



AMINO 540 RELEASE NOTES

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Release Summary

Current Release: 09.2011

General Release: Yes

The following package consists of release notes and basic operational procedures for the Enterprise AmiNet540 Receiver (Version 09.2011).

ENTERPRISE AMINET540 RECEIVER (Version 09.2011)
September, 2011

Packages Included:

Enterprise AmiNet540 Receiver (v09.2011)

What's New

- Full alpha channel blending. The DMB Media Player will maintain the transparency of images included on the screen.
- Layering image over image with transparency. The DMB Media Player supports placing one image over another while maintaining the transparent attributes of both images.
- Playlist image transitions (blinds, scroll from top, etc.)
- Scrolling and static text, with transparent background, over images.
- On-the-fly resizing to fit screen zone (with locked or flexible aspect ratio). The DMB Media Player will automatically re-size any image to fit the dimensions assigned to the image asset.
- Dynamic spreadsheets (with transparent backgrounds) over images
- On-demand PVR capability where a user, either locally using a remote control or remotely using an SNMP command, can initiate recording of a live video feed storing it on the A540's hard drive for subsequent playback.
- Playlist support in VOD menus letting a user associate a row, in a VOD menu, with either a single video or a list of videos for playback.
- Enhanced trick play support letting a user more easily navigate through single videos and video lists using the navigation buttons on the remote control.

- Enhanced USB flash drive content loading support where a user can now install A540 videos and metadata from a wide variety of source file systems (e.g., FAT32, NTFS, ext3, etc.)

- Local asset control where an operator can browse to an A540 and optionally alter screen assets (e.g., text crawlers, branding images) which are authorized for local modification (*see **Browser Based Screen Update** for more information*).

- Includes a network testing tool (iperf) letting an administrator measure and rate the throughput and health of the network connection between the A540 and a designated server.

Installation & Configuration : Installation

The installable images are:

mc2_540_yyyy_mm_dd_base_multicast.mcfs
mc2_540_yyyy_mm_dd_base_unicast.mcfs
mc2_540_yyyy_mm_dd_upgrade_unicast.mcfs
mc2_540_yyyy_mm_dd_upgrade_multicast.mcfs

The base image is intended to be installed on a new or re-flashed A540 (typically in the factory). The upgrade image is intended to be installed on an A540 which already has an Enterprise AmiNet540 Receiver installed. The only difference between these two images is that the base image sets the initial configuration of the box to well-known values, useful for an installer, and the upgrade image leaves the configuration of the box unchanged but only updates the Enterprise AmiNet540 Receiver executable software.

Installation & Configuration : Configuration

Basic Amino configuration values (e.g. the IP address) can be set using telnet to log into the Amino STB as follows:

- 1) telnet <IP of Amino STB>
- 2) login: root
- 3) password: root2root
- 4) Follow procedures as described in the Amino STB management Configuration Guide (Version 0.13.x Revision 0)

Secondary IP Address:

A second, well-known, IP address for the A540 network interface is permanently configured and can be used to telnet to the A540 to inspect/repair an STB with mis-configured primary IP address settings. The secondary IP settings are:

DHCP : N
Static IP : 192.168.200.1
Subnet Mask : 255.255.255.252

Browser Based Configuration

The following fields are settable via the Amino Configuration page on the A540. This page can be accessed via the following URL:

http://<IP of AmiNet540>

and log in as:

Username: **cfg**

Password: **cfg2cfg**

General Settings

- ID - An optional field which a user can set to identify the STB (e.g., A540_1). Can be up to 100 characters long.
- Description - An optional field which a user can set to include additional information about the STB (e.g., Aminet540 in the Lobby). Can be up to 200 characters long. *Note: when this field's value is the zip code of where the box is located, a user can include local weather updates on their digital signage screens.*

Network Settings

- Use DHCP - Use Dynamic IP Assignment.
- IP Address - The Static IP if DHCP is N.
- NetMask - The network mask (e.g., 255.255.255.0) if DHCP is N.
- Gateway - The IP of the gateway out of the local subnet (e.g., 192.168.1.1) if DHCP is N.
- Time Server - The IP or Domain Name of an optional time server.
- Time Zone - STB local time zone.

EPD Settings

- EPD Site ID - The 8 character siteid used to identify this receiver for multicast file reception.
- EPD Public IP Address - The public multicast IPMC:Port (e.g., 224.1.3.1:6531) to tune for multicast file reception. Consult with the PDSender administrator for this setting.
- Delete on unregister - One will automatically delete a locally cached file when the Multicast Sender unregisters it, zero will leave it on the local STB. This is useful for automatic hard drive clean-up.
- File Checkpoint Freq (sec) - How often to "checkpoint" files-in-progress during reception. Such checkpointing is useful to recover any partially received files when an STB reboot occurs. This feature is especially useful on multicast networks where file retransmissions should be avoided. Zero disables checkpointing.

SNMP Settings

This section only applies to STBs configured to work with the DMB SNMP Proxy Server, a separate Cilion's product. This configuration supports SNMP management of STBs deployed over the Internet or in a network where the STBs are not directly accessible by an SNMP Manager. Refer to the network administrator to determine if these values need to be set.

- SNMP Engine ID - A user-defined field which uniquely identifies the STB in the network. By default this is the serialno of the STB.
- SNMP Proxy IP - The IP address of the server where the DMB SNMP Proxy Server is staged.
- SNMP Proxy Port - The Port address of the DMB SNMP Proxy Server.
- SNMP Heartbeat Freq (sec) - How often the STB should send heartbeat messages to the DMB SNMP Proxy Server. Refer to the network administrator to set this value. It is typically determined by the NAT timeout settings in the router(s) between the STB and the DMB SNMP Proxy Server.
- SNMP Local Port - The local UDP Port used by the SNMP agent on the STB. Set this value only to override the default of 161.

Telnet Settings

This section only applies to STBs configured to work with Cilion's DMB Telnet Proxy Server, a separate product. This configuration supports telnet access to STBs deployed over the Internet or in a network where the STBs are not directly "telnet" accessible by a support engineer. Refer to the network administrator to determine if these values need to be set.

- Telnet Agent ID - A user-defined field which uniquely identifies the STB in the network. By default this is the serialno of the STB.
- Telnet Proxy IP - The IP address of the server where the DMB Telnet Proxy Server is staged.
- Telnet Proxy Port - The Port address of the DMB Telnet Proxy Server.
- Telnet Heartbeat Freq (sec) - How often the STB should send heartbeat messages to the DMB Telnet Proxy Server. Refer to the network administrator to set this value. It is typically determined by the NAT timeout settings in the router(s) between the STB and the DMB Telnet Proxy Server.

FTP Settings

This section only applies to STBs configured to work with an FTP Server (e.g., FileZilla) to periodically "pull" content onto the local STB. Refer to the network administrator to determine if these values need to be set. Note that this method can be used in conjunction with other file reception methods (e.g., multicast reception and FTP "push" [where an external machine FTPs into the local STB and "puts" files in

the local /PVR directory – see the DMB Screen Builder documentation for more information]).

Note: *this feature also reconciles files on the local hard drive with files configured in the FTP Server. Any files on the local hard drive which are not on the FTP Server will be removed from the STB's local hard drive. And any files on the FTP Server which are not on the local hard drive will be retrieved.*

- Server - Name or IP address of the FTP Server (e.g., *ftp.digitalmediabridge.com*).
- Port - Most FTP connections default to port 21.
- User - Login username.
- Password - Login password.
- Home Directory - The location on the FTP Server where the content resides. A540's can be assigned to content "groups" by creating a separate home directory for each group.
- Refresh Interval (sec) - How often the STB should log into the FTP Server to look for content and update its local hard drive.
- Transfer Rate (kpbs) - The rate, in Kbits/sec, content should be "pulled" from the FTP Server to the local hard drive on the STB.
- Time-of-Day Rate Profile - Optional profile to control the bandwidth used to "pull" files from the FTP Server. This field overrides the "Transfer Rate" allowing for more finer profiling controls (e.g., fast at night, slow during the day) than a constant rate. Consult your network administrator for more information on offering profiles for local selection. See *FTP Time-of-Day Rate Profile* for more information.
- Enable Mirror - If enabled this causes the local hard drive on the A540 to be a "mirror" of the "Home Directory" on the FTP Server. When a file is removed from the "Home Directory" on the FTP Server it will also be removed from the local hard drive of the A540. This is a convenient way to control the directory of files stored on the A540. If disabled, then files will only be added from the "Home Directory", but not deleted from the A540 in this manner.
- Security - One of the following:
 - a) NONE - FTP in the clear
 - b) OPTIONAL - perform FTPS if the FTP Server, and this user account, supports it
 - c) REQUIRED - FTPS mandatory. If the FTP Server does not support it then the FTP session will fail

Video Settings

- Video Resolution - Corresponds to the local TV capabilities.
- Graphics Resolution - Corresponds to the local TV capabilities (e.g., HD-720 images will render on a 1280x720 TV).
- Video Output - Corresponds to the physical connections from the STB to the TV.

- **Enable RF** - Enable or Disable Standard Definition RF (coax) video output.
- **RF Channel** - The RF channel setting corresponds to the local TV setting.

Amino Settings

- **Remote Control Pairing Code** - The three digit prefix pairing the local STB with an IR remote control. This code is set to 000 by default but can be changed to any three digit number in the range 001 to 015.
- **Boot Image IPMC & Port** - IPMC and Port Settings specific to the Amino Multicast Loader and applicable if not set a part of DHCP values.
- **Upgrade Image IPMC & Port** - IPMC and Port Settings specific to the Amino Multicast Loader and applicable if not set a part of DHCP values.
- **FiSys IPMC & Port** - IPMC and Port Settings specific to the Amino Multicast Loader and applicable if not set a part of DHCP values.
- **STBRemoteConf IPMC & Port** - IPMC and Port Settings specific to the Amino Multicast Loader and applicable if not set as part of DHCP values.

Browser Based Screen Update

New in this release, a user can update image and text fields on a digital signage screen via a web browser. Use the following address:

http://<IP of AmiNet540>

and log in as:

Username: **admin**

Password: **admin01**

Once logged in, any image or text field assets that have been designated as "local edit" via the DMB Screen Builder will be made available for the user to update. Please reference the notes on the DMB Sreen Builder to determine how to create assets with "local edit" capabilities.

Operator Considerations

The default configuration for this release of the AmiNet540 is as follows:

Default base multicast configuration:

DHCP: Y

Site ID: <last 8 digits of the box's serialno>

(should be changed after initial install)

Public IP Address: 224.5.5.4 (must match the PDSender)

Public Port: 6531 (must match the PDSender)

GFX Resolution: HD720

Video Output Resolution: HD720P59

Default base unicast configuration:

DHCP: Y

Site ID: <last 8 digits of the box's serialno>

Public IP Address: UNICAST

Public Port: 6531

Sender Address: digitalmediabridge.com:2311

GFX Resolution: HD720

Video Output Resolution: HD720P59

Use the following URL to review and set the configuration values on the AmiNet540:

http://<IP of AmiNet540>

The Save and the Reboot passwords are both: **cfg2cfg**

Video streams and files can be sent to the AmiNet540 STB using the PDSender. Reference the PDSender documentation for instructions on how to register content.

The Digital Media Bridge Screen Builder is a Windows application useful for building screens playable on the AmiNet540. Reference the Screen Builder User's Guide for more detailed information.

Assets and configuration data built using the DMB Screen Builder application can be loaded to an AmiNet540 in any one of the following ways:

- 1) Publishing the file set to a multicast file distribution application, like PDSender, for "push" distribution to one ore more A540's
- 2) Publishing the file set to a unicast file distribution FTP Server for "pull" distribution to one or more A540s. See the Setup FTP Server section elsewhere in this document
- 3) Publishing directly to an A540 using the built-in FTP client in the Screen Builder application
- 4) Placing the file set on a Flash Drive and inserting the drive into the USB port on the A540. The operator should view the activity LED on the Flash Drive to determine when it is safe to remove.

Graphics Resolution

The A540 supports both standard (480p) and high (720p) definition graphics resolution. HD graphics offers 1280 pixels across and 720 pixels down the screen. This allows for higher quality image display. The graphics resolution will determine how all of the assets are built and positioned on the screen. For example, with a standard graphics resolution a background image for the screen will be 720x480.

Also, a quarter screen size video will be 360x240. However, with a HD graphics resolution a background image will be 1280x720 and a quarter screen size video will be 640x360. The Configuration Screen seen at bootup will show the current graphics resolution of the A540. If it is high definition resolution the Graphics Resolution setting will read: **HD720**. If it is standard definition resolution it will show nothing (or NTSC) for the Graphics Resolution setting.

The default graphics resolution for this version is high definition (720p)

Use the following URL to review and set the graphics resolution on the AmiNet540:

<http://<IP of AmiNet540>>

The Save and the Reboot passwords are both: **cfg2cfg**

Video Resolution

The A540 supports the following video resolutions:

- 480p Standard Definition
- 720p High Definition
- 1080i High Definition

Use the following URL to review and set the video resolution on the AmiNet540:

<http://<IP of AmiNet540>>

The Save and the Reboot passwords are both: **cfg2cfg**

Management and Control

The SNMP MIB for this product, provided separately, is named: AMINO-540-MIB. The SNMP agent in the AmiNet540 supports these standard MIBs:

- RFC1213
- Host Resources

Refer to the AMINO-540-MIB for the list of SNMP variables unique to the A540 application.

The SNMP Write Community is “private” and the Read Community is “public”. The AmiNet540 MIB is needed by an SNMP Manager application to monitor and control an A540 platform. A recommended freeware SNMP MIB Browser is available at <http://www.ireasoning.com/mib-browser.shtml>.

The optional SNMP Proxy Agent in the A540 is enabled and configured using the Web Browser-based interface described elsewhere in this document. By default, this

feature is disabled and the AmiNet540 supports direct SNMP connectivity to the SNMP Manager. That is, each AmiNet540 has a unique IP address which is configured in the SNMP Manager. The SNMP Proxy Agent supports NAT'd connections where the AmiNet540 may be on a local LAN with, say, Internet connectivity to the SNMP Manager. In this case the SNMP connection between each AmiNet540 must be routed through an SNMP Proxy Server in the Network Management Center. To enable this connection the operator should set the SNMP Proxy IP, Proxy Port and Heartbeat Frequency to values specified by the network administrator.

Like the SNMP Proxy Agent the Telnet Proxy Agent offers network management connectivity on a NAT'd network. To enable this connectivity the user should configure /PVR/pdreceiver/tunnel.cnf, using the “vi” editor, and set the PROXY_IP, PROXY_PORT and PUNCH_FREQUENCY_SEC values as directed by the network administrator.

Setup FTP Server

The A540 supports automatic FTP file retrieval (i.e., pulling content from an external FTP Server). This feature is optional and is configured through the Browser Based Configuration section discussed elsewhere in this document. If enabled, the A540 will periodically attempt to connect and login to the configured FTP Server.

The FTP Server can be any one of a variety of 3rd party applications (e.g., Filezilla). The installation and configuration procedures for the FTP Server are specific to the particular application selected for use and, as such, are beyond the scope of these release notes. The A540 can operate with an FTP Server which supports either of the following modes:

- Unencrypted file transfers with no security (i.e., in the clear). This method typically applies to private networks which are already secure so there is no need to add additional security for file transfers.
- FTPS (also known as FTP Secure and FTP-SSL). This method, which is commonly used for Internet-based file transfers, involves installation of a public-key authentication certificate at the FTP Server. If configured, the A540 will operate as an FTPS client to accomplish file transfers with the FTPS Server.

Note that configuring the FTPS Server involves network configuration, especially for environments where the FTPS Server is behind NAT'd devices, router and firewall issues and private keys and certificates. It is recommended that configuring the FTPS Server (e.g., Filezilla Server) be performed by a network administrator familiar with these technologies.

There must be an FTP account which corresponds with the account name and password as specified in the FTP Settings through the A540(s) Web Browser configuration. There must be at least one <home> directory underneath the root directory for this account. Each <home> directory corresponds to a content “group” used to store any and all files relevant to the group. For example, all files destined to the A540s deployed in a particular geographic location. The home directory name also corresponds to the FTP Settings in the A540(s) Browser Based Configuration.

The following describes the directory subtree used to support a <home> directory named “Content”:

- <root> - The current directory after a successful login.
- <root>/Content – The repository of all files to be retrieved by all A540s configured to use this FTP Server for content acquisition. Note that this is often the same directory where the Screen Builder (a separate DMB application) publishes all content and metadata destined for one or more A540s.
- <root>/Content/<specificA540> - An optional subdirectory with files for a particular A540. By default the A540 is identified by its unique serialno (found on the outside of the box). For example, an A540 with a serialno of B50410G000142 would correspond to directory: *<home>/Content/B50410G000142*. Here the user can place content unique the specific A540. In addition, the A540 will use this directory, if present, to place its playback logs for optional user review.
- <root>/Content/siteid – A special purpose location to support sites without serialno identifiers (e.g., Windows-based players)
- <root>/Content/upgrade – Software upgrade images applicable to all A540s tuned to this FTP Server, login account and <home>. The A540 will automatically retrieve any upgrade images needed and reboot to apply.
- <root>/Content/log – Log files from individual A540s

An example directory subtree with individual support for an A540 with serialno B50410G000142 is as follows:

ROOT directory after login

```

|
|--- Content (home directory as set in the Web
           Form configuration on the A540)
|
|--- B50410G000142 (individual content)
|
|           |
|           |---upgrade (individual upgrade files)
|

```

```

|--- siteid (individual content for non-
           amino players)
|
|--- upgrade (common upgrade files)
|
|--- log (per-site logs are uploaded here)

```

FTP Time-of-Day Rate Profile

The FTP Time-of-Day Rate Profile is used to control the bandwidth used to “pull” files from the FTP Server. This field overrides the “Transfer Rate” allowing for more finer profiling controls (e.g., fast at night, slow during the day) than a constant rate. This setting can be found under *FTP Settings* on the Configuration screen.

In order to use the Time-of-Day Rate profile, an administrator must build the file and make it available for selection on the Amino box.

Time-of-Day Rate Profile Format

Each time unit must have a START and STOP value. The units of time are: minute, hour, day of the month, day of week, month.

The format of the text file is as follows:

```

{first line - comment}
#start_min, start_hour, start_mday, {...}
start_wday, start_month, stop_min, {...}
stop_hour, stop_mday, stop_wday, {...}
stop_month, bandwidth, order, active

[second line - values]
[start minute], [start hour], [start month day], {...}
[start week day], [start month], [stop minute], {...}
[stop hour], [stop month day], [stop week day], {...}
[stop month], [bandwidth], [order], [active]

```

For example, to retrieve files everyday from 8am to 10am at 100kbits/sec, use the follow line:

```
0, 8, -1, -1, -1, -1, 10, -1, -1, -1, 100, 1, 1
```

To be made available for selection on the A540, the name of the text file must be prepended with the following text: *ftpctod*. Using the example above, the name of the file may be: *ftpctod.MorningRate.txt*. Then, after the file is delivered to the /PVR directory on the A540, an administrator will have the option of selecting this file in the *Time-of-Day Rate Profile* select box on the Configuration screen.