible architecture allows the user to run distribution and replication jobs regardless of network configuration. The target system can also be a Network Attached Storage (NAS) server. Cross-platform synchronization (Windows to UNIX or vice versa) is supported.

- An R-1 job replicates between two computers: a **Center** computer containing at least the R-1 **Center** component and an **Edge** computer containing at least the R-1 **Edge** component.
- Numerous systems may be involved in a single distribution job. In such a setup, one **Center** computer distributes data to multiple **Edge** computers.

Each component is independent of the others, meaning that a given system can be a Center, Edge, or Console. The components that should be installed on a given system depend on the role that the system will fill in the replication and distribution topology. Also, any given system can be of a different platform (Windows or UNIX), regardless of the role it plays or the R-1 components that are installed on it.

For explanation about the roles of the R-1 components, see the **Terminology** chapter. For a complete explanation of the R-1 system, see the *R-1 User Guide*, referred to in the **Reference** chapter.

1.1. Licensing

Each server that is a part of the distribution process (Center or Edge) requires a unique license. The license enables the operation of both the Center and the Edge components. The installation process installs a temporary 30 days license. The permanent license is delivered in the form of a text file to be copied into a license directory in the installation. A server that needs only the Console functionality does not require a license.

1.2. R-1 Security

R-1 operates as a high level application. It does not run in Kernel mode. All the distribution processes are running in user mode, requiring user and password authentication from the system and thus their access is being restricted to what that user can access. R-1 does not add accounts to the system and does not require privileges that bypass system security in any way.

In addition, R-1 allows authenticated and encrypted data transfer of valuable digital assets between hosts. All access can be denied by default, unless specifically permitted. Trusted IP addresses, subnets, users and schedules are supported, as well as the total anonymity of user/password/directory information from one host to another, thus allowing for secure transport between untrusted networks. This authentication proxy mechanism adds a layer of autonomy, enabling hosts that do not trust each other to synchronize massive content stores without having to divulge anything beyond the machine name or IP address, virtual user and virtual password.

1.3. User Authorization

On Windows system, R-1 should be installed by a user with Administrator privileges. This is required in order to define the R-1 services.

On Unix, R-1 must be installed by “root” so that TCP/IP services can be defined in the system configuration files.

1.4. Installation Location

R-1 is a non-intrusive, high-level application - installation on production servers does not require reboot or taking any application or user off-line.

All application files are installed under the installation target directory:

Windows default directory is `~:\Program Files\Repliweb\`

UNIX default directory is `/usr/repliweb/`

R-1 is not sensitive to the installation location, and default values can be changed to suit the corporate convention.

2. Installation Pre-Requisites

This chapter lists all the pre-requisites for installing the system.

The first step is to check that all necessary equipment and other material are at hand.

	UNIX	Windows
Installation package	<code>r1_platform.tar.Z</code> *	<code>r1_win.exe</code>
Disk space	Available disk space should be at least 6 times the size of the compressed package downloaded from the web (i.e. if your web .Z file is 10 MB, you need at least 60 MB to perform the installation).	1000 KB
Logged in user	root	Administrator privileges required
TCP Services Type	Verify whether <i>inetd</i> or <i>xinetd</i> is in use on the specific platform.	

* The installation package name for UNIX contains the exact platform name installation is intended for. Thus, in `r1_platform.tar.Z`, “platform” represents the platform in use, e.g. `r1_rhlinux70.tar.Z` for a Red Hat Linux platform.

2.1. Network Connections

R-1 does not use UDP or TCP dynamic ports. R-1 components only use pure TCP/IP to communicate. As such, it uses only the following (standard) ports:

- 5745 – For Center ↔ Edge communication
- 2837 – For Center ↔ Console communication

Port numbers and service names can be overridden by an administrator if they conflict with the corporate standard R-1.

R-1 operates in complex and dynamic IP networks (LAN, WAN, Internet, eCDN, Edge based, over Unicast and Multicast), and at each point in time determines the best policy for transferring the data.

R-1 can control bandwidth consumption during replication. This allows execution of the entire operation without having interactive system users experience high network latency, or web site visitors experiencing slow server response times. R-1 enables specification of the maximum line bandwidth that a particular operation can use (absolute or relative). Each job can have its individual bandwidth priority that may be set by the network administrator.

R-1 can perform the data transfer using multiple data streams. In the vast majority of replication environments, the use of concurrent streams will significantly reduce the replication time. This is especially true for replications performed over an Internet-based Virtual Private Network (VPN) where the limiting data transfer rate is much lower than the theoretical maximum.

When replicating over VPN or a high-speed LAN, transfer performance can be boosted when performing simultaneous parallel transfers of partial file lists. In a high-speed LAN environment, using data streams will result in maximizing the network throughput. When used on VPN environments (over the Internet), performance is maximized to nearly the network limit defined by your VPN connection.

2.2. E-Mail Configuration

If you plan to use e-mail exit notification, you should have the SMTP Host Name ready. Communication with the SMTP server is performed over port 25.

Email configuration can be set during the Installation phase or at a later stage using the **Center / Manage** option.

3. Installation

This chapter gives an overview of the items that are installed when the system software is set up for the R-1. This chapter covers the following topics:

- Checking prerequisites
- Setting up the operating environment, for Windows and UNIX
- Firewall considerations

3.1. Verifying Prerequisites

1. Make sure the logged-on user has Administrator privileges.
2. Installation package exists.

3.2. Firewalls Considerations

If you have a firewall between the Center and a Console, registered TCP port 2837 must be configured to accept an inbound session from the Console to the Center.

The file transfer itself (Center \leftrightarrow Edge) is performed over registered TCP ports 2837 and 5745. Since the Center initiates every communication, only an outbound session from the Center to the Edge on ports 2837 and 5745 must be opened. This remains true regardless of the direction of the data flow, i.e. a download job pulling files from a Edge to a Center is still a single outbound TCP session from the Center to the Edge.

The exact procedure for opening this port is firewall dependant and should be included in your firewall documentation.

In a more complex topology one needs only ensure that the respective ports are opened for Center \leftrightarrow Edge and Center \leftrightarrow Console communications.

If you plan to use e-mail exit notification, you need to make sure that the Center you are installing can communicate with this SMTP server over port 25. If you put the server name, your Center should be able to resolve it through its hosts file or DNS.

3.3. Windows Installation

3.3.1. Installation Wizard

The R-1 Installation wizard performs standard installation of R-1 on Windows.

1. Activate Windows Explorer and navigate to the path in which the installation package resides.
2. Double click on the installation file `r1_win.exe`.
3. Two windows are opened. The first is a Command Prompt window. This window will remain open for the duration of the installation but is not to be used or closed by the user. The second window is the installation wizard. The wizard will guide you through the installation process. A window titled “Welcome to the RepliWeb Deployment Suite Setup Wizard” is opened. Click the Next button.
4. The “End-User License Agreement” window is opened. Read the agreement, select the “I accept the terms...” option, and click the Next button.
5. The “Custom Setup” window is opened.
 - a. The default installation directory is `~:\Program Files\Repliweb\`. To change the installation directory click the Browse button.
 - b. By default, R-1 installs its three (3) components: Console, Center and Edge. Click the Next button.
6. The “Mail Configuration” window is opened. Enter:
 - a. In the “SMTP Host Name” field enter the appropriate **<IP address>** or **<name>**.
 - b. In the “Sender Name” field enter an **<e-mail address>**.
 - c. Click the Next button.
7. The “Ready to Install” window appears. Click the Next button.
8. A new window will open, displaying the progress of the installation process. After a few seconds, the “Completing the RepliWeb Deployment Suite Setup Wizard” window is opened. Click the Finish button.

This concludes the installation process. Both the Wizard and the Command Prompt windows are closed.

3.3.2. Command Line Installation

The R-1 Installation can be performed via command line, in silent mode.

Here are the steps to run the installation in a silent mode:

1. Extract the installation .exe file into a folder. The folder will contain an .msi file, and a folder called "source"; this folder contains all the files/folder structure that are required for the installation.
2. The command should be issued from the command prompt, or from a script:

```
msiexec /i repliweb.msi /qb- ADDLOCAL=R1_ROOTDIR,CONSOLE,CENTER,EDGE
```

Any components combination should be separated with a comma (,).

NOTE: You must use R1_ROOTDIR in any component combination (Center only, Center and Console, etc).

Here are the silent mode options:

- qn+** - No UI except for a modal dialog box displayed at the end.
- qb+** - Basic UI with a modal dialog box displayed at the end. The modal box is not displayed if the user cancels the installation.
- qb-** - Basic UI with no modal dialog boxes.

Please note that /qb+- is not a supported UI level.

R1_DIR=<installation path> - Install R-1 in a folder different than the default installation root.

To **uninstall** using the command line, use `msiexec.exe`, usually located under `~\Winnt\System32\Msiexec.exe`.

1. To uninstall R-1, you should the string:

```
{FAE1E8C3-5776-11D6-A2E7-0020AFBD3F71}
```

2. Open a command prompt to where the `msiexec.exe` is, and type the following command:

```
msiexec.exe /x {6D2FC441-5E70-11D5-A29E-0020AFBD3F71}
```

where /x is for uninstall.

3. To uninstall in a silent mode, add to your command /qn+

The command should look like:

```
msiexec.exe /x {FAE1E8C3-5776-11D6-A2E7-0020AFBD3F71} /qb-
```

3.4. UNIX Installation

3.4.1. Unpacking the Installation Kit

The R-1 Installation package for UNIX is a compressed *tar* file. Unpacking it is required before the installation process can begin.

1. Uncompress the installation package file and create a temporary directory to unpack the installation package to.

```
# uncompress r1_platform.tar.Z
# mkdir tempdir
```

2. In the temporary directory, unpack the installation package:

```
# cd tempdir
# tar xvf ../r1_platform.tar
```

3. The directory now includes all files needed for installation. This directory may be deleted at the end of the installation process.

3.4.2. Installing R-1

1. In the installation temporary directory type:

```
# ./install
```

2. You'll be requested to read and approve the license agreement:

```
This software is installed under a license agreement.
To view the license agreement terms, press [L].
To abort the installation, press [Q].
To accept the license agreement and install, press any other key.
```

[L] - The license Agreement will be displayed on the screen page by page.
Pressing "space" moves you to the next page.

After you see the license, you are prompted again with -

```
To abort the installation, press [Q].
To accept the license agreement and install, press any other key.
```

[Q] – Quit the installation process.
[Enter] – The installation process continues.

3. Select the target installation directory. Press ENTER to use the default (/usr/repliweb), or enter a new path and then press ENTER.
4. Select components for installation. Install all three components: Console, Center and Edge. Type:

```
# y and press ENTER – for each component.
```

5. Specify whether an inetd or xinetd daemon is being used. Type:

```
# i- for inetd
```

```
# x- for xinetd
```

Press ENTER.

6. E-mail configuration. Type:

```
# y - to configure e-mail, and press ENTER.
```

```
# <IP address> or <name> press ENTER.
```

```
# <e-mail address> of the mail sender. Press ENTER.
```

7. The installation process logs information on screen. The message: “RepliWeb Installation Completed” should be displayed.

If the installation procedure fails, the R-1 installation creates a log file. The log file’s name will be displayed on screen. Check the log file for the failure cause.

8. Remove the installation’s temporary directory.

NOTE: Make sure that at the end of the installation you are still in the temporary directory where you started.

```
# cd ../
```

```
# rmdir -rf tempdir
```

4. Configuration

The following chapter gives instructions on how to configure the system.

4.1. License File

The system is now running on an evaluation 30 days license. The installation is completely useable at this point. To replace the license with a permanent license for that server, provided by RepliWeb, you simply need to copy the license file that you received (by email or on a media) called `lic_repliweb.rw` to the “license” directory under the installation root. It should replace the existing file with the same name that resides there and contains the temporary license. There is no need to restart services, reboot the server or stop and start anything. Replacing the file is enough. The license replacement does not need to follow the installation. It can be done at any stage.

4.2. Starting the R-1 Scheduler on the Center

The R-1 Scheduler should be activated before a server can be used as R-1 Center.

On a Windows installation, the R-1 processes are running as services which are started automatically on system startup.

On a UNIX system, the system administrator should add the activation of the background processes to the system startup. R-1 installation does not do that automatically as each system is configured differently according to corporate conventions.

The command that should be added to the UNIX startup is:

```
/usr/bin/repliweb_scheduler.
```

As a general policy, it is recommended that the startup of the R-1 scheduler will be added to a later stage of the system initiation and rather than an early stage.

4.3. Updating PATH

The Console CLI resides in the `~/repliweb/R-1/console/bin` directory on a UNIX installation, and `~\RepliWeb\R-1\Console\Bin` on a Windows installation.

To activate the Console CLI from any directory on the system, the appropriate PATH should be added to the relevant systems.

On Unix, a symbolic link called “*R-1*” is added to `/usr/bin`. If `/usr/bin` is in the common user search path, no path changes should be made and the **R-1** command can be used from anywhere by the user.

5. Testing Installation

This chapter contains a list of pre-requisites for testing. It also contains the tests for checking that the R-1 application was set up correctly. Always read carefully through the instructions first and agree with the business organization's representative on the test procedure before you start the test. Run the tests that affect the network with the relevant parties' consent only.

NOTE: If you run tests on a live module, inform site personnel of the testing in advance to avoid unnecessary confusion.

The R-1 installation is verified by using the R-1 Command Line Interface (CLI). Refer to the *R-1 User Guide* for detailed explanation about the CLI format and options.

Using the R-1 Command Line Interface (CLI) allows the user to submit, monitor, and control distribution jobs. R-1 affords the flexibility to choose between running the CLI on either a Windows or UNIX machine. The distribution can then be run without regard to the location of the Center and Edge components.

The Console CLI resides in the `~/repliweb/r1/console/bin` directory on a UNIX installation, and `~\RepliWeb\r1\Console\Bin` on a Windows installation.

On Windows, activating the R-1 CLI is done using the Command Prompt.

NOTE: R-1 does NOT create any default user or password. All user names and passwords used in this guide are samples only.

Valid credentials should be used for Center and Edge connections.

5.1. Test Procedure – UNIX I

This test verifies that the R-1 components are up and running.

1. # cd ~/repliweb/r1/console/bin
2. Activate the R-1 **information** command. The command output will display the R-1 version and build date of the Console and Center installed.

```
# r1 information -Center=localhost  
-center_user=user_name -center_password=pass
```

The Command output will be like:

```
Console information:  
Version : R-1 3.3  
Build Date : Jan 11 2004 13:30:45  
Center "localhost" information:  
Version : R-1 3.3  
Build Date : Jan 11 2004 14:03:28
```

5.2. Test Procedure – UNIX II

This test procedure will verify the R-1 job activation. It will make sure that a job may be submitted, viewed and aborted.

NOTE: The submitted job need not succeed in transmitting data; the handling of the job is what actually tested in this test, and not the replication itself. Use may use dummy directories.

1. Submit a job. The job need not succeed in transmitting data; the handling of the job is what actually tested in this test.

```
# r1 submit -Edge=localhost -source_directory=src  
-target_dir=trgt -user=user_name -password=pass  
-center=localhost -center_user=user_name -center_password=pass
```

The command's output will be:

```
R1-API-S-SUS, job <1> successfully submitted
```

2. View the job's status:

```
# r1 show -Center=localhost
-center_user=user_name -center_password=pass
```

The command's output will be:

```
1      RUN    UP    Mirror  START
      Source Dir  : src
      Dest.  Dir  : trgt
      Edge    : localhost
-----
```

3. Abort the Job:

```
# r1 abort -job_id=1 -Center=localhost
-center_user=user_name -center_password=pass
```

The command's output will be:

```
R1-API-S-AJS, job <1> successfully aborted
```

4. Delete the Job:

```
# r1 delete -job_id=1 -Center=localhost
-center_user=user_name -center_password=pass
```

The command's output will be:

```
R1-API-S-DJS, job <1> successfully deleted
```

5. Activate the **show** command again. There should be no jobs running.

```
# r1 show -Center=localhost
-center_user=user_name -center_password=pass
```

The command's output will be:

```
R1-API-E-NOJOB, no jobs matching query on "localhost"
```

5.3. Test Procedure – Windows I

This test verifies that the R-1 components are up and running.

1. Open the command prompt: From the Start menu select: Programs / Accessories / Command prompt.

```
> cd ~\RepliWeb\R1\Console\Bin
```

2. Activate the **r1 information** command. The command output will display the R-1 version and build date of the Console and Center installed.

```
> r1 information -Center=localhost
-center_user=user_name -center_password=pass
```

The Command output will be like:

```
Console information:
  Version : R-1 3.3
  Build Date : Jan 11 2004 13:30:45
Center "localhost" information:
  Version : R-1 3.3
  Build Date : Jan 11 2004 14:03:28
```

5.4. Test Procedure – Windows II

This test procedure will verify the R-1 job activation. It will make sure that a job may be submitted, viewed and aborted. In Windows the R-1 Console may be also controlled using the R-1 Graphical User Interface (GUI). This test procedure will verify the job activation using both the CLI and the GUI

NOTE: The submitted job need not succeed in transmitting data; the handling of the job is what actually tested in this test, and not the replication itself. Use may use dummy directories.

1. Submit a job. The job need not succeed in transmitting data; the handling of the job is what actually tested in this test.

```
> r1 submit -source_directory=src -target_dir=trgt -
user=user_name -password=pass localhost -center=localhost -
center_user=user_name -center_password=pass
```

The command's output will be:

```
R1-API-S-SUS, job <1> successfully submitted
```

2. View the job's status:

```
# r1 show -Center=localhost
-center_user=user_name -center_password=pass
```

The command's output will be:

```
1      RUN    UP    Mirror  START
      Source Dir : src
      Dest. Dir  : trgt
      Edge      : localhost
-----
```

3. Abort the Job:

```
# r1 abort -job_id=1 -Center=localhost  
-center_user=user_name -center_password=pass
```

The command's output will be:

```
R1-API-S-AJS, job <1> successfully aborted
```

4. Delete the Job:

```
# r1 delete -job_id=1 -Center=localhost  
-center_user=user_name -center_password=pass
```

The command's output will be:

```
R1-API-S-DJS, job <1> successfully deleted
```

5. Activate the SHOW command again. There should be no jobs running.

```
# r1 show -Center=localhost  
-center_user=user_name -center_password=pass
```

The command's output will be:

```
R1-API-E-NOJOB, no jobs matching query on "localhost"
```

6. Repeat step 2 to activate a job.

7. View and handle the job using the R-1 GUI Console. Activate the R-1 Console from the Start menu, using Programs / Repliweb R-1 / R-1 Console.

Complete connection information in the Connect dialog:

```
Center: <localhost>  
User: <user_name>  
Password: <pass>|
```

Click the Connect button.

8. The R-1 Console window will open, showing the submitted job. Using the mouse, select the job, using the SELECT button.

9. Abort the job by clicking the MENU button. A menu will be displayed, select the Abort menu option. A confirmation message will be displayed, verifying the Abort operation. Click Yes.

10. Use the F5 button to refresh the view. After a few seconds the job state icon will change.

11. Delete the job, using the same method. Click the MENU button; on the menu select the Delete menu option. A confirmation message will be displayed, verifying the delete operation. Click Yes.

12. Use the F5 button to refresh the view. After a few seconds the job will disappear from the jobs list.
-

6. Activating R-1

Assuming all testing procedures have pass, the R-1 is ready to use.

No additional tasks should be performed.

For further information on how to use the R-1 Console GUI or Command Line Interface (CLI), please refer to the [R-1 User Guide](#), or use the Console GUI <F1> key for on-line help.

7. Uninstalling R-1

This chapter explains how to un-install R-1 from both Windows and UNIX servers.

7.1. Uninstalling from UNIX

1. In the installation directory, you will a folder named **uninstall**.
2. Type the following commands:

```
#cd uninstall  
#./uninstall <installation path>
```

For example, if R-1 is installed in /usr/r1 your uninstall command should be

```
./uninstall /usr/r1
```

3. The command's output will be:

```
Stopping RepliWeb scheduler  
Finished RepliWeb uninstall ...  
RepliWeb was uninstalled
```

This will indicate that R-1 was uninstalled properly.

7.2. Uninstalling from Windows

1. From the Start menu, open the **Control Panel**. (Start → Settings → Control Panel → Add / Remove Programs).
2. Select **RepliWeb R-1** and press on the **Remove** button.
3. You will be prompted to confirm the software removal. Press **Yes**.
4. Once the removal process is complete, R-1 will not be available on your machine.

To uninstall via command line, please refer to the [Command Line Installation](#) section.

NOTE: Removing R-1 does not require a reboot.
