

**NAME**

`gmaproto` – GMA client/server communication functions

**SYNOPSIS**

```
(If package installed globally)
package require gmaproto

(Otherwise)
source gmaproto.tcl

::gmaproto::add_image name sizes? frames? speed? loops?
::gmaproto::add_obj_attributes id attr values
::gmaproto::adjust_view x y grid_label
::gmaproto::allow features
::gmaproto::auth_response challenge passes? → response
::gmaproto::background_redial tries
::gmaproto::character_name names
::gmaproto::chat_message message sender recipients to_all to_gm? markup? pinned?
::gmaproto::clear id
::gmaproto::clear_chat silent target
::gmaproto::clear_from server_id
::gmaproto::combat_mode bool
::gmaproto::comment text
::gmaproto::DEBUG msg
::gmaproto::define_dice_presets plist append
::gmaproto::dial host port user pass proxy pport puser ppass client
::gmaproto::filter_dice_presets regex? globals_only?
::gmaproto::from_enum key int → value
::gmaproto::GMATypeToObjType gtype → otype
::gmaproto::int_bool bool → int
::gmaproto::is_connected → bool
::gmaproto::is_ready → bool
::gmaproto::json_bool bool → str
::gmaproto::ls type d
::gmaproto::load_from server_id cache_only merge
::gmaproto::mark x y
::gmaproto::new_dict command? key value? key value...? → d
::gmaproto::new_id → uuid
::gmaproto::ObjTypeToGMAType otype? -protocol? → gtype
::gmaproto::place_someone_d d
::gmaproto::polo
::gmaproto::query_dice_presets
::gmaproto::query_image name size
```

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::gmaproto::remove_obj_attributes id attr values
::gmaproto::redial
::gmaproto::roll_dice spec recipients to_all blind_to_gm ?roll_id? ?targets? ?roll_type?
::gmaproto::set_debug cmd
::gmaproto::subscribe msglist
::gmaproto::sync
::gmaproto::sync_chat target
::gmaproto::to_enum key value → int
::gmaproto::toolbar bool
::gmaproto::update_clock abs rel
::gmaproto::update_obj_attributes id kvdict
::gmaproto::update_progress id title value max done → id
::gmaproto::update_status_marker condition shape color description
::gmaproto::write_only main

```

## DESCRIPTION

This module provides the functionality for communicating with the server, including low-level communications, legacy protocol translation, and dispatching incoming server commands to the mapper for execution.

`::gmaproto::add_image name sizes ?frames? ?speed? ?loops?`

Send image information to the server for the image with the given *name* (the message ID as referenced in map files and in the client). The *sizes* parameter is a Tcl list of dictionaries describing each instance of each zoomed size of that image as documented in `mapper(6)`. If given, *frames*, *speed*, and *loops* indicate how to animate the frames of an animated image. This sends the AI protocol command.

`::gmaproto::add_obj_attributes id attr values`

Tell the other clients to adjust the object with the given *id* by adding each string in the Tcl list *values* to their field named *attr*, which must be a field that accepts a list of strings. This sends the OA+ protocol command.

`::gmaproto::adjust_view x y grid_label`

Tell other clients to adjust their scrollbars so that the distance scrolled is *x* to the right and *y* down, where *x* and *y* are values between 0 and 1, which indicate the proportion of full range to move the scrollbars. If *grid\_label* is nonempty, the view is adjusted so the grid with that label is in view. This sends the AV protocol command.

`::gmaproto::allow features`

Tell the server that you will allow the use of the listed optional *features* (a Tcl list of feature name strings). This sends the ALLOW protocol command.

`::gmaproto::auth_response challenge ?passes?`

You should not normally need to invoke this procedure directly. Given a binary *challenge* value from the server, this calculates and returns the binary response needed to authenticate to the server, using the password previously given to `::gmaproto::dial`. If the username given is still empty, it also attempts to find the local username and sets the configured username to that value.

`::gmaproto::background_redial tries`

You should not normally need to invoke this procedure directly. Attempts to reconnect to the server. If this fails, it schedules itself to run again in a few seconds, with the *tries* value incremented.

**`::gmaproto::character_name names`**

Declare that the player is controlling the character(s) whose names (as shown on the VTT map) are as listed in the list *names* instead of the name under which the player logged in to the mapper client.

**`::gmaproto::chat_message message sender recipients to_all to_gm ?markup? ?pinned?`**

Sends a chat *message* to other clients. Clients should not set the *sender* value. If *to\_gm* is true, the message will be sent only to the GM; otherwise, if *to\_all* is true, the message is sent to all clients; otherwise it is sent to the list of usernames in *recipients*. If *markup* is true, GMA markup syntax is honored in the chat message. If *pinned* is true, this message will be pinned for long-term display. This sends the TO protocol command.

**`::gmaproto::clear id`**

Tells other clients to remove the object identified by *id* as documented in mapper(6). This sends the CLR protocol command.

**`::gmaproto::clear_chat silent target`**

Tells others to clear chat messages specified by the *target* value. If *silent* is true, ask them not to advertise that this was done. This sends the CC protocol command.

**`::gmaproto::clear_from server_id`**

Instruct other clients to remove all elements from the map file *server\_id*. This sends the CLR@ protocol command.

**`::gmaproto::combat_mode bool`**

Tell others to set combat mode if *bool* is true, otherwise unset it. This sends the CO protocol command.

**`::gmaproto::comment text`**

Send *text* as a comment to the server, which is probably a pointless thing to do. This sends the // protocol command.

**`::gmaproto::DEBUG msg`**

Send *msg* to the callback function configured via `::gmaproto::set_debug`.

**`::gmaproto::define_dice_presets plist append`**

Send a new set of die-roll presets to the server for storage. The *plist* parameter is a Tcl list of dictionaries describing each preset as per mapper(6). If *append* is true, the elements in *plist* are added to the ones already on the server; otherwise they replace the server's current set. This sends the DD or DD+ protocol command.

**`::gmaproto::dial host port user password proxy pport puser ppass client`**

This is the initial command you should call to establish a connection to the server on *host* at the TCP *port* specified. Once the connection is established, the client will authenticate as the given *user* and *password* and will note that the connecting client is called *client*. If a SOCKS proxy is needed, *proxy*, *pport*, *puser*, and *ppass* give the proxy host, port, and login credentials to use.

If the connection is lost, this package will automatically try to reconnect using the same parameters.

As incoming commands are received from the server, they are dispatched back to the application by calling a procedure named

**`::DoCommand cmd d`**

where *cmd* is the server's command name. The single parameter *d* is a dictionary holding the command's parameter set. For example, if the server sent an AV command, then `::DoCommandAV` would be called in the application.

If that failed, either because the command does not exist in the application or because it threw an error, then an error-handling function is called:

`::DoCommandError cmd d err`  
 where *cmd* is the original command name, *d* is the parameter dictionary, and *err* is the error message received.

`::gmaproto::filter_dice_presets regex ?globals_only?`  
 Asks the server to remove all stored die-roll presets whose names match the regular expression *regex*. If *globals\_only* is true, this only applies to system-defined presets. This sends the DD/protocol command.

`::gmaproto::from_enum key int`  
 Converts the integer value *int* into the enum string corresponding to that value for the enumerated type *key* (Dash, Join, MoveMode, etc.).

`::gmaproto::GMATypeToObjType gtype`  
 Converts the object type name as used by the server to the corresponding name used inside the mapper application, and returns it.

`::gmaproto::int_bool bool`  
 Returns 1 if *bool* is true, otherwise returns 0.

`::gmaproto::is_connected`  
 Returns true if the client has an active network connection to the server.

`::gmaproto::is_ready`  
 Returns true if the client has an active network connection and has successfully completed the initial negotiation and authentication with the server.

`::gmaproto::json_bool bool`  
 Returns the boolean value passed as the string `true` or `false`, suitable for JSON strings.

`::gmaproto::ls type d`  
 Sends a map object to peer clients. *Type* is the GMA protocol type name (ARC, LINE, etc.) and *d* is an appropriate dictionary value for that type. This sends the LS-ARC, LS-LINE, etc. protocol commands.

`::gmaproto::load_from server_id cache_only merge`  
 Tells other clients to load elements from the given server map file called *server\_id*. If *merge* is true, the contents of that file should be merged with the existing map contents instead of replacing them. If *cache\_only* is true, tell the clients to cache a copy of the file without actually loading anything from it. This sends the L protocol command.

`::gmaproto::mark x y`  
 Tell other clients to visually mark the location with the given map coordinates. This sends the MARK protocol command.

`::gmaproto::new_dict command ?key value? ?key value...?`  
 Construct a new dictionary suitable to hold the parameters for the given *command*, with all fields defaulted. Additionally, any *key* and *value* pairs specified set the given fields in the new dictionary. The dictionary value is returned.

`::gmaproto::new_id`  
 Generate a new unique ID suitable for use as object identifiers, and returns it.

`::gmaproto::ObjTypeToGMAType otype ?-protocol?`  
 Computes and returns the server type name corresponding to the mapper internal type name *otype*. If the *-protocol* option is given, the protocol command name (with LS- prefix) is returned instead of the base type name.

`::gmaproto::place_someone_d d`  
 Tells the other clients to place a creature token on the map as described. If another creature is already present with the same name, it is replaced by the new one. This sends the PS protocol command. The parameter is a dictionary holding a creature object.

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::gmaproto::polo
    Sends a “still alive” response to the server, typically in response to receiving a MARCO command. This sends the POLO server command.

::gmaproto::query_dice_presets
    Asks the server to send all of the stored presets. This sends the DR protocol command.

::gmaproto::query_image name size
    Asks the server and other clients if any of them have heard of the given image name at the requested zoom size. This sends the AI? protocol command.

::gmaproto::query_peers
    Requests that the server send the list of currently-connected clients. This sends the /CONN protocol command.

::gmaproto::redial
    Try to reconnect using the parameters given with the initial ::gmaproto::dial command. You don't normally need to call this directly.

::gmaproto::roll_dice spec recipients to_all blind_to_gm ?roll_id? ?targets? ?roll_type?
    Ask the server to roll the dice indicated by spec. If blind_to_gm is true, the results are visible only to the GM; otherwise, if to_all is true, the results are sent to everyone; otherwise only to the list of user names in recipients. If given, roll_id assigns an ID to the roll which is sent back with the results. If given, roll_type gives the type of die roll being made. The creature names being targeted is given, if applicable, by the targets list value. This sends the D protocol command.

::gmaproto::set_debug cmd
    Protocol debugging statements will be sent by calling cmd with a string parameter.

::gmaproto::subscribe msglist
    Tell the server that we're only interested in receiving the command names listed in msglist. If msglist is empty, then tell the server we accept all messages. This sends the ACCEPT protocol command.

::gmaproto::sync
    Request that the server send a set of commands which will bring the client up to date with the current game state. This sends the SYNC protocol command.

::gmaproto::sync_chat target
    Request that the server send some or all (per the target) value of the historical chat messages to the client. This sends the SYNC-CHAT protocol command.

::gmaproto::to_enum key value
    Converts and returns the integer associated with the value in the enumerated type key.

::gmaproto::toolbar bool
    Tells other clients to turn on their toolbars if bool is true; otherwise turn them off. This sends the TB protocol command.

::gmaproto::update_clock absolute relative
    Updates the game clock to the given absolute and relative time values. This sends the CS protocol command.

::gmaproto::update_obj_attributes id kvdict
    Instructs the other clients to update the state of the object with the given id by setting each of the objects fields named as keys in kvdict with their corresponding values. This sends the OA protocol command.

::gmaproto::update_progress id title value max done
    Instructs peers to display a progress meter with the given id (creating a new one if that is not an existing progress bar id). If done is true, this is notice that the progress bar is no longer needed.

```

If *id* is specified as \*, then a new ID will be generated.

If *max* is zero or \*, then we are saying we don't know what the maximum value will be and the client should give a progress bar that shows activity but not specific progress toward a known goal.

This sends the PROGRESS protocol command.

The progress indicator's *id* is returned.

`::gmaproto::update_status_marker condition shape color description`

Tells the server to define a new status marker for *condition* with the given *shape*, *color*, and *description*. This sends the DSM protocol command.

`::gmaproto::write_only main`

Tells the server that this client no longer wishes to receive any messages from it. If *main* is true, the client is also signalling that it wishes to be the primary client in the conversation.

## EXTERNAL HOOKS

This package will invoke the following procedures in the main application to carry out its operations, typically in response to having received a server command for the client to do something.

`::DEBUG level message`

This is called to report a diagnostic condition or provide some level of verbose detail about the operation of the communications package, except for the debugging of the actual protocol interactions, which is handled by the callback registered via `::gmaproto::set_debug`.

`::report_progress message`

Reports user-friendly progress information.

`::say message`

Displays an urgent message, probably in a modal dialog or alert box.

`::DoCommandcmd params`

Handles the receipt of the server command *cmd* by the client. The *params* parameter is a dictionary of values as sent by the server.

`::DoCommandError cmd params err`

Handles any error encountered when trying to execute a `::DoCommandcmd` call.

## DIAGNOSTICS

An exception is thrown if a serious error is encountered.

Messages are printed to standard output to indicate progress or provide debugging information.

The registered debugging hook is also used to print debugging and diagnostic messages.

## SEE ALSO

### AUTHOR

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## HISTORY

This document describes version 1.0 of the `gmaproto` package, released in December 2022.

## COPYRIGHT

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