

ICT4HR Web Tools User Guide

Below is a comprehensive guide covering the installation, configuration, and use of the website mirroring platform and the micro-newspaper generation system. Throughout the guides, commands to be entered by user are in *italics*, and on-screen output appears in `monospaced` type.

Installation Guide

The purpose of this guide is to acquaint the end user with the process of installing and updating both the website mirroring platform and the micro-newspaper generation system. To successfully install the software, a user must have one of the following: (1) a Internet-connected i386/x64 computer or virtual machine already running a variant of Debian-based Linux distribution (Ubuntu is recommended); (2) an x64 computer capable of booting from a CD or a mass storage device flashed with an ISO live image; or (3) an x64 computer running desktop or server virtualization software (VirtualBox is recommended for desktop users, and KVM is recommended for server users or users who prefer to manage virtual machines from the command line). This guide covers installation of the software in the three environments noted above.

NOTE: Superuser (root) access is **required** for the installation and operation of the platforms. You **must** be an administrator of the computer you are using in order to install and run this software.

While all of the commands necessary to install the micro-newspaper system and web mirroring platform are included in this guide, basic familiarity with the Debian package management system is assumed.

Installing Applications on Existing Linux System (Ubuntu and Debian)

1. Begin by downloading the package containing the applications. It is available here : https://www.dropbox.com/s/ohzvjfo0871jr7s/itc4hr-webtools_1.2_all.deb
2. The package can then be installed from the terminal. Navigate to the directory where the .deb file is stored (if you just executed *wget* in the previous step, then you are already in the right place), and run the following command:
sudo dpkg -i ict4hr-webtools_2.0_all.deb
3. You will almost certainly receive error messages after running this command; that is because your system is missing some of the applications and libraries required for the operation of the web mirroring and micro-newspaper platforms. If you didn't receive any alerts that dependencies are not satisfied, then you're done! Otherwise, make sure you're connected to the Internet, and run the following command:
sudo apt-get -f install

Enter *Y* at the prompt to continue, or simply hit *ENTER*. The dependencies and the software will then install.

If this process completes successfully, congratulations! The software has been fully installed, and you may proceed to the guides covering the configuration and operation of the web mirroring and micro-newspaper applications.

Website Mirroring Guide

The purpose of this guide is to acquaint the end user with the essential information necessary to configure and operate the website mirroring platform. While this tutorial is designed to be intuitive for even novice systems administrators, basic knowledge of the command line and a working knowledge of using SSH to access systems remotely is essential.

This tutorial assumes that the end user has installed and configured an industry-standard open source web server package, and that the user knows and/or is able to customize the web server's root public directory. We strongly recommend nginx for sharing static files. nginx is automatically installed alongside the website mirroring platform, and the user has the option to generate customized nginx site configuration files upon the first run of the configuration tool. The user is free, however, to choose nginx, apache2, lighttpd, or any other similar web server.

1. If working remotely, log into your server via SSH.
`ssh username@testserver.com`, entering the required password if shared keys are not prepared
2. Launch the command line configuration tool. Open terminal and enter the following command:
`sudo webmirror-config`

NOTE: If you are logged in as the root user (which is, for the record, not recommended), you may omit `sudo` whenever it is printed in this tutorial.

3. If this is your first time running the configuration tool after installing the web mirroring platform, a series of libraries not available through APT package repositories will automatically install, satisfying all of the platform's remaining dependencies. This may take a few minutes, depending on the speed of your Internet connection.
4. Once this process completes, you will have the opportunity to generate configuration files for the nginx web server software. If you wish to use nginx to host the static mirrors generated by this mirroring platform, you are strongly encouraged to use this configuration tool, as it will generate a configuration file specifically designed for serving static website mirrors.

To continue with nginx configuration, press `Y`. Otherwise, press `ENTER` to proceed without configuring nginx. If you wish to skip nginx configuration, proceed to step 5 now.

- (a) You will first be prompted to enter a directory that will be used by nginx as the root directory for serving files to the public. A default directory is provided for your convenience, but you may select any directory. If the directory does not yet exist, you will be asked whether you wish to create it.

This directory also becomes the default storage directory for static web mirror files, which can be further configured once web server configuration is complete.

- (b) Next, you must enter a domain name for use within the nginx configuration. Choose the domain at which you wish your static website mirrors to be accessible to the public. Subdomains are acceptable. Examples include `example.com`, and `webmirror.example.com`. You may also enter an IP address if you have not acquired and configured a domain name.

- (c) With a domain name selected, you will be asked to select a port over which standard HTTP traffic will travel. If you are unsure of what to choose, hit enter, and the default port (port 80) will be selected. If you are an advanced user wishing to run the server on a non-standard port, you may select any available port. You are responsible for ensuring that the port is available for use.
- (d) If you have an SSL certificate for encrypting traffic between your server and your end user, you will want to enable SSL. After entering a port, you will be prompted to enable SSL. If you do not have a certificate and a private key file already stored on your computer, you should skip SSL configuration for the time being, and manually configure it later.

If you do have an SSL certificate available, enter *Y* to proceed. Otherwise, if you do not wish to enable SSL or if you do not have the certificate and private key available enter any other key to skip to the next step.

First, you will be prompted to enter a port for HTTPS traffic. Again, if you are unsure of what to choose, hit enter and the default HTTPS port (port 443) will be selected. Otherwise, you may enter any other available port.

Next, you will be prompted to enter the full path of your SSL private key. The location of the private key will be verified before proceeding, but it is your responsibility to ensure that the key is valid.

You will then be prompted to enter the full path of your SSL certificate. The location of the certificate will be verified before proceeding, but again, it is your responsibility to ensure that the certificate is valid.

- (e) You will then be given an opportunity to review the nginx configuration options that you have entered. To proceed and write a configuration file, enter *Y*. Enter *N* to exit without making any changes.
 - (f) If nginx configuration files exist in their default location in the filesystem (/etc/nginx), the configuration tool will recognize this and ask if you wish to save the file in this location. If this destination can't be found or if you would prefer another location, follow the directions on-screen to enter a different destination for the nginx site configuration file.
 - (g) With this completed, congratulations! You have configured nginx for use with the web mirroring platform. An nginx site configuration file named `ict4hr-webmirror` has been created and placed in its default location (/etc/nginx/sites-available) or a location of your choosing. Assuming that the site was placed in the default location, you would run the following commands to enable the site and launch nginx (this should be done once a mirrored site is available):

```
sudo ln -s /etc/nginx/sites-available/ict4hr-webmirror /etc/nginx/sites-enabled/  
sudo /etc/init.d/nginx start
```
5. With nginx configuration completed, the tool now proceeds to configure the static web mirroring system itself.

The existing contents of your terminal will be cleared and a screen similar to the following will appear:

Configuration Tool: ICT4HR Static Web Site Mirroring System

The following URLs are enabled for recursive and static mirroring:

#	Name	URL	Interval
0	Tahavolesabz	http://www.tahavolesabz.net	2
1	Nurizad.info	http://nurizad.info	2
2	iseerobot	http://iseerobot.tumblr.com	2

To add a new URL, type *n* and hit ENTER. To delete or edit an entry, type the entry number from the # column above and hit ENTER. To proceed, enter nothing and hit ENTER.

Your selection:

Every screen you encounter within the configuration tool will look like this screen. Below the header, existing settings will be displayed, and you will be presented with a series of options and a prompt to enter an option. Options are always entered by typing and pressing ENTER.

NOTE: The configuration tool will prevent you from entering invalid options. If you enter an invalid option, you will be alerted and prompted to enter another option.

6. From this screen, you may add new websites for mirroring, edit websites already configured for mirroring, or stop the mirroring of certain websites.
 - (a) To create a new entry, type *n* at the prompt and hit ENTER. You will, in this order, be prompted to enter the following information about a single web site:
 - i. URL (the system will check to see if the URL is valid)
example: *http://www.example.com*
 - ii. Name of the site (for your reference)
example: *My Politically Sensitive Website*
 - iii. Number of minutes that will pass between mirroring attempts
example: *1440* (twenty-four hours; mirroring would therefore take place once per day)

Once you have finished entering this information, you will be returned to the previous screen, where you may add, edit, or delete more sites.

- (b) To edit or delete an entry, begin by entering the entry's corresponding number (in the example screen above, for example, you would enter 2 for the website named "iseerobot"). You will then be prompted to choose between editing or deleting the site from the list of sites to be mirrored. If you choose to edit the site, you will be given the opportunity to change each one of the settings listed in section 6a. To leave any one of the settings setting unchanged, enter nothing and hit ENTER. If you choose to delete the site, you will be asked to confirm the deletion. After editing or deleting a site, you will be returned to the previous screen, and your changes will be reflected in the list of websites.
 - (c) To finish adding, editing, and deleting websites, enter nothing and hit ENTER while viewing the list of mirrored websites.
7. After passing the website listing screen, you will have the opportunity to configure a number of global settings, all of which affect the operation of the mirroring platform.
 - (a) You will first be asked whether you would like to configure the web server domain or subdomain used by the mirroring platform. Your existing setting will appear above:

Current domain: webmirror.example.com

To change this setting, hit Y, followed by ENTER. Then, when prompted, enter a new domain or subdomain and hit ENTER to save the change. Your domain should look something like: *example.com*, *subdomain.example.com*, or *www.example.com* – use whatever domain your website is configured to support.

- (b) Next, you will be prompted to change the directory in which all mirroring files are stored on your server's disk. This must be an absolute path (beginning with /), and if you wish to serve these files directly, this directory should be accessible to your web server. If you use the pre-configured and bundled nginx configuration, you are advised to keep the default setting (/srv/ict4hr/webmirror/public_html).
- (c) Next, you will be asked to specify another directory – this time for the storage of compressed archives of mirrored websites. In the event that you want the mirroring system to save compressed archival copies of the mirrored websites in a separate directory, enter a local directory path. Again, this should be an absolute path.
- (d) The mirroring platform is designed to check once per minute to verify the availability of your targeted websites. If the system finds that one of your targeted websites is offline after making several attempts to reach it, the system can e-mail you automatically to inform you of the downtime. You will be asked whether you wish to enable or disable this e-mail notification feature. If you choose to enable it, you will also be asked to enter a valid e-mail address to which the message will be sent. The e-mail messages will appear as follows:

As of 2012-05-31 00:39:58.914262 UTC, My Politically Sensitive Website (<http://www.example.com>) is offline.

- (e) The mirroring platform is also capable of automatically activating its web server software in the event that one of your targeted websites goes offline. This is ideal if you prefer to keep your web server software disabled for security and/or performance purposes. After configuring the e-mail notification settings, you will be similarly prompted to configure the web server activation settings. If you choose to configure this feature, you will be prompted to either enable or disable automated web server activation, and if you choose to enable the feature, you will be prompted to choose the web server software that you use from a menu. If in doubt, choose nginx, the default web server that is bundled with this platform.
- (f) Unfortunately, your targeted web sites might go offline at times that are highly inconvenient for you. For this reason, the mirroring platform can automatically share the link to your static mirror of a targeted website via Facebook if the system determines that the website has gone offline. After configuring the automated web server activation settings, you will be prompted to configure the automated Facebook publishing settings. To enable automatic Facebook publishing, simply enable the setting when prompted, and enter a Facebook access token.

A Facebook access token is a secret string of text which allows you to interact with your Facebook profiles, pages, and applications using external software. Therefore, using an access token, the mirroring platform can automatically post mirror links to your personal profile, your organization's page, or your application's page.

For more information about Facebook access tokens, see here:
<https://developers.facebook.com/docs/authentication>

(g) After configuring the automated Facebook publishing settings, you will be taken to a screen upon which all of the platform's settings are displayed for your review. This allows you to review your changes before saving the configuration file. If the settings look accurate, enter Y to confirm, and hit ENTER. Your settings will then be saved, and they will take effect next time the mirroring platform is started or reloaded.

NOTE: If you receive an error when saving your settings, check to make sure that you did not omit *sudo* when launching the configuration tool.

8. With the application fully configured, the website mirroring system can now be started for the first time. Any directories specified in the settings that do not exist will be created when launching the system.

The website mirroring platform is now started and stopped as a daemon, similar to many other applications, including most web server software. This process will therefore seem familiar if you are accustomed to managing your web server from the command line.

To launch the mirroring platform, enter the following:
sudo /etc/init.d/webmirror start

With this, the mirroring platform will simultaneously begin to mirror the targeted websites. Future mirroring attempts will follow the schedule of intervals specified in the settings.

To stop the mirroring platform, enter the following:
sudo /etc/init.d/webmirror stop

If you reconfigure the platform by running the configuration tool while the platform is running, you may restart the platform to load the new settings:
sudo /etc/init.d/webmirror restart

Finally, you may always check the status of the mirroring platform by entering the following command:
sudo /etc/init.d/webmirror status

The output will indicate whether or not the mirroring platform is currently running:
** webmirror is not running*

9. Once the mirroring has completed (and assuming your web server software is enabled), your static mirrors are accessible via two URLs each. Assuming that you are mirroring *www.mypoliticallysensitivewebsite.com*, and that your web server's domain is *example.com*, you could access your mirror using the following URLs:
 - (a) *http(s)://example.com/www.mypoliticallysensitivewebsite.com*
 - (b) *http(s)://www.mypoliticallysensitivewebsite.com.example.com*
10. After the mirroring has been configured and the daemon has been launched by entering *sudo /etc/init.d/webmirror start*, you may close your (SSH) terminal and allow the platform to run indefinitely.

Micro-Newspaper System Guide

The purpose of this guide is to acquaint the end user with the essential information necessary to

configure and operate the micro-newspaper platform. While this tutorial is designed to be intuitive for even novice systems administrators, basic knowledge of the command line and a working knowledge of using SSH to access systems remotely is essential.

This tutorial assumes that the end user has installed and configured an industry-standard open source web server package, and that the user knows and/or is able to customize the web server's root public directory. We strongly recommend nginx for sharing static files. nginx is automatically installed alongside the website mirroring platform, and the user has the option to generate customized nginx site configuration files upon the first run of the configuration tool. The user is free, however, to choose nginx, apache2, lighttpd, or any other similar web server.

1. If working remotely, log into your server via SSH.
`ssh username@testserver.com`, entering the required password if shared keys are not prepared
2. Launch the command line configuration tool. Open terminal and enter the following command:
`sudo micronews-config`

NOTE: If you are logged in as the root user (which is, for the record, not recommended), you may omit `sudo` whenever it is printed in this tutorial.

3. If this is your first time running the configuration tool after installing the micro-newspaper platform, a series of libraries not available through APT package repositories will automatically install, satisfying all of the platform's remaining dependencies. This may take a few minutes, depending on the speed of your Internet connection.
4. Once this process completes, you will have the opportunity to generate configuration files for the nginx web server software. If you wish to use nginx to host the files generated by this platform, you are strongly encouraged to use this configuration tool, as it will generate a configuration file specifically designed for serving micro-newspaper images and pages.

To continue with nginx configuration, press `Y`. Otherwise, press `ENTER` to proceed without configuring nginx. If you wish to skip nginx configuration, proceed to step 5 now.

- (a) You will first be prompted to enter a directory that will be used by nginx as the root directory for serving files to the public. A default directory is provided for your convenience, but you may select any directory. If the directory does not yet exist, you will be asked whether you wish to create it.

This directory also becomes the default storage directory for micro-newspaper files, which can be further configured once web server configuration is complete.

- (b) Next, you must enter a domain name for use within the nginx configuration. Choose the domain at which you wish your micro-newspapers to be accessible to the public. Subdomains are acceptable. Examples include `example.com`, and `micronews.example.com`. You may also enter an IP address if you have not acquired and configured a domain name.
- (c) With a domain name selected, you will be asked to select a port over which standard HTTP traffic will travel. If you are unsure of what to choose, hit enter, and the default port (port 80) will be selected. If you are an advanced user wishing to run the server on a non-standard port, you may select any available port. You are responsible for ensuring that

the port is available for use.

- (d) If you have an SSL certificate for encrypting traffic between your server and your end user, you will want to enable SSL. After entering a port, you will be prompted to enable SSL. If you do not have a certificate and a private key file already stored on your computer, you should skip SSL configuration for the time being, and manually configure it later.

If you do have an SSL certificate available, enter Y to proceed. Otherwise, if you do not wish to enable SSL or if you do not have the certificate and private key available enter any other key to skip to the next step.

First, you will be prompted to enter a port for HTTPS traffic. Again, if you are unsure of what to choose, hit enter and the default HTTPS port (port 443) will be selected. Otherwise, you may enter any other available port.

Next, you will be prompted to enter the full path of your SSL private key. The location of the private key will be verified before proceeding, but it is your responsibility to ensure that the key is valid.

You will then be prompted to enter the full path of your SSL certificate. The location of the certificate will be verified before proceeding, but again, it is your responsibility to ensure that the certificate is valid.

- (e) You will then be given an opportunity to review the nginx configuration options that you have entered. To proceed and write a configuration file, enter Y. Enter N to exit without making any changes.
- (f) If nginx configuration files exist in their default location in the filesystem (/etc/nginx), the configuration tool will recognize this and ask if you wish to save the file in this location. If this destination can't be found or if you would prefer another location, follow the directions on-screen to enter a different destination for the nginx site configuration file.
- (g) With this completed, congratulations! You have configured nginx for use with the micro-newspaper platform. An nginx site configuration file named `ict4hr-micronews` has been created and placed in its default location (/etc/nginx/sites-available) or a location of your choosing. Assuming that the site was placed in the default location, you would run the following commands to enable the site and launch nginx (this should be done once micro-newspaper images are available):
`sudo ln -s /etc/nginx/sites-available/ict4hr-micronews /etc/nginx/sites-enabled/`
`sudo /etc/init.d/nginx start`

- 5. With nginx configuration completed, the tool now proceeds to configure the micro-newspaper system itself.

When the script launches correctly, the existing contents of your terminal will be cleared and a screen similar to the following will appear:

```
Configuration Tool:  ICT4HR Micro-Newspaper Creation and Distribution System
-----
Micro-newspapers are currently being generated from the following RSS feeds:
# Name                                URL                                Dir  Font
0 Tahavolesabz                       http://feeds.feedburne...  RtoL BLotus-Farsi.ttf
1 Los Angeles Times - Local News      http://feeds.latimes.c...  LtoR ArialUnicode.ttf
2 Frontera - Noticias de Baja California http://www.frontera.in...  LtoR unifont.ttf
3 Chosun Ilbo                        http://www.chosun.com/...  LtoR unifont.ttf
```


To add a new URL, type *n* and hit ENTER. To delete or edit an entry, type the entry number from the # column above and hit ENTER. To proceed, enter nothing and hit ENTER.
Your selection:

Every screen you encounter within the configuration tool will look like this screen. Below the header, existing settings will be displayed, and you will be presented with a series of options and a prompt to enter an option. Options are always entered by typing and pressing ENTER.

NOTE: The configuration tool will prevent you from entering invalid options. If you enter an invalid option, you will be alerted and prompted to enter another option.

6. The micro-newspaper platform retrieves headlines from user-specified RSS feeds. From this screen, you may add new RSS feeds for aggregation, edit feeds already configured, or delete existing RSS feeds from the configuration file.

(a) To add a new RSS feed to the micro-newspaper system, type *n* at the prompt and hit ENTER. You will, in this order, be prompted to enter the following information about a single web site:

- i. RSS Feed URL (the system will check to see if the URL is valid, but you are responsible for ensuring that it returns valid RSS syntax)
example: *http://www.example.com/my_rss_feed.xml*
- ii. Name of the RSS feed (for your reference)
example: *My Politically Sensitive RSS feed*
- iii. Direction of the text (left-to-right or right-to-left)
example: *L* (enter *L* if the text of the RSS feed reads left-to-right, or *R* if the text reads right-to-left)
- iv. Font for use in generating the micro-newspaper. A list including all of the fonts installed for use within the micro-newspaper system will appear on the screen:

From the list below, choose a font for use with this micro-newspaper. Enter the number for the font you wish to select.

0.	unifont.ttf
1.	Cyberbit.ttf
2.	BLotus-Farsi.ttf
3.	ArialUnicode.ttf

To select a font, enter the corresponding number, followed by ENTER.

Once you have finished entering this information, you will be returned to the previous screen, where you may add, edit, or delete more RSS feeds.

- (b) To edit or delete an entry, begin by entering the entry's corresponding number (in the example screen above, for example, you would enter 2 for the RSS feed named "Frontera – Noticias de Baja California"). You will then be prompted to choose between editing or deleting the feed from the list. If you choose to edit the feed's settings, you will be given the opportunity to change each one of the settings listed in section 3a. To leave any one of the settings setting unchanged, enter nothing and hit ENTER. If you choose to remove the feed, you will be asked to confirm the removal. After editing or deleting a feed, you will be returned to the previous screen, and your changes will be reflected in the list of RSS feeds.
- (c) To finish adding, editing, and deleting RSS feeds, enter nothing and hit ENTER while viewing the list of feeds.

7. After passing the RSS feed listing screen, you will have the opportunity to configure a number of global settings, all of which affect the operation of the micro-newspaper platform.
- (a) You will first be asked whether you would like to configure the web server domain or subdomain used by the micro-newspaper system. To change this setting, hit Y, followed by ENTER. Then, when prompted, enter a new domain or subdomain and hit ENTER to save the change. Your domain should look something like: *example.com*, *subdomain.example.com*, or *www.example.com* – use whatever domain your web server is configured to support.
 - (b) Next, you will be prompted to change the directory in which all micro-newspaper files are stored on your server's disk. This must be an absolute path (beginning with /), and if you wish to serve these files directly, this directory should be accessible to your web server. If you use the pre-configured and bundled nginx configuration, you are advised to keep the default setting (`/srv/ict4hr/micronews/public_html`).
 - (c) Next, you will be asked to specify another directory – this one for the storage of compressed archives of previously generated micro-newspapers, as all micro-newspaper images are compressed and archived when a new set of images is generated. Again, this setting should be an absolute path.
 - (d) The micro-newspaper platform is capable of generating micro-newspaper images at a time interval specified by the user. At this point, the user will be prompted to consider changing this setting. If a change in the setting is desired, the user should enter an interval of time (in seconds) that will pass between the generation of sets of micro-newspaper images. The default setting is 3600 seconds (one hour).
 - (e) The micro-newspaper platform relies upon a variety of image obfuscation techniques designed to make the text within the images maximally undecipherable by optical character recognition (OCR) software. These methods, ranging from the imposition of random noise to the distortion of the image itself, work in concert with one another to ensure that the resulting images are easily readable by humans, but not by machines. At this stage in the configuration process, the user will have the option to customize five different image obfuscation settings. For each of these settings, the user may opt to specify a setting (always a positive integer) or allow these settings to be randomly calculated for each generated micro-newspaper image. The following are the image obfuscation settings that the user can control:
 - i. In every image, a number of many-colored geometric shapes are imposed atop the image. Most of these shapes are either lines or ellipses, and all contribute differently to image obfuscation. When prompted, you may opt for a random number of superimposed shapes (enter *R*, followed by ENTER), or any number equal to or greater than zero.
 - ii. A number of colored points are randomly placed throughout the image as well. When prompted, you may specify the number of superimposed points that will be placed within the images, or you may once again enter *R* to opt for a random number of superimposed points.
 - iii. The image distortion method used by this system effectively “folds” the image a number of times, in order to facilitate image distortion. You have the option to choose the number of virtual “folds” you would like to appear in a micro-newspaper image, or you may once again opt for a random number of folds.
 - iv. The user is then able to specify the degrees of horizontal and vertical distortion of the

image. While the user is once again able to opt for randomly chosen degrees of distortion, the user is encouraged to experiment to find degrees of distortion that are particularly suitable for their purposes.

- (f) Media posted to popular social networking websites can spread widely and almost instantaneously to thousands, if not millions, of interested people. For this reason, the micro-newspaper platform, if configured properly, can automatically upload micro-newspaper images to your Facebook profile, organization page, or application page. After configuring the image distortion options, you will be prompted to configure the automated Facebook publishing settings. To enable automatic Facebook publishing, simply enable the setting when prompted, and enter a Facebook access token.

A Facebook access token is a secret string of text which allows you to interact with your Facebook profiles, pages, and applications using external software. Therefore, using an access token, the micro-newspaper platform can upload timestamped images to your personal profile, your organization's page, or your application's page.

For more information about Facebook access tokens, see here:

<https://developers.facebook.com/docs/authentication>

- (g) After configuring the automated Facebook publishing settings, you will be taken to a screen upon which all of the platform's settings are displayed for your review. This allows you to review your changes before saving the configuration file. If the settings look accurate, enter Y to confirm, and hit ENTER. Your settings will then be saved, and they will take effect next time the micro-newspaper platform is started or reloaded.

NOTE: If you receive an error when saving your settings, check to make sure that you did not omit *sudo* when launching the configuration tool.

- 8. With the application fully configured, the micro-newspaper system can now be started for the first time. Any directories specified in the settings that do not exist will be created when launching the system.

The micro-newspaper is now started and stopped as a daemon, similar to many other applications, including most web server software. This process will therefore seem familiar if you are accustomed to managing your web server from the command line.

To launch the micro-newspaper platform, enter the following:

```
sudo /etc/init.d/micronews start
```

With this, the micro-newspaper platform will begin to collect the specified RSS feeds and build micro-newspaper images from their headlines. Future micro-newspaper generation attempts will follow the time interval specified in the settings.

To stop the micro-newspaper platform, enter the following:

```
sudo /etc/init.d/micronews stop
```

If you reconfigure the platform by running the configuration tool (*micronews-config*) while the platform is running, you may restart the platform to load the new settings:

```
sudo /etc/init.d/micronews restart
```

Finally, you may always check the status of the micro-newspaper platform by entering the following command:

sudo /etc/init.d/micronews status

The output will indicate whether or not the micro-newspaper platform is currently running:

** micronews is not running*

9. Once micro-newspaper image generation is complete (and assuming your web server software is enabled), you can visit your web server's root directory to see an HTML document which links to your new micro-newspaper images. Additionally, your individual micro-newspaper images are available via two URLs each. Assuming that your micro-newspaper domain is *micronews.example.com*, you could access a hypothetical image file (named *nj8jfamdwo1m.png*)

(a) *http(s)://example.com/nj8jfamdwo1m/nj8jfamdwo1m.png*

(b) *http(s)://nj8jfamdwo1m.example.com/nj8jfamdwo1m.png*

10. After the micro-newspaper system has been configured and the daemon has been launched by entering *sudo /etc/init.d/micronews start*, you may close your SSH terminal and allow the system to run indefinitely.

Uninstallation

Removing the micro-newspaper and the web mirroring platform software is very simple, and requires the execution of only one command:

ict4hr-micronews

You may then remove unused dependencies with the following command:

sudo apt-get autoremove

You must then manually remove any content generated by the platforms, as the automated removal of the applications removes only the files that were installed from the APT repository.