

Upgrading basic software on the console MAG200

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General description of the algorithm update.

Updating the software on the main MAG200 console can be initiated from JavaScript, using the call `stb.ExecAction` functions with parameters. For example: `stb.ExecAction ('UpdateSW mode')` - where the parameter `mode` determines the script update. The following `up_dhcp_tftp` upgrade scripts, `up_ip_tftp`, `up_mc`.

After calling this function, all the scripts run on the following generalized scheme:

1. Restart is initiated consoles;
2. Initiate the boot image Bootstrap;
3. Run Bootstrap to perform;
4. Download the image to flash in the top box;
5. Checking the digital signature obtained image;
6. Record nand;
7. Restart to boot from nand mode ("Boot Mode" - "NAND"). Scenarios differ in the way the networking configuration, and how to download the images.

Scripts update

"Up_dhcp_tftp"

Prior to initiating an update on this scenario, you must set the following variables
bootloader:

- `serverip_conf` - IP-address of the tftp server on which the Bootstrap

- tftp_path_conf - path to the file on the tftp server on which the Bootstrap
- update_url - url in the format:
 - o tftp: //192.168.1.221/mag200/ imageupdate - file
imageupdate name of tftp protocol will be injected c 192.168.1.221 on the
server mag200 way;
 - o http://soft.infomir.com.ua/mag200/experimental/2009-11-
23 / WebKit / imageupdate - will upload files via http protocol to the specified
address.
 - o igmp: //224.50.0.51: 9001 - the file will be downloaded from
multicast group 224.50.0.51

EXAMPLE start of this scenario:

```
stb.RDir ( 'setenv serverip_conf 192.168.1.221 "|" tftp_path_conf mag200 / Bootstrap "|"
update_url
tftp: //192.168.1.221/mag200/imageupdate_0.1.54 '); stb.ExecAction (
'UpdateSW up_dhcp_tftp');
```

This starts the process of updating the software, which consists of the following steps:

1. Restart is initiated consoles;
2. At the start of the set-top box will receive the IP-address and network settings;
3. Raised Bootstrap Loading image from the server of the variable and the path serverip_conf
tftp_path_conf;
4. Run Bootstrap to perform;
5. A request for IP-addresses and network settings;

6. Raised downloading firmware image for the prefix in the specified way in update_url;
7. Checking the digital signature obtained image;
8. Recording nand;
9. Auto-restart in boot mode with nand ("Boot Mode" - "NAND").

"Up_ip_tftp"

Prior to initiating an update on this scenario, you must set the following variables

bootloader:

- ipaddr - IP-address prefix
- serverip - IP-address of the tftp server on which the Bootstrap
- gatewayip - IP-address of the gateway
- netmask - netmask
- dnsip - IP-address of the DNS server
- tftp_path_conf - path to the file on the tftp server on which the Bootstrap
- update_url - url in the format:
 - o **tftp: //192.168.1.221/mag200/ imageupdate - file**
imageupdate name of tftp protocol will be injected c 192.168.1.221 on the server mag200 way;
 - o **http://soft.infomir.com.ua/mag200/experimental/2009-11-23 / WebKit / imageupdate - will upload files via http protocol to the specified address.**

o igmp: //224.50.0.51: 9001 - the file will be downloaded from
multicast group 224.50.0.51

EXAMPLE start of this scenario: stb.ExecAction (
'UpdateSW up_ip_tftp');

the process of updating the software, which consists of the following stages will be
launched:

1. Restart is initiated consoles;
2. At the start of the set-top box uses the IP-address and the network settings specified in the
bootloader variables;
3. Raised Bootstrap Loading image from the server of the variable and the path serverip
tftp_path_conf;
4. Run Bootstrap to perform;
5. Raised downloading firmware image for the prefix in the specified way in update_url;
6. Checking the digital signature obtained image;
7. Recording nand;
8. Automatic restart in boot mode with nand ("Boot Mode" - "NAND").

"Up_mc"

1. Before initiating the update in this scenario must be checked and if they are not set to
the desired value change bootloader following variables:

- mcip_conf - IP-multicast group address of which will be executed loading Bootstrap.
If omitted, the 224.50.0.50;
- mcport_conf - port number to download an upgrade image for the basic software. If omitted, the 9000;
- mcip_img_conf - IP-address of the multicast group from which you will boot image for the update of the basic software. If omitted, use 224.50.0.51;
- mcport_img_conf - port number to download an upgrade image for the basic software. If omitted, the 9001;

EXAMPLE start of this scenario:

```
stb.RDir ( 'setenv mcip_conf 224.50.0.50 "|" mcport_conf 9000 "|" mcip_img_conf  
224.50.0.51 "|" mcport_img_conf 9001'); stb.ExecAction ( 'UpdateSW up_mc');
```

the process of updating the software, which consists of the following stages will be launched:

2. Restart is initiated consoles;
3. After the restart is initiated loading Bootstrap image of multicast group mcip_conf:
mcport_conf;
4. Run Bootstrap to perform;
5. Raised for loading firmware image into the prefix of the multicast group mcip_img_conf:
mcport_img_conf;
6. Checking the digital signature obtained image;

7. Recording nand;

8. Automatic restart in boot mode with nand ("Boot Mode" - "NAND").

Version Information stitched image

Get information about the previously stitched image, you can use string RDir function (string par):

stb.RDir ("ImageVersion") - receive the version of the flash software;

stb.RDir ("ImageDescription") - get information about the way the flash software;

stb.RDir ("ImageDate") - get the creation date of the image stitched software; stb.RDir ("Img_Ver") - the build version of the software. When using the parameters "ImageVersion", "ImageDescription", "ImageDate" result meets the predetermined rows in the formation imageupdate image.

Installing / Replacing the logo

Set logo of JavaScript-and it is possible, using string RDir function (string par) with SetLogo parameter. Before installing the new logo, you need to stop the playback of audio and video streams.

After successful installation of the logo must be installed bootloader parameters for its correct display:

logo_x - x-coordinate of the axis of the upper left corner of the logo;

logo_y - y-coordinate of the axis of the upper left corner of the logo; bg_color -

Background color in the format "XRGB" to display informational messages at startup;

fg_color - font color in the format "XRGB" to display information messages during startup. If the parameters and logo_x logo_y not installed, the logo is centered.

Example:

```
stb.RDir ( 'SetLogo logo_url');
```

```
stb.RDir ( 'setenv showlogo yes "|" logo_x 0 "|" logo_y 0 "|" bg_color 0x00000000 "|" fg_color  
0x00787878'); while logo_url path in the following format:
```

- o tftp: //192.168.1.221/mag200/ logo.bmp.gz - file

imageupdate name of tftp protocol will be injected c 192.168.1.221 on the
server mag200 way;

- o http://soft.infomir.com.ua/mag200/logo.bmp.gz - will

upload files via http protocol to the specified address.

Using DHCP to update the software.

Starting with version 0.1.62, you can initiate a software update on the console.

To do this, you must add the file to the section /etc/dhcpd.conf

```
option space TeleTec;
```

line:

option TeleTec.update_url code 24 = text;

option TeleTec.update_sboot code 25 = text; option

TeleTec.update_ver code 26 = text;

option TeleTec.update_mode code 27 = text; option

TeleTec.update_sboot_ver code 28 = text;

Wherein:

1. In the TeleTec.update_ver must indicate the value of the field "Image Version:", located in imageupdate file to which you want to upgrade.
2. TeleTec.update_url field must be specified url for updating basic software (location imageupdate), supported protocols http, tftp, igmp.
3. In the TeleTec.update_mode must be specified url to download Bootstrap (tftp protocols are supported, igmp)
4. TeleTec.update_sboot field must be specified url for updates. Supported protocols http, tftp.
5. TeleTec.update_sboot_ver field should be the version which performed the update. If this version is the same as the current version of the second bootloader, the update fails. Version is a string of three digits. For example:

host MAG200 {

.....

```
vendor-option-space TeleTec;  
option TeleTec.update_url "http://soft.infomir.com.ua/mag200/ experimental /  
2010-10-01 / WebKit / imageupdate";  
option TeleTec.update_ver "62";  
option TeleTec.update_mode "igmp: //224.50.0.50: 9000"; option  
TeleTec.update_sboot_ver "030"; }
```

When the console while downloading receive TeleTec.update_ver value, it compares it with the variable bootloader "Image_Version", if the values match, the download will continue. Otherwise, checks for file link located in TeleTec.update_url field with the specified field TeleTec.update_ver version of the image. If this condition is met, then the preparation for the renewal and initiated restart consoles to perform the upgrade process.

Just added the ability to update the image of the second bootloader. For example:

```
option TeleTec.update_sboot "http://soft.infomir.com.ua/mag200/ upgrade /  
Second_boot / SbootIm";  
option TeleTec.update_sboot_ver "024";
```

In this case, it will be performed try the second bootloader image, the image located at the specified url (poddrezhivayutsya protocols http, tftp), if his version is not equal to "024".

Update software using "local Bootstrap-a".

Since version 0.1.66 it is possible to update the basic software using Bootstrap, located in one of the

nand-sections as well, that is, locally on the console. Hence the name of the script.

Before you upgrade, you must set the path to a new way in a variable bootloader
update_url. Example:

```
stb.RDir ( 'setenv update_url  
http://soft.infomir.com.ua/mag200/release/2010-11-23/imageupdate ');  
stb.ExecAction ( 'UpdateSW up_local');
```

This starts the process of updating the software, which consists of the following steps:

1. Restart is initiated consoles;
2. Initiated Bootstrap loading an image from a nand-section.
3. Run Bootstrap to perform;
4. Installation network settings specified by the user (static) or using dhcp;
5. Raised downloading firmware image for the prefix in the specified way in update_url;
6. Checking the digital signature obtained image;
7. Recording nand;
8. Automatic restart in boot mode with nand ("Boot Mode" - "NAND").

Especially when working with this script.

To work with this scenario it is necessary to satisfy the following conditions:

1. The first and second image of bootloader version is to be not less than "030";
2. Should be used kernel of at least version 0.1.66
3. bootloader variables are responsible for the decomposition of nand-as partitions should be set correctly.
4. There should be a section on e nand-named "Bootstrap" and there should be located a file system with a file jffs2 Bootstrap.

All these conditions are fulfilled automatically if the update to use Bootstrap bundled with a version of 0.1.66 and image imageupdate_bs.

It is enough to update the software in any way with the use of these images at least once, and you get an additional opportunity to use the update scenario with the "local Bootstrap-th."

In this case imageupdate_bs contains the same section as the standard, and further imageupdate:

1. The second image bootloader - Sbootlm version no less than "030";
2. The image jffs2 filesystem file c Bootstrap;
3. Prepared bootloader variables to split nand-as the required number of sections.

Interactive software update.

Starting with version 0.2.01 for MAG200 consoles supported by an interactive update software version. Updates can be performed according to the protocol http, as well as with usb-flash. The update process can be initiated both from the service menu, and with the help of JS API. The peculiarity of this update process is that at a time when the software is running with one logical Bank (active) located on the NAND-e, are upgrading the other (inactive) logical bank. After a successful update restarts consoles with updated bank, while, if the update for some reason was not successful, the active bank remains fully operational. Thus, there are two logical banks provides interactivity and manageability software update process.

Standard MAG200 prefix has a NAND-partition, logical banks (bank 1 contains sections "Kernel", "RootFs", Bank 2 "Kernel2", "RootFs2"). To create and further the successful use of the two banks, it is necessary that on the console was installed bootloader or the second image of bootloader version of not less than "034". To upgrade, you must use the kernel and bootstrap, which come with a version of at least 0.2.01. The first time you need to update the image using imageupdate_2us image in any way possible. After a successful upgrade using this image will be correctly installed bootloader variables responsible for the NAND-partition and logical banks, as well as updated 1 logical bank.

It should be noted that the bootstrap will always be to update only the first logical bank.

For imageupdate_2us image assembly used by the utility operator 2011-28-01 (<http://soft.infomir.com.ua/mag200/upgrade>).

remarks

Before installing the bootloader parameters, it is useful to check first their value. If the values of the variables is the same, it makes no sense to install them again.

document History

date	Version	changes
01.02.2011 Rev.5		Added section "Interactive software update."
25.11.2010 Rev.4		added section " Update software using "local Bootstrap-a", "
17.11.2010 Rev.3		Changed to "Using DHCP to update"
04.10.2010 Rev.2		Added "Using DHCP to update"
<u>08.04.2010</u> Rev.1		document creation