

**NAME**

gmaproto – GMA client/server communication functions

**SYNOPSIS**

(If package installed globally)

package require gmaproto

(Otherwise)

source gmaproto.tcl

::gmaproto::add\_image *name sizes*

::gmaproto::add\_obj\_attributes *id attr values*

::gmaproto::adjust\_view *x y*

::gmaproto::allow *features*

::gmaproto::auth\_response *challenge* → *response*

::gmaproto::background\_redial *tries*

::gmaproto::chat\_message *message sender recipients to\_all to\_gm*

::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*

::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*

::gmaproto::remove\_obj\_attributes *id attr values*

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::gmaproto::redial
::gmaproto::roll_dice spec recipients to_all blind_to_gm
::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.

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::gmaproto::add_image name sizes
    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). 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
    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. 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
    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::chat_message message sender recipients to_all to_gm
    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. This sends the TO protocol

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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`

Asks the server to remove all stored die-roll presets whose names match the regular expression *regex*. 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.).

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::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 re-
    placing 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.

::gmaproto::polo
    Sends a "still alive" response to the server, typically in response to receiving a MARCO com-
    mand. 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 re-
    quested zoom size. This sends the AI? protocol command.

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- `::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`  
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*. 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 potocol 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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