Screenshot Sender Final 1. Update Readme

Created by Gugi

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About this mutator:

Ok, first of all hello ☺. Perhaps you can already guess what the purpose of this mutator is by looking at its name: it basically allows administrators to take a screenshot on the client and transfer it to the server so that he can search on it for hooks/hacks/cheats or whatever. So this does the same as the screenshot-feature in UTDC in the old UT (but unfortunately not as efficient).

This method is especially useful as the screenshot will also display native-radars and thus it is possible to detect more cheaters as it would be possible with UScript-coded AntiCheats (they can't really detect native-cheats, i.e. non-UScript hacks). However, not all cheats draw things onto the HUD, and it isn't possible to detect those, unfortunately, as nothing suspicious appears on the screenshot.

So I created this mutator as an extension to UScript-AntiCheats like SafeGame, AntiTCC or my Clan Manager 1g (look at the bottom of the page for more info about the CM).

You can take screenshots manually (either through the WebAdmin, a command or by using the ingame menu) and automatically.

WARNING: This mutator might use huge amounts of performance. It might crash the server or the clients, if used wrongly. I am not responsible for any damage the mutator causes!

Because I am restricted to pure UScript on the client-side, the performance is relatively low and I weren't able to include more sophisticated compression-algorithms (like JPEG). I did my best, however, to allow a more or less acceptable performance.

Thus the mutator is not designed to take high-quality screenshots but to help deciding if a player cheated or not by searching for suspicious HUD-content (which won't be readable in most cases, though, but you can normally tell if it is an hack or not). So, if you suspect a player to cheat, simply take some screenshots of him.

If you want to use this mutator with TO:C, you need to use the special TO:C-version. See "About the TO:C version".

Installation:

NOTE: This mutator is only compatible with dedicated UT2004 servers!

Copy the three files – ScreenSenderF1U.u, ScreenSenderF1U.ucl and ScreenSenderF1U.int – into the System-directory of your UT2004 server. Open the "DefaultScreenSenderConfig.ini" file, select everything, copy it, and paste it at the end of your server-configuration file.

To load the mutator, just add it as every other mutator (directly in the ini or in the WebAdmin-interface). The "path" of the mutator is "ScreenSenderF1U.MutScreenSender" or "ClanSoundsv1h.ClanSoundsv1h6" for the TO:C version of this mutator.

Normally it is also needed to add the package to the server-packages, if you want to record demos. If you don't want to do this, you don't need to add it.

You can also add the mutator by using a ServerActor:

ServerActor= ScreenSenderF1U. ScreenSenderServerActor

This will, however, simply add the mutator itself and won't prevent your server from not being listed as standard-server anymore.

If you are running the mutator in TO:C, you need of course to adapt the "ScreenSenderF1U" to the package name of the TO:C version.

Commands and Usage of the Mutator:

Taken screenshots are not saved as an image immediately (because this is not possible from within UScript). The bytes of the image are saved in a HTML-file in the UserLogs-directory and you need to use the external program "ScreenReaderConverter" to get the final image.

You can take screenshots in two ways: Firstly you can use the automatic screenshot feature which will take a screenshot after a certain amount of time passed or if the player died a certain number of times (of course it is configurable). Look in the description of the Auto-Configuration for more information.
The second way is to use the commands of the mutator either from ingame or from the WebAdmin-Page or you can use the ingame menu to comfortably choose the target.

You open the ingame menu by executing the command "mutate ScreenSender".

Performing screenshot sender commands from the WebAdmin-Page:

Well, you know the "Server Console" page? Good. Then you will also know the field at the bottom where you can chat with the players on the server.
To execute a command of the screenshot sender just "say" "ScreenSenderCmd" and then the command you wish (without the "mutate").
E.g. this should stand in the text-field to execute the GetPlayerIDs-command:
say ScreenSenderCmd GetPlayerIDs

The players won't see the executed commands, of course.

Performing commands ingame without logging in as admin:

You can perform all screenshot sender commands without logging in if you added the GUID of your UT2004-copy to the "AdminGUIDs"-list.
You either do this by using the command "mutate SetSelfAsAdmin" (while logged in as administrator), by adding the GUID manually to the main-configuration or by using the ingame settings-menu.

Of course you don't need to do this, as you can simply log in as administrator directly, but then cheaters are warned and could leave before you even have the chance of taking a screenshot.

Commands:

You **have to** write "**mutate ScreenSender**" before each command (without the ").
E.g.: mutate ScreenSender Help
All commands are non-case-sensitive, so ScreenSender is the same as sCrEeEnsEndER.

Commands marked with an * change settings of the main-configuration. These are not saved, but all screenshots, which are taken afterwards through a command, will use these settings. To save the change, use the "SaveMainConfig"-Command.
For more information about the various settings see the description of the settings.

If you wish to take a screenshot with other settings than those of the current main-configuration, you can perform these commands or you can use, which is recommended, the ingame menu.

If you need to specify a name, you can also enter a part of a name.
E.g. if a player has the name "Gugi"; you can also simply use "ug" or "Gu". But be carefully that you get the correct player (e.g. two players: "Gugi" and "Gular": what now? Probably the one who entered the server first will be taken).

mutate ScreenSender	If you executed this command, you open up the ingame menu. You don't need to write "mutate ScreenSender" before the "mutate ScreenSender", this is only true for the other commands.
Help	Prints a list of all available commands and all current settings of the main configuration to the console.
SetSelfAsAdmin	Saves your GUID in the AdminGUIDs-list. This allows you to perform all commands without logging in as admin. Note: The "SaveMainConfig"-command is executed afterwards.
ExcludeFromAuto Name	This adds the GUID of the player with the name "Name" (or a part of it) to the "ExcludedGUIDs"-list in the auto configuration. Note: The "SaveMainConfig"-command is executed afterwards.
ExcludeFromManual Name	This adds the GUID of the player with the name "Name" (or a part of it) to the "ExcludedGUIDs"-list in the main configuration. Note: The "SaveMainConfig"-command is executed afterwards.
TakeScreen Name	This command takes a screenshot on the player with the name "Name" whereas the current main-configuration is used.
TakeScreenID ID	This command does the same as the normal "TakeScreen"-command, but instead it uses the unique ID of the player. You can view a list of IDs by using the "GetPlayerIDs"-command. This is especially useful if you want to take a screenshot on a player which uses a name with special characters in it.
TakeScreenAll	Takes a screenshot of every player currently on the server. Be careful with that one: having sent several KBs for each player to the server could result in a crashing server or

	other not-so-good results. No screenshot is taken on players whose GUID is in "ExcludedGUIDs" of the main configuration.
GetPlayerIDs	Prints a list of the unique ID of each player to the console. Used before "TakeScreenID".
*SetResolution WidthxHeight	This commands changes the current resolution to which images are downsampled. Look at the parameters: Width, then an "x", then the Height. E.g: SetResolution 320x200
*SetTemplate Name	Changes the template which is used to define the name of the screenshots.
*SetLossyCompression Value	Changes the Lossy-Compression-Mode which compresses the image. Valid values: • NoCompression: Full-Color-Mode • ChromaSubsampling: Chroma-Subsampling is applied • ToGreyscale8: Image will be converted to 8-Bit greyscale • ToGreyscale4: Image will be converted to 4-Bit greyscale • ToGreyscale2: Image will be converted to 2-Bit greyscale
*SetFloydSteinberg Value	Enables or disables Floyd-Steinberg-Dithering for 4-Bit/2-Bit greyscale-images. It is used to raise the image-quality. Valid values: • False: Disables Floyd-Steinberg-Dithering • True: Enables Floyd-Steinberg-Dithering
*SetRLECompression Value	Changes the RLE-Compression mode. Valid values: • Disabled: Disables RLE-Compression • CheckSize: RLE-Compression is only applied if it really reduces the file-size • Always: RLE-Compression is always applied, even if it increases the file-size
*SetReplicationMode Value	Changes the way how all the data is sent to the server. Valid values: • ClassRepl: Bytes are sent directly. Recommended mode. • TCPLink: Bytes are sent over a TCP-Link. Be carefully with this one: data-loss can easily occur.
*SetSaveMode Value	Changes how the sent image is saved. Valid values: • Immediately: If the server receives some bytes they are immediately written to the HTML-file. Not recommended. • Buffered: All bytes are first buffered and then written. Recommend mode.
*SetWritePauseInterval Value	Changes after how many written bytes the mutator waits awhile before continuing with the write-process. Consequently this is only valid if "SaveMode" is set to "Buffered". If you set this too high, the server could crash. "Value" is an integer number (e.g. 2 or 78353).
*SetMaxBytesPerSecond Value	This command changes the max. number of bytes which are transferred to the server each second. "Value" is an integer number (e.g. 10000).
*SetGeforceFixMode Value	Changes the Geforce-Fix-Mode which switches players with a Geforce-graphics card into windowed mode to

(*SetGeforceFixModeValue)	prevent black screenshots (BSS). Valid values: • Disabled: Completely disabled. BSS could occur • AveragePixels: If the average pixel value is below the “AveragePixelThreshold”, then the client is switched to windowed mode. Not tested. • FileList: The mutator checks the client’s “C:\Windows\System32”-directory for certain files (which can be specified in the “GeforceWindowedModeOnFiles”-list). • Both: The client is switched to windowed mode if the average pixels are too low AND if Geforce files were found.
*SetAveragePixelThreshold Value	Changes the “AveragePixelThreshold”. See “SetGeforceFixMode”. “Value” is an integer number.
*SetWaitTimeAfterSwitch Value	This command specifies how long the mutator waits after it switched the client into windowed mode before taking the screenshot. Setting this too low will cause images to contain errors. “Value” is a floating-point number (e.g. 1.5 or 1.02).
SaveMainConfig	Saves the main-configuration. Thus, if you changed any settings with any commands and you execute this one, all changes will be saved.

The menu for taking screenshots ingame:

You can open this menu by executing the command “mutate ScreenSender” and clicking on “Take Screenshot”.

General things about this dialog:

- If you open it up the settings of the main-configuration are loaded.
- You cannot save any settings in this dialog, so the modifications done in this dialog are discarded as soon as you close it.
- To refresh everything, simply reopen the menu.
- Don’t set the settings too high, as warned in the introduction.
- The current process of the currently taken screenshot(s) is printed to the chat.

“*Players*”: Choose the player of whom you want to take the screenshot. If you select a name which doesn’t belong to a player (e.g. “WebAdmin” or a fake player from Anticheats) you will receive an error-message while trying to take a screenshot.

The controls in the “darker” blue box: These are all settings. I won’t describe them here as you can easily scroll down in this document and have a look at the description of the settings-menu.

“*Take screenshot*”: Press this button and a screenshot is taken of the player you selected. The specified settings are used.

"*Take screenshot on all*": If you press this button a screenshot is taken of every player currently on the server (and which is not listed in the Excluded-List of the main-configuration) with the chosen settings.

"*Load Main-Settings*": This will load the current settings of the main-configuration from the server. This is also done every time you open up this menu.

"*Load Auto-Settings*": This loads the current settings of the auto-configuration.

"*Close*": Mh, dunno, I forgot what this button did. xD

Configuration:

Ok, all settings are saved to your server-configuration-file.
The configuration of the Screenshot-Sender is split into two parts: the main-configuration, which settings will be used if a screenshot is taken via a command (or by default also in the ingame "Take-Screenshot" menu).
Furthermore this configuration contains some more settings to control some "global" features (like the self-check).

The auto-configuration is used for automatic screenshots and also contains the settings for enabling the automatic mode.

The settings are separated into these two parts so that you can choose a lower image quality for automatic screenshots (i.e. these are taken faster) and a higher quality for manual screenshots, which are normally taken on suspicious players.

Just to let you know up front: if you set certain settings to the wrong value (i.e. too high) you could risk server and client crashes, data-loss, etc, etc.

If you have problems to understand what the single settings do, try the ingame menu. It might be easier to use than an ini-file.

Configuration by using the ini-file:

Here I describe how to configure the mutator by using the ini-file of your server.

Pure main settings:

With this phrase I mean settings which only occur in the main-configuration section.

PerformSelfCheck	This setting enables a self-check. This means that the mutator will ensure that all clients use the original and correct version of the screenshot sender. I wouldn't recommend to disable it, because it has no impact on the performance and prevents byte hacked packages. The following values are valid: • Disabled: No check is performed. • Log: If something suspicious is found, it is logged. • Kick: The insecure player is kicked and the event is logged. • TempBan: The player gets temporary banned (for one map) and the event is logged. • Ban: The player is banned for ever and the event is logged. I wouldn't recommend this one.
bKickForExceptions	If you set this to true (which is recommended), players will be kicked for unexpected exceptions like a failed spawning of an actor.
SecurityProblemReaction	This setting specifies what to do if a security problem occurs. For example this is used when the screenshot-file was found, but hasn't changed while the shot was taken. The following values are valid: • Disabled: Do nothing for this event. • Log: Problem is logged. • Kick: The insecure player is kicked and the event is logged. • TempBan: The player gets temporary banned (for one map) and the event is logged. • Ban: The player is banned for ever and the event is logged.
SecurityProblemNonWinReaction	This is used when a security problem occurs which is "normal" for non-Windows operating system and the client runs on such an OS. An example would be if no screenshot-file was found (which always isn't found on Linux or Mac systems). The following values are valid: • Disabled: Do nothing for this event. • Log: Problem is logged. • Kick: The insecure player is kicked and the event is logged. Recommend setting. • TempBan: The player gets temporary banned (for one map) and the event is logged. • Ban: The player is banned for ever and the event is logged.
MutServerInfoName	This setting specifies the name of the mutator which will be depicted in the server-info. Use this to hide the fact that this mutator is running or to alienate cheaters.
AdminGUIDs	Players, whose GUID is saved in this list, have the ability to perform screenshots ingame and change the settings of the screenshot sender by using the ingame menu.
MainExcludedGUIDs	A list of GUIDs. Players, whose GUID is in this list won't be affected by the command "mutate ScreenSender TakeScreenOnAll".
bNoBeginningLog	If true, the log on the beginning (after a server-travel) is reduced to a minimum.

Pure auto settings:
These settings only occur in the auto-configuration part.

A “range” is specified by “AutoScreenNumMin” and “AutoScreenNumMax”. A random value between these two values, lets call it x, will be created.
How x is used is defined by “bScreenshotOnDeath” and “bLoopAutoScreen”.

AutoScreenNumMin	• Set this to 0 to disable automatic screenshots. • Set this to a value above 0 to enable automatic screenshots. The value then describes the lower bound of the range. • Set this to the same value as “AutoScreenNumMax” if you wish to fix x to a certain value (i.e. to “AutoScreenNumMin”). • It is not allowed to set this to a higher value than “AutoScreenNumMax”.
AutoScreenNumMax	• You must set this to a higher value than “AutoScreenNumMin”. • Defines the upper bound of the range.
bScreenshotOnDeath	This option specifies how x is used. Valid values: • True: x specifies the number of times a player must die before an automatic screenshot is taken. • False: x specifies the number of seconds which have to pass before a screenshot is automatically taken.
bLoopAutoScreen	This setting defines if more than one screenshot is taken automatically. • True: Yes, after an automatic screenshot was taken, x is calculated again and the whole process begins again. • False: No, only 1 automatic screenshot is taken. After the first screenshot the whole process stops (but of course only for this one player).
AutoExcludedGUIDs	Players, whose GUID is in this list, won’t be affected by the automatic screenshot feature, i.e. no automatic screenshot is taken on them. This is ignored, if the AutoScreenTargets-list contains elements.
AutoScreenTargets	Here you can specify GUIDs of players of whom you want to take screenshots automatically. All other players are then not affected by the automatic screenshots. If there is at least 1 element, the AutoExcludedGUIDs-list and ALL other players are ignored! (Note: It doesn’t matter if the single elements are really valid, so make sure that this setting is completely missing in the ini if you don’t want to use it.)

Automatic and manual screenshots configuration:
The following settings occur in the main- as well as in the auto-configuration.
They exist twice because all of them describe the way how a screenshot is taken.
And, well, the automatic screenshots doen’t require different option-types than the manual screenshots.

	This is a string which specifies how the HTML-files are named. Besides alpha-numeric characters (e.g. b, 3, Z, $) you can use certain macros, which will be replaced automatically with the correct string and allows you to store extra information about the client. But be aware of too long names! They could break the file. Available Macros: • %C: This one should always be in the template. It serially numbers the files with the same name (thus this is only different from “1” if another file with the same name exists). E.g.: You got the template set to

ScreenshotTemplate	"Test%C". The file named "Test1.html" will be created on the first screenshot; the next file would be "Test2.html". • %Map: This gets replaced with the current map name. • %GUID: Will be replaced with the GUID of the player the screenshot is taken on. • %Name: This is replaced with the name of the player on which the screenshot is taken. "Illegal" characters will be missing (like /). • %PIP: Replaced with the player-IP. • %IP: Replaced with the server-IP. • %P: Replaced with the server-port. • %S: Replaced with the current seconds (on the server). • %Min: Will be replaced with the current minutes (on the server). • %H: Will be replaced with the current hour (on the server!). • %D: This is replaced with the current day (on the server?). • %Mon: Replaced with the current month (yes, the time on the server is used). • %Y: The current year (guess what, on the server). For example: "MS__%Name_%C" might give you that file name: "MS__Gugi_1".
ScreenshotWidth	The desired screenshot width. The original image-width on the client is downsampled to this width in order to reduce the file-size. The value is an integer and MUST be a multiple of 4. If you set this too high, data- or connection-loss can occur or the server/client could crash. Another possibility is that the screenshot will not be finished before the player leaves or the server changes the map.
ScreenshotHeight	The desired screenshot height. The original image-height is downsampled to this height to reduce the overall data-amount. The value is an integer. Again, do not set this too high!
LossyCompression	This setting specifies if and how the downsampled image is compressed. The image looses details in this process. Valid values: • NoCompression: The image is not changed at all. That means you get a full-colored, 24-Bit image. This is not recommended; use ChromaSubsampling instead if you need a full-colored image. • ChromaSubsampling: This setting will retain almost the full-color, but the overall data-amount is reduced by ½. You won't notice much difference between the "NoCompression"-mode and this one (even JPEG uses this mode). • ToGreyscale8: This will convert the image into an 8-Bit greyscale image (256 different grey-shades). This mode reduces the file size by a factor of 3.

	• ToGreyscale4: This mode converts the image into a 4-Bit greyscale image (16 different grey-shades) and thus reduces the file-size by 1/6. This is the recommend mode as it is the best compromise between quality and speed. • ToGreyscale2: This setting converts the image into a 2-Bit greyscale image (4 different grey-shades) and thus reduces the file-size by 1/12. Consequently this results in the best compression, but the image looses many of its details.
bFloydSteinbergOnGrey	This is a nice algorithm. It raises the image-quality of greyscale 4-Bit and 2-Bit images greatly (it is only valid for those two modes) without increasing the data-amount (of the non-RLE-compressed image). However, if you enable this, the RLE-Compression won't be that effective any more. Set this to "True" to enable it, to "False" to disable it.
RLECompression	This enables/disables the RLE-Compression. The RLE-Compression algorithm is a lossless-algorithm, thus the image-quality is not changed, but the data-amount might decrease. It is very recommend enabling this on greyscale-modes because it is very effective there. Valid values: • Disabled: No RLE-Compression is used. • CheckSize: The image is only compressed if the file-size gets really reduced. Else, no compression is applied. Recommend mode. • Always: RLE-Compression is always used, even if it increases file size.
MaxBytesPerSecond	Specifies how many bytes are max. sent each second. So if you set this to 10000, the client sends up to 10000 bytes, i.e. 10 kB, per second. Do not set this too high, or the client will crash or connection loss occurs or other bad things. If you set this too low, well, then the client has the chance to leave the server before all data is sent.
ReplicationMode	Specifies how the bytes are sent. Best is you leave this on the default value ("ClassRepl"). Valid Values: • ClassRepl: All bytes are sent directly. I highly recommend this mode as I've never seen data-loss in this mode, even if the mutator tries to send 1MB in 1 second (not that it should do this). • TCPLink: All bytes are sent through a TCP-Link. If the mutator tries to send too many bytes in 1 second, these bytes are simply discarded. Thus only recommend for testing.
WritePauseInterval	This setting is only valid if "SaveMode" is set to "Buffered". Once all bytes are sent, the mutator starts to write the HTML-file. During this process, the Screenshot Sender waits every x bytes awhile, and then continues. x is specified by "WritePauseInterval", i.e. this setting. If you set this too high, the server will crash with an "infinite loop"-error or the server will hang and lag

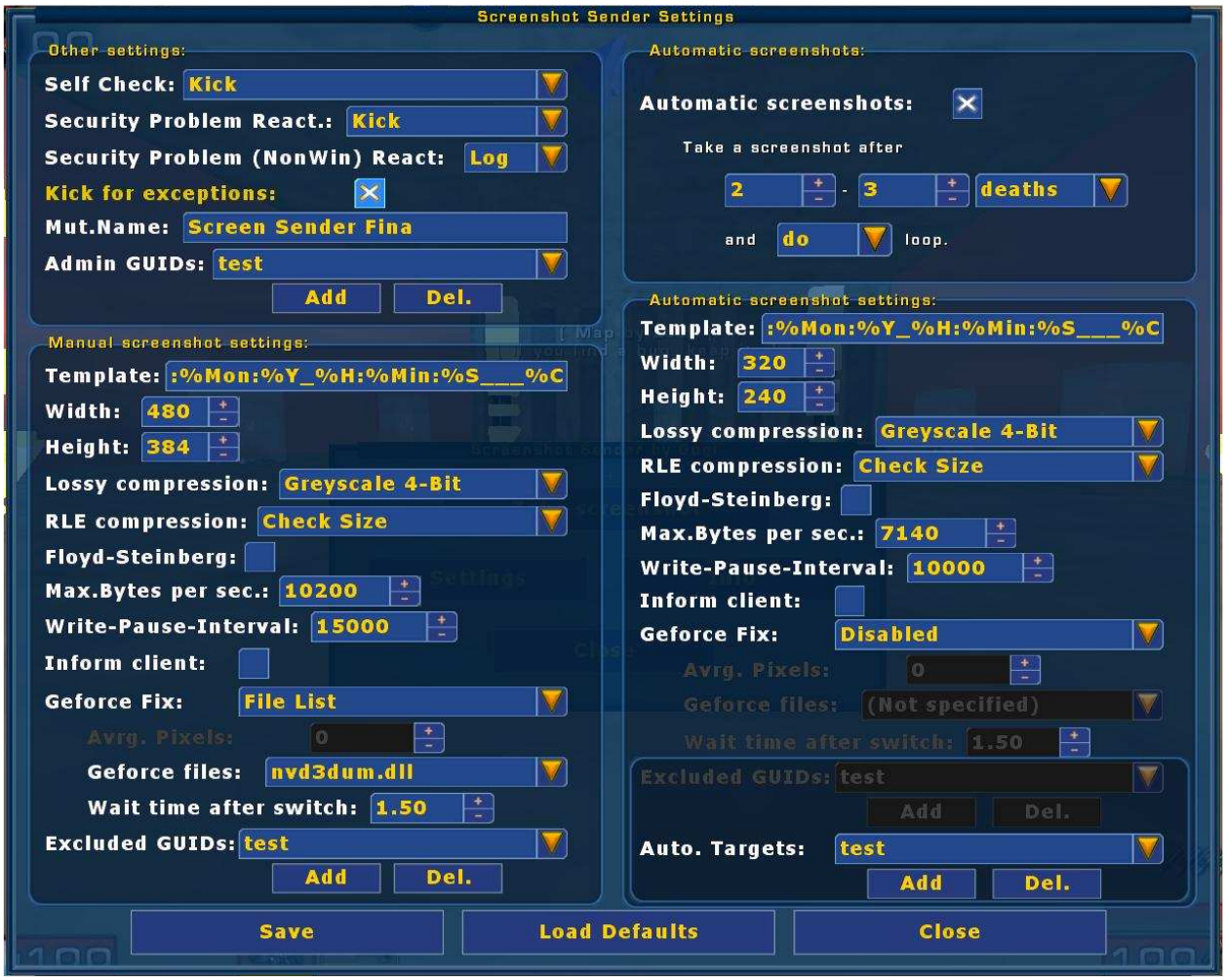
	greatly during the writing-process. If you set this too low, well, then you run into trouble that the map is changed before the image is written completely.
bInformClient	If this is set to “True”, then the client will see a message that a screenshot is taken. If this is set to “False”, well, then the client won’t see anything (and perhaps he will be surprised that he lags^^).
GeforceFixMode	Ok, you might know the problem with Geforce-cards. You can’t take screenshots in full-screen mode, only in windowed mode (else you get black screenshots). This setting specifies what must happen so that the mutator switches the client into windowed mode before a screenshot is taken (and of course back afterwards) so that the screenshot is taken correctly. Valid values: • Disabled: Check is completely disabled. • AveragePixels: A test-screenshot is taken and the average pixel color is calculated. If this average is below or equal to “AveragePixelThreshold”, then the client is switched into windowed mode and a new screenshot is taken. Couldn’t test this mode, as I don’t own an NVIDIA-card. • FileList: The mutator checks the client’s “C:\Windows\System32”-directory for certain files, which can be specified in the “GeforceWindowedModeOnFiles”-list. If such a file is found, then the client is switched into windowed mode. • Both: The client is switched into windowed mode if both – AveragePixels AND FileList – are true (untested mode). It is a bit hacky and might be annoying for your players, but unfortunately there is no other fix.
AveragePixelThreshold	What has to be the average pixel-value so that the client is switched into windowed mode? See “GeforceFixMode” → “AveragePixels”. The value is an integer (2 or 3, for example).
GeforceWindowedModeOnFiles	A list of maximal 5 elements of file-names. See “GeforceFixMode” → “FileList”. Every line is a string (e.g.: “nvd3dum.dll”).
WaitTimeAfterSwitchToWindow	Specifies how long the mutator waits after switching the target-player into windowed-mode before a screenshot is taken. If you set this too low, errors could occur in the screenshot (as the engine hadn’t got yet the chance to redraw the picture) or a “Loading…” is printed in the mid of the screenshot (also see the “Possible asked question”-section). This value is a floating-point value (1.5. for example).

Configuration by using the ingame menu:

To open up the ingame settings-menu execute the command “mutate ScreenSender” and click on “Settings”.

You might need to wait a short period of time before the menu is fully loaded because all settings are automatically transferred to you as you opened up the dialog.

Have a look at the menu:



The menu is divided into 2 main parts (which are split into 2 parts again):

- The left part corresponds to the main-configuration section in the ini-file.
- The right part modifies the auto-configuration section in the ini-file.

Sorry that the menu is so overloaded, but I didn’t want to create 2 new menus.

If you have read the description of the settings in the ini-file (you have, I am sure^^) you will notice, that many options have the same or at least a similar name as the settings in the configuration file.

Thus I could simply copy the list of the available settings from a few pages above and paste it here, but this would be a waste of space.^^

Each option also has a little hint which pops up if you keep the mouse over a setting for a moment.

Just one important thing: The settings “ReplicationMode”, “SaveMode” and “bNoBeginningLog” are missing in the menu, because you will probably never change them anyway.

Other Settings:
This section contains the “pure main settings”. There shouldn’t be much trouble to understand what those settings do.

You can change an entry in the “Admin GUIDs”-list by clicking on the number and type in another.
Adding a new element is also no problem: click on the “Add” button to activate a menu which eases the process of adding a player’s GUID to the list.
Deleting one: Click on the “Del.” button.
One other thing: If you delete your own GUID (and you are not currently logged in as admin), hit the save button and try to open up a menu again, you get an error message and a warning is logged in the server-log that an unauthorized player tried to get the settings.

Manual screenshot settings:
If you have read the ini-configuration section it should be obvious what each option does.

Automatic screenshots:
This section corresponds to the “pure auto settings”.
If you disable “Automatic Screenshots”, “AutoScreenNumMin” will be set to 0.

The first numeric field modifies “AutoScreenNumMin”, the second “AutoScreenNumMax”.
The third field sets “bScreenshotOnDeath” and the last option specifies “bLoopAutoScreen”.

Automatic screenshot settings:
Read the ini-configuration section in this document.
If there is at least 1 entry in the “Auto Targets”, the “Excluded GUIDs” are not accessible.

The “Save”, “Load Defaults” and “Close” buttons:
Well, “Save” saves all changes on the server. You might need to restart the server or switch to a new map before the changes are accepted.

“Load Defaults” sets all options to their default value, but it does NOT save anything. If you want to save the defaults, click on “Load Defaults” and then on “Save”.

“Close”: IF I remember right, this might close the menu. But I am not sure…

Configuration in the WebAdmin-Interface:

All settings have similar names as those in the ini-files, so there shouldn't be a problem.
Also 2 sections exist: one for the main-configuration, the other for the auto-configuration.

5 settings are missing: "AdminGUIDs", "AutoScreenTargets", "bNoBeginningLog" and the two "ExcludedGUIDs"-lists.

Advantages and disadvantages of the available settings:

Mh, choosing the correct settings is not that easy. Normally you should go fine with the default settings, especially if you don't understand what the single settings are about.

However, some settings might be needed to be tweaked because of lower CPU-Power or bandwidth of the server.

The first setting to tweak is the desired resolution. Depending on how much you want to see (i.e. reading text on the screenshot or just looking if something suspicious is found) you can raise or lower it. For simply looking for suspicious content a resolution around 200x160 is fine. However, you won't be able to read tiny fonts on it.

The next setting is the Lossy-Compression mode. I would never recommend "no compression", as almost the same quality can be achieved by using "chroma-subsampling". Thus "chroma-subsampling" is the one you should choose if you want to get high-quality color images (however, much data needs to be transferred).

Well, but I don't think you need colored images for the purpose for which this mutator was created. Greyscale 8-Bit will do the job as good as a full-colored image, but with 1/3 of the file size. And, furthermore, Greyscale images can be much better compressed with RLE-Compression, especially 4-Bit and 2-Bit images.

Floyd-Steinberg-Dithering is a compromise between an 8-Bit image with relatively high file-size and a 4-Bit / 2-Bit image with low file-size, which is achieved mainly because of the RLE-Compression.
The problem with the dithering is that it lowers the RLE-Compression efficiency very much, but it won't increase the file-size of the not-RLE-compressed image.
On higher resolutions you almost can't see any difference between 8-Bit and 4-Bit Floyd-Steinberg.

RLE-Compression should always be active ("CheckSize") for greyscale-images. On colored images the additional performance-decrease might not be worth compared to the bad compression efficiency.

Another thing is how the data is sent. Either fast, for servers with high bandwidth, or slow, for servers with not that much bandwidth ("MaxBytesPerSecond").

Depending on the CPU-performance of the server the HTML-file can be written fast, or it needs more time ("SaveMode" and "WritePauseInterval").

About the MaxBytesPerSeconds-Setting:

This setting is one of the most important ones because it defines how fast a screenshot is taken and how much the client lags.

In my tests on a DSL3000 connection I was able to bring together the following guidelines (bps = bytes per second):

- Up to 1000 bps the client does not lag and can play normally.
- At around 2500 bps the player might notice some lags. For example I noticed that I couldn't always jump.
- At around 7500 bps the client lags hugely.
- Above 10,000 bps the game is unplayable during the sending process and the player can't move or shoot.

One important thing: I was never kicked even on extremely high values (50,000 bps) and huge amount of data.
BUT: The higher you go with this value the more the client will lag during the sending process. This lag can expand (>=10,000 bps) to one huge lag in which the player can still chat with players, but can't walk around or shoot.
The situation normalizes after a while. How fast this happens depends on the data-amount. The more data to send (and thus the longer the client has this huge lag) the longer it takes for the client to catch up with the game again.

I don't think that this lag after the sending process occurs at around 7500 bps as the client still gets some updates (but not all, so it lags).

The best use of the available bandwidth can be achieved by using a value which is a multiple of 255 (for example 510, 1020, 2040, etc.).

Now just don't think: "Well, I simply set this setting to 1000 bps". This is of course possible, but the sending process takes a very long time.

I would recommend a setting which makes the client lag for a short period of time for automatic screenshots (e.g. 6000 bps). After the screenshot is taken the player can play normally again immediately and the screenshot is sent fast enough (assumed that the data-amount is not very huge, i.e. the image quality is accordingly low).

For manual screenshots I would recommend a value around 10,000 because the highest priority is now to take the screenshot (you take one manually if you suspect a player). If the image-quality isn't too high, the player will normalize relatively fast.

Converting the HTML-files into images:

All the screenshots you take are saved as HTML-files in the UserLogs-directory. This is so because UScript lacks a possibility to write binary files.
Converting the images is very easy.
You just need to drag & drop the files you want to convert onto the "ScreenSenderConverter"-Program (that means you drag & drop them onto the program's window, which always stays on top) and wait a moment till the program has finished the conversion-progress! All files were converted.
They are named the same as the original HTML-files, but with the .bmp-extension and they are saved in the same directory where the HTML-files currently are located.

If you mistrust me and you would prefer to compile the program yourself, go ahead and do so. I included the source of the converter.

There is a special converter for the TO:C-version.

About the TO:C version:

TO:C, i.e. Tactical Operations: Crossfire, is a total-conversion for UT2004.
Lakri, from the ACC-team (Anti-Cheat-Community), asked me to adjust the Screenshot Sender so that it works with this mod.

Furthermore, he asked me to create a special version which contains the following changes:

- If you don't specify "%GUID" in the template it is automatically added at the end of the file-name.
- There is a special converter. If you think you caught a cheater you need to send the HTML-files to the ACC.
-

You can't use the normal version in TO:C or the TO:C-version in UT2004.
They will crash the server if you try^^.

Of course you need to adapt the header of the settings in the ini-file because it has another package name.

Otherwise both versions are identical to each other. (Well, ok, the menus also look a bit different.)

FAQ:

- Q.: I can't find the HTML-files.
  A.: They are saved in the UserLogs-directory which is inside the UT2004-directory. However, they are not saved as bitmaps, but as HTML-files. Use the "ScreenReaderConvert"-program to convert them back to images.

- Q.: I'm not sure if I really caught a cheater. The screenshot contains some suspicious content, but I want to make sure that the guy is really cheating.
  A.: Post the screenshot on www.unrealadmin.org. There are the Pros in detecting cheats.

- Q.: Some screenshots are somewhat wired. This only happens on Geforce-users (I have the Geforce-Fix enabled).
  A.: Try to increase the "WaitTimeAfterSwitchToWindow"-setting to around 2 or so. It is possible that UT2004 hasn't got enough time to redraw the picture.

- Q.: After I took a screenshot on a player he seems to loose the connection a bit (he still receives messages and so, but he can't move for example).
  A.: This happens if too much data must be sent to the server in a too short time. Lower the quality of the screenshots, try to enable RLE-Compression and lower "MaxBytesPerSecond".

- Q.: I can't open the converted images…
  A.: Try the program IrfanView. It normally opens images even if they are damaged. If this doesn't work, sent me the HTML-file and as much info as you can (configuration, which graphics-card the player used, if possible) and I will look into it what the problem is.

- Q.: Omg, every time I take a screenshot everything lags so much!
  A.: Lower the quality (resolution, LossyCompression,…), "MaxBytesPerSecond" and "WritePauseInterval".

- Q.: Why does the mutator not simply convert the images to JPEG?
  A.: I will implement it, if you tell me how… It is not possible to do it in UScript☹

- Q.: The server crashes with an infinite loop error (it seems to crash while writing the HTML-file).
  A.: Set the "SaveMode" to "Buffered" and lower "WritePauseInterval".

- Q.: I can't take screenshots. I always get the error message
  "[Error] Couldn't find replication info!"
  A.: Another mutator breaks the LinkedReplicationInfo-list. Try to unload mutator by mutator till you find the bad one. Then try to set this mutator to the beginning of the mutator-line (or to the end) (i.e. where you specify the mutator which should be loaded).

- Q.: You mentioned the Clan Manager 1g. What is it?
  A.: See the explanations-section right under this section.

- Q.: If I add the mutator by using a server-actor, will the server be whitelisted?
  A.: No, unfortunately not. If you use this mutator your server won't be listed as standard-server anymore.

- Q.: On some screenshots a "Loading…" is printed in the middle of the screen??

A.: This happens if the engine hadn't enough time to redraw the image after the client switched to windowed-mode. Increase "WaitTimeAfterSwitchToWindow" a bit to fix this.

- Q.: Windows seems to have problems with the file name.
  A.: This is caused by too long names. Remove some information from the templates.

- Q.: Is there a way to take automatic screenshots only of certain players?
  A.: Yes, use the AutoScreenTargets-list in the auto-config.

- Q.: If I take automatic screenshots on the player's death, they still show all the HUD-content, although the player is already dead.
  A.: The command to take a screenshot is sent a very short time after the player died on the server. It is received client-side before UT2004 was able to re-render the screen and thus showing a picture on the screenshot which seems to be taken directly before he died.

Some explanations:

- The Clan Manager 1g: It is a mutator I created some time ago for UT2004. You can get it here: http://utforums.epicgames.com/showthread.php?p=24938993#post24938993. It has many different features built in:
  - Special enter-messages for admins and clan-members
  - Clantag-Protection
  - Nickname-filter
  - Another private-server system which prevents non-clan-member to join a server
  - Clanchat
  - Anticheat-System, which is compatible with AntiTCC and SafeGame (it is not as good, but faster).
  - Player-Logging (GUID, Name, etc.)
  - WhoIs-System (player can find out old names of other players)
  - AFK-Detector (not just kick them, mark them as AFK, let them spectate,…)
  - Bad-Mutator fix
  - Server- / client-side Spam-Blocker
  - Trial-Friendly-Mode
  - Ingame Spectator
  - Many admin-commands (all can be executed without logging in)
  - All settings are configurable through menus
  - Profiles: Use different settings in different game-types
  - Very modular structure: disable features you don't need

- RLE-Compression: This is a lossless compression algorithm. It "merges" same bytes coming after each other. E.g. "aaaaaabbcccd" becomes "aa4bb0cc1d".

- Chroma-Subsampling: Uhm, not that easy. First the normal RGB-colors are converted into a more human-eye-like color system named YUV. This one is better, as it respects the fact that the eye can distinguish better between brightness than between colors. This is now pushed even further: The brightness-information is kept, while the color-information is only saved for every 4. pixel. Thus this reduces the file-size by ½ without much difference to the full colored version of the image (to the human eye).

- UScript: “Unreal Script”, the language this mutator is coded in.

Change-Log:

Screenshot Sender Final Update 1:

- Added new global-configuration-variable “SecurityProblemReaction” in the main-config. Used for possible bypass tries.
- Added new global-configuration-variable “SecurityProblemNonWinReaction” in the main-config. Used for possible bypass tries, which are “normal” for non-Windows operating systems.
- Added new global-configuration-variable “bKickForExceptions” in the main-config. Used when non-expected errors occur.
- Added new global-configuration-variable “bNoBeginningLog” in the main-config. Allows reducing the logged information on the server-start to a minimum.
- Added new automatic-configuration-variable “AutoScreenTargets”, which allows specifying certain players on whom screenshots are taken automatically.
- If a player leaves instantly after the screenshot was taken, it is logged as possible bypass-try.
- Various bugfixes.
- Updated the Readme

Screenshot Sender Final:

- Fixed the warnings in the log which occurred sometimes.
- Added ServerActor which loads the mutator.
- Added special version for Tactical Ops: Crossfire
- Added “AutoExcludedGUIDs” and “MainExcludedGUIDs”.
- Added Settings-menu
- Added menu which allows admins to take screenshots ingame with the desired settings easily
- “MaxBytesPerSecond” is now working correctly.
- Added option to take more than 1 automatic screenshot (it loops).
- Added an option to specify a lower and upper limit for automatic screenshots. Between those two a random value is generated which is used to define after how many deaths/seconds the automatic screenshot is taken.
- If “MutServerInfoName” is empty, the normal mutator name will now show up.
- Fixed many other bugs.
- Updated the Readme^^

Screenshot Sender Beta 1:

- Added automatic screenshot after a certain number of deaths.
- If the client is switched to windowed mode, the window mode now has the same resolution as the fullscreen-mode.
- Added “TakeScreenAll” command which allows taking a screenshot on all players at the same time.
- Added WebAdmin-Commands
- Fixed some minor bugs.
- Rewrote the Readme (this file is the result).

Screenshot Sender Alpha 3 Prerelease:

- Implemented Chroma-Subsampling correctly
- Added Greyscale 4-Bit and 2-Bit modes.
- Added Floyd-Steinberg-Dithering
- Added Geforce-Fix-Mode
- Added some commands
- Fixed infinite iteration crashes
- Fixed some other minor bugs
- The converter now has a symbol

Screenshot Sender Alpha 2:

- Added Greyscale 8-Bit
- Added RLE-Compression
- Added a test implementation of Chroma-Subsampling
- Added TCP-Link mode (for testing)
- Added Self-Check
- Split the configuration into two parts: automatic and main configuration
- Added setting which allows to change the mutator-name in the server-info
- Removed the old “hide”-system (didn’t work online).
- Added commands to change the main-settings.
- Fixed some bugs.

Contact:

If you need help with this mutator, if you want to give some feedback or if you want to know how I have coded some things (I won’t tell you, however, how I read the screenshot), feel free to contact me:

Or you can use my forums (no registration required): http://ut2k4gugi.ut.funpic.de/
Or you can contact me via mail, if the forum isn’t an option: gugi@ut2k4-gaming.de.

Or you can use my clan’s website: http://www.ut2k4-gaming.de

Credits:

Shambler, lakri, humacyrnus, Vulcano, CVROY, Flak, Snake, EPIC, the whole UT2k4-clan, who ever else I forgot.

I am not responsible for any damage the mutator could cause to you, to the players, to the server, or to whatever/whoever else.
So use it at your own risk.

Thank you,
Gugi

PS: My respect if you have read the whole document.^^