Zebra QL Printer Mirror Process

Zebra QL printers support a file mirroring process that allows the printer to synchronize files with those stored on an FTP server. Since the process relies solely on the FTP standard, no other special utilities are required. The files on the FTP server can be printer firmware files, fonts, as well as lists of printer configuration commands (such as commands to change the printer's WEP key). In order for this file synchronization process to work properly, it is only required that the FTP server support "Unix style" directory listings and that the modification time stamps of the files stored on the FTP server are accurate.

Printer set up to support mirror process

In order to enable the mirror process on the printer, the following set/get variables are available:

ip.mirror.auto: on/off
If "on", printer will automatically perform a mirror "fetch" command on power-up, and subsequently every "freq" minutes. (see ip.mirror.freq, below)

ip.mirror.username: 20 bytes (string)
Username to use for FTP login

ip.mirror.password: 20 bytes (string)
Password for FTP account

ip.mirror.server: 40 bytes (string)
Server ip address or name (if DNS server info is provided via DHCP).

ip.mirror.path: 50 bytes (string)
Path on the FTP server where the mirror directory is located. Defaults to "companyname/model" (e.g. "/Zebra/QL 320").

NOTE: this must be an absolute path (i.e. it must start with / or ~)

ip.mirror.freq: 0-65535 minutes
Number of minutes to wait before performing another mirror fetch. If this value is "0", the mirror process will only be performed once immediately on power-up. This parameter only applies if

ip.mirror.auto is “on”. Caution should be used if setting a low value - otherwise the printer may spend most of its time performing the mirror process.

ip.mirror.fetch:

Force the mirror process to be run immediately. This variable can be set via SNMP, allowing the mirror process to triggered via SNMP.

Example of printer configuration for mirror

The following is an example of using the above mirror set/get variables to configure the printer for the mirror process. These commands could be put in a text file and sent to the printer.

```
! U1 setvar “ip.mirror.path” “/Zebra/QL320”
! U1 setvar “ip.mirror.server” “10.14.4.12”
! U1 setvar “ip.mirror.freq” “0”
! U1 setvar “ip.mirror.auto” “on”
! U1 setvar “ip.mirror.username” “brian”
! U1 setvar “ip.mirror.password” “password”
```

In the above example, the printer will only perform the mirror process once on power-up, since the “ip.mirror.freq” variable is set to 0.

Server Settings

On the server, the mirror directory structure should look like this:

<mirror path>/

app/

files/

commands/

App/

App/ will contain only one file - the current printer app. The file name should be the exact printer app name followed by .hex. If the file in the app/ subdirectory is named differently than the current printer version, the printer will download the new application and will automatically re-program itself with this new firmware.

Files/

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Files/ will be a flat directory (no subdirectories) that contains all the files that should be installed on the printer. File names must be in 8.3 format. Any new files, or those with more recent time stamps, will be automatically copied to the file system on the printer.

commands/

The commands/ directory will contain files with CPCL commands. (For example, "! U1 setvar "wlan.essid" "myessid"".) This will allow the changing of printer settings automatically. Command file names must be in 8.3 format. The time stamp of any files in the commands/ subdirectory will be compared to those of commands which were last executed on the printer. Any command files that have never been run or have a more recent time stamp than those on the printer will be downloaded and executed on the printer.

It may be useful to put a label command in the most recent command file. This will provide visual feedback that the printer successfully performed the mirror process. For example, the following could be the contents of a command file:

```
! U1 setvar "wlan.essid" "myessid"
! U1 setvar "wlan.encryption_mode" "128-
bit"
! U1 setvar "wlan.auth_type" "shared"
! U1 setvar "wlan.encryption_index" "1"
! U1 setvar "wlan.encryption_key1"
"12345678901234567890123456"
! U1 setvar "wlan.encryption_key2"
"23456789012345678901234567"
! U1 setvar "wlan.encryption_key3"
"34567890123456789012345678"
! U1 setvar "wlan.encryption_key4"
"45678901234567890123456789"
! U1 setvar "ip.mirror.auto" "off"
! 0 200 200 240 1
LABEL
PAGE-WIDTH 600
T 0 3 84 17 Network settings updated
FORM
```

```
PRINT
```

In this example, after the printer downloads this file and updates its network settings, it will print a label with the text “Network settings updated”.

Refer to the following pages for exposition of the ip.mirror variables.

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ip.mirror.auto

type: getvar, setvar

This parameter is used to enable or disable the file mirroring process on the printer for the initial power-up sequence and at repeating intervals defined by “ip.mirror.freq”.

getvar result	The current mirror setting.	
Example	Description Syntax Result	Instructs the printer to respond with the value of the FTP mirror mode !U1 getvar “ip.mirror.auto” “off”
setvar choices	“off”: mirror will not be performed automatically “on”: mirror will be performed automatically when the printer is first powered-on and at the interval defined by “ip.mirror.freq”	
	Default	“off”
Example	Description Syntax Result	Enable the mirror process ! U1 setvar “ip.mirror.auto” “on” The printer will perform the mirror process on initial power-up and at the repeated interval defined by “ip.mirror.freq”

ip.mirror.fetch

type: do

This command will force the mirror process to be performed immediately.

do choices	Any text string.	
Example	Description Syntax Result	Perform the mirror process ! U1 do “ip.mirror.fetch” “yes” The printer will immediately contact the FTP server defined by “ip.mirror.server”, log on with the defined username and password and look for mirror file updates.

ip.mirror.freq

type:getvar; setvar

This parameter defines how frequently (in minutes) the mirror process will be performed.

This parameter only applies if “ip.mirror.auto” is set to “on”.

getvar result	The current mirror frequency in minutes.	
Example	Description	Instructs the printer to respond with the frequency the mirror process is performed.
	Syntax	!U1 getvar “ip.mirror.freq”
	Result	“0”
setvar choices	Any value between “0” and “65535”. A value of “0” means the mirror process will only be performed on power-up.	
	Default	“0”
Example	Description	Change mirror frequency to “25”
	Syntax	! U1 setvar “ip.mirror.freq” “25”
	Result	If “ip.mirror.auto” is “on”, then the mirror process will be performed on initial power-up and every 25 minutes thereafter.

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ip.mirror.password

type: getvar; setvar

This parameter defines FTP password that will be used for the mirror process.

getvar result	The current mirror password – masked with asterisks.	
Example	Description	Instructs the printer to respond with the value of the FTP password
	Syntax	!U1 getvar “ip.mirror.password”
	Result	“********”
setvar choices	Any text string up to 20 characters in length	
	Default	“password”
Example	Description	Change mirror password to “secret”
	Syntax	! U1 setvar “ip.mirror.password” “secret”
	Result	The next time the mirror process is performed, the printer will use the FTP password “secret”.

ip.mirror.path

type:getvar; setvar

This parameter defines the path on the FTP where the mirror directories are located. This can be a relative path based on the FTP username or an absolute path based on the FTP root directory.

getvar result	The current mirror path.	
Example	Description	Instructs the printer to respond with the FTP path to the mirror directories.
	Syntax	!U1 getvar “ip.mirror.path”
	Result	“Zebra/QL 320”
setvar choices	Any text string up to 50 characters in length.	
	Default	“Zebra/QL 320”
Example	Description	Change mirror path to “zebra/ql”
	Syntax	! U1 setvar “ip.mirror.path” “zebra/ql”
	Result	The next time the mirror process is performed, the printer will look for the updates in the “zebra/ql” relative directory.

ip.mirror.server

type:getvar; setvar

This parameter defines the FTP server that will be used for the mirror process.

getvar result	The current mirror server address	
Example	Description	Instructs the printer to respond with the FTP server used for the mirror process
	Syntax	!U1 getvar “ip.mirror.server”
	Result	“0.0.0.0”
setvar choices	Either an IP address or any DNS resolvable name up to 40 characters in length	
	Default	“0.0.0.0”
Example	Description	Change mirror server to “192.168.1.1”
	Syntax	! U1 setvar “ip.mirror.server” “192.168.1.1”
	Result	The next time the mirror process is performed, the printer will connect to the FTP server at address 192.168.1.1.

ip.mirror.username

type: getvar; setvar

This parameter defines FTP username that will be used for the mirror process.

getvar result	The current username.	
Example	Description	Instructs the printer to respond with the value of the FTP user name
	Syntax	!U1 getvar “ip.mirror.username”
	Result	“username”
setvar choices	Any text string up to 20 characters in length	
	Default	“username”
Example	Description	Change mirror username to “test”
	Syntax	! U1 setvar “ip.mirror.username” “test”
	Result	The next time the mirror process is performed, the printer will use the FTP username “test”.