

GBG The Gambling Business Group

GBG Technical Standard Machine Host Registration v.1.1a

July 2022

Version History

Date	Version	Description of Changes
March 28, 2019	1.0	- Initial Draft
Nov 2021	1.1	- Added System Host Supplier Code, Machine Host Manufacturer Code and Machine Host Platform Version parameters that enable the corresponding party to identify the other host and for System Hosts to verify the platform version of the Machine Host.
July 2022	1.1a	- Redesignated the data type for the MachineHostManufacturerCode and SystemHostSupplierCode (Power Up Registration) from a string to an integer.

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1 Purpose of Document

Version 1.0 provides a standard for the registration of a Machine Host's with the relevant System Host that would extend across all GBG Technical Standards with effect from the versions listed below:

- TITO v.2.2
- Promotional v.1.2
- Machine Meter & Event Data Capture v.1.1
- Electronic Funds Transfer v.1.0

Version 1.1 contains additional System Host Supplier & Machine Host Manufacturer codes and Machine Host Platform Software Version references that are passed between the System Host and Machine Host as part of the Initial Powerup Registration process. These additional codes are intended to extend across all GBG protocols and are to be supported by future versions of the GBG protocols listed above and new protocols defined by the GBG Tech Forum.

The document is divided into two parts.

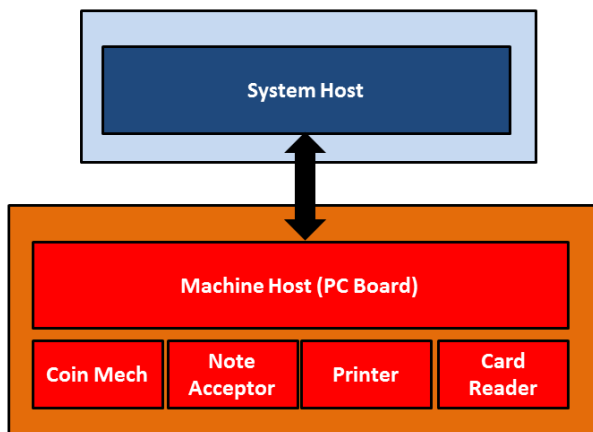
1. Description of the connectivity between the System Host and Machine Host and the Initial Machine Host and Powerup Machine Host processes.
2. Details of the web methods that would be included in the web service for the relevant Technical Standard.

NB; The recommended guidelines for appropriate network and data encryption methods for System & Machine Hosts that use the GBG Web Service based protocol standards are covered by the *GBG – Network & Data Encryption Best Practices Guidelines* document that is available on the GBG Technical Standards file repository.

2 Overview

2.1 Architecture & Principle Requirements

The proposed Network Gaming Machine Protocol works on the premise that the PC board inside the gaming machine connects directly to the System Host via a TCP/IP network (Wired Ethernet or Wireless). The Machine Host would call the relevant methods within the Web Service installed on the relevant System Host, to undertake Initial and Powerup Machine Registration processes before supporting the functions for the specific technical standard.



2.2 General Functions

2.2.1 Connectivity between Machine Host & System Host

The Machine Host connects to the System Host across TCP/IP network connection and must support Fixed IP Addresses and IP addresses obtained from a DHCP server/router, with authorised persons able to configure the Machine Host thru an Audit to operate on a Fixed IP or DHCP basis.

The Machine Host must be capable of supporting XML Web Services and SOAP protocol and allow authorised persons to configure the URL connection pathway for the relevant System Host web service, which is Operator specified.

It is important that the System Host URL string is separately configured for each GBG Technical Standard supported by the Machine Host, i.e. TITO, Promotional, Machine Data Capture & EFT as the System Host for one function maybe different for another function (best of breed).

As previously explained in the Purpose section, this technical standard is not intended to define a specific method of data encryption between the Machine and System Hosts.

It is recommended that the System Host and Machine Host uses https and supports cryptographic protocols that provide certificate authentication and data encryption, the latest standard at as at the date of this version being TLS 1.2.

On Powerup the Machine Host calls the System Host Version web method within the URL string configured on the Machine Host to obtain details of the versions supported by the System Host for the relevant technical standard and the URL connection string for the specific version supported by the Machine Host

2.2.2 Machine Host Initial Registration

After the Machine Host has been RAM Reset and its NVRAM cleared a unique (Operator) Asset Number and Manufacturer Serial Number is manually configured/setup on the Machine Asset thru an internal Audit menu or thru a game manufacturer defined process.

The Machine Host must be setup on the relevant System Host with the parameters listed below that match the corresponding parameters configured on the Machine Host:

1. Operator assigned unique **Machine Asset Number**;
2. Manufacturer assigned unique **Machine Serial Number**, which is typically assigned during the machine/board manufacturing process;
3. **MAC Address** for the Network Interface Card installed in the PC that communicates with the System Host.

Once the relevant Asset and Serial Numbers have been configured on the Machine Host and it is either power cycled, network connection re-established or an authorised person selects a GBG Register option on an internal Audit menu, and the Machine Host determines that it does not hold an Initial System Host Key within its NVRAM then it obtains one by calling the *MachineHostInitialRegistration* web method within the relevant System Host web service.

If there is an Initial System Host Key stored within NVRAM then the Machine Host calls the Machine Host Powerup Registration web method (see next section).

After the Machine Host calls the *MachineHostInitialRegistration* web method, if the System Host determines that the Machine Asset is valid based on the parameters received from the Machine Host then it returns a [0] response code together with a new Initial System Host Key. The Machine Host stores the Initial System Host Key within its NVRAM, sets itself to a **Partially Registered** state and then proceeds with the Machine Host Powerup Registration process as described in the next section.

If the System Host cannot identify the Machine Host based on the parameters provided by the Machine Host then a [-1] response code is returned to the Machine Host. The Machine Host displays a **Not Registered** status on the internal audit menu and continues to call the Initial System Host Registration process every 30 seconds until it receives a [0] response code.

If the System Host identifies the Machine Asset however has a different Serial Number and/or MAC Address then it will return a [-2] response code to the Machine Host. The Machine Host displays a **Not Registered** status on the internal audit menu and continues to call the Initial System Host Registration process every 30 seconds until it receives a [0] response code.

If the System Host returns a [-3] Valid Machine Host – awaiting authorisation response code then the Machine Asset is valid however the registration request needs to be manually authorised on the System Host by an authorised person. The Machine Host displays an **Authorisation Required** status on the internal audit menu and continues to call the Initial System Host Registration process every 30 seconds until it receives a [0] response code.

2.2.3 Machine Host Power Up Registration

The Machine Host proceeds with the Machine Host Powerup Registration process by calling the *MachineHostPowerupRegistration* web method when it has:

1. Successfully completed the *Machine Host Initial Registration*, or
2. Powered up and has detected an Initial System Host Key within its NVRAM, or
3. Re-establishes its network connection with the System Host and has an Initial System Host Key within its NVRAM

Machine Host passes the Initial System Host Key stored within its NVRAM together with the Machine Host Asset Number, Serial Number and MAC Address to the relevant System Host, which then determines whether a valid machine host setup within the system.

If the Machine Host details and the Initial System Host Key are valid then a **[0]** response code and Session System Host Key is returned to the Machine Host together with parameters that relate to the specific Technical Standard. The Machine Host sets its status to **Registered**, stores the Session System Host Key in VRAM, processes the parameters returned in accordance with the specific Technical Standard and then initiates the Network Heartbeat process defined within the relevant technical Standard.

If the System Host cannot identify the Machine Host based on the Asset Number, Serial Number or MAC Address provided by the Machine Host, or the Initial System Host Key is invalid then the System Host returns a **[-1]** response code. When the Machine Host receives a **[-1]** response code it clears the Initial System Host Key in NVRAM, sets its status to **Not Registered** and then calls the *MachineHostInitialRegistration* web method every 10 seconds until it receives a **[0]** response code.

If a Machine Host is registered on the System Host with the same Asset Number but a different Serial Number and/or MAC Address then the System Host returns a **[-2]** response code. When the Machine Host receives a **[-2]** response code it clears the Initial System Host Key in NVRAM, sets its status to **Not Registered** and then calls the *MachineHostInitialRegistration* process every 30 seconds until it receives a **[0]** response code.

NOTE - System Host is required to issue a new Initial or Session key to the Machine Host when returning a [0] response code as part of the Initial or Powerup Registration processes. If Machine Host receives an Initial or Session System Host Key from the System Host that is the same as the previous key provided by the same System Host then it is recommended that the Machine Host creates an Alert Event that is stored within its Event History so that it can reported as deemed appropriate to/by the Machine Manufacturer's Game Content Server.

3 General Web Service Methods

3.1 Version Control

Pre-requisites

- Machine Host configured with URL that connects to the relevant System Host version Web Service

Enables Machine Host to determine the version(s) supported by the relevant System Host and retrieve the URL connection string for the version supported by the Machine Host.

The System Host URL connection pathway configured on the Machine Host leads to a separate GBG Version Web Service (separate for each technical standard/function).

When the Machine Host is powering up and prior to calling *MachineHostInitialRegistration* or *MachineHostPowerUpRegistration* web methods, the Machine Host must call the *GBGVersionVerification* web method for the relevant GBG function to determine whether the relevant System Host supports the version used by the Machine Host.

If the System Host does not support the version supported by Machine Host, then the Machine Host does not make any attempt to register with the relevant System Host.

Note: Machine Host must provide the ability for the URL for other System Hosts to be configured on the Machine Host, i.e. multiple system hosts.

GBGVersionVerification

Machine Host Sends

Data Field	Data Type	Max. Length	Description
MachineHostVersion	String	5	Version number of the relevant technical standard supported by the Machine Host. Format of the version number is ##.##, i.e. 1.1.

System Host Returns

Data Field	Data Type	Max. Length	Description
SystemHostVersionURL	String	200	System Host's URL string for version supported by the Machine Host, used by Machine Host to auto configure connection to System Host web service. Data returned is a comma separate value with version number, comma and then URL string. e.g. [Version No],[URL string], The URL string is full string including https://[System Host IP Address or Server Name]:[Port Number]/[file directory path to asmx file] .

Note: the URL string returned by the System Host and the relevant web service must be in lower case format, i.e. http and not Http.

Machine Host Response

Machine Host determines whether it supports the version number returned by the System Host and if so then auto configures the connection to the relevant System Host using the relevant URL connection string returned by the System Host.

This provides secure and central control for connecting the Machine Host to the relevant web service for System Host that is supported by the Machine Host and removes the need for manual configuration thru the machine game menu.

If the Machine Host does not support any of the versions that are returned by the System Host then and depending on its setup the Machine Host either goes into a non-operational mode, or it continues to operate without the relevant function activated.

3.2 Machine Host Initial Registration

Pre-requisites

- Machine Asset Number manually configured thru the Machine Host Setup screen.
- Manufacturers Serial Number and MAC Address available on Machine Host setup screen.
- Machine has been setup on the relevant System Host.
- Machine Host has verified that it supports the version of the relevant technical standard supported by the System Host and obtained the URL connection to the relevant System Host web service.

When the Machine Host is power cycled, or network connection to the relevant System Host is re-established, or an authorised person selects a Register option on an internal Audit menu, and in all cases there is no Initial System Host Key held within NVRAM, then the Machine Host initiates the Machine Host Initial Registration process by calling the *MachineHostInitialRegistration* web method within the relevant System Host web service.

MachineHostInitialRegistration

Machine Host Sends

Data Field	Data Type	Max. Length	Description
MachineHostAssetNumber	String	20	Operator specific machine asset number manually configured thru the Machine Host Setup screen
MachineHostSerialNumber	String	100	Fixed unique manufacturer serial number encoded as part of the manufacturing process.
MachineHostMACAddress	String	50	Static MAC address for the relevant network interface card used to connect to the relevant System Host

System Host Returns (XML format message)

Data Field	Data Type	Max. Length	Description
ResponseCode	Int	32 bit	See Appendix A
InitialSystemHostKey	String	50	Alpha & numeric based Unique ID issued by the relevant System Host, NULL value is returned if machine not set up on the relevant System Host.

Machine Host Action

If a **[0]** response code is received from the relevant System Host, then the Machine Host sets its status to Partially Registered, stores the *Initial System Host Key* within NVRAM and proceeds with the Power Up Registration process, see next section.

If a **[-1]** or **[-2]** response code is received then the Machine Host sets its status to **Not Registered**, disables the function related to the System Host and continues to call the *Machine Host Initial Registration* process every 30 seconds until it receives a **[0]** response code, and the related function is disabled from use.

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If the System Host returns a [-3] response code then the Machine Host sets its status to **Awaiting Authorisation**, disables the function related to the System Host and continues to call the Initial System Host Registration process every 30 seconds until it receives a [0] response code.

3.3 Machine Host Power Up Registration

Pre-requisites

- Machine Host has already been setup on the System Host, the Machine Host Initial Registration process has been completed and an Initial System Host Key issued by the System Host.

When the Machine Host powers up and/or has established its network connection with the System Host then the Machine Host calls the *MachineHostPowerUpRegistration* web method.

MachineHostPowerUpRegistration

Machine Host Sends

Data Field	Data Type	Max. Length	Description
MachineHostAssetNumber	String	20	Operator specific machine asset number manually configured thru the Machine Host Setup screen.
MachineHostSerialNumber	String	100	Fixed unique manufacturer serial number encoded as part of the manufacturing process.
MachineHostMACAddress	String	50	Static MAC address for the relevant network interface card used to connect to the relevant System Host.
InitialSystemHostKey	String	50	Alpha & numeric unique ID issued initially issued by the relevant System Host as part of the Machine Host Initial Registration process.
MachineHostManufacturerCode	Int	32 bit	The relevant Machine Host Manufacturer Code for the manufacturer of the gaming terminal, as defined within section 2 of GBG-General Codes.
MachineHostPlatformVersion	String	50	The current version number of the platform software installed on the gaming terminal.

System Host Returns

Data Field	Data Type	Max. Length	Description
ResponseCode	Int	32 bit	See Appendix 1
SessionSystemHostKey	String	50	Alpha & numeric unique ID issued by the relevant System Host. NULL value is returned if [-1], [-2] or [-3] response code returned by the System Host.
SystemHostDateTime	Date Time	N/a	Current Date & Time of the System Host's clock, which the Machine Host could use to time sync itself with the System Host. Date & time in UTC format.
MachineHostHeartbeatPeriod	Int	32 bit	Period in seconds between every heartbeat call made by the Machine Host.
SystemHostSupplierCode	Int	32 bit	The relevant System Host Code for the supplier of the System Host, as defined within section 5 of GBG-General Codes.

**ADDITIONAL DATA FIELD(S) RELATED TO FUNCTION(S)
WITHIN THE SPECIFIC GBG TECHNICAL STANDARD**

Machine Host Action

If System Host returns a [0] response code then the Machine Host sets its status to **Registered**, stores new *Session System Host Key* and function specific parameters in VRAM and then initiates the Network Heartbeat for the relevant System Host.

If System Host returns a [-1] or [-2] response code then the Machine Host clears the Initial System Host Key within NVRAM, sets its status to **Not Registered**, disables the function related to the System Host and then calls the *Machine Host Initial Registration* process every 30 seconds until it receives a [0] response code.

If the Machine Host synchronises its clock with a network time server or with another GBG System Host function (i.e. TITO) then it is not required to synchronise its clock based on the Date & Time returned by the Data System Host.

APPENDIX 1 – MACHINE REGISTRATION RESPONSE CODES

Outlined below are a list of the General Response Codes that could be returned by the System Host as part of the Machine Host Initial and Powerup Registration processes.

Response Codes related to the specific function supported by the various GBG Technical Standards are found in Appendix A of the relevant version of the GBG Tech Standard.

Response Code	Response Text	Action to Response
0	Valid Machine Host	Machine Host is valid and setup on System Host. See Machine Host Action section for relevant web method.
-1	Invalid Machine Host (Unknown Machine Host)	Machine Host is invalid and not setup on System Host. Machine Host sets its status to Not Registered for the relevant System Host connection, clears any Initial System Host Key within NVRAM and then calls <i>Machine Host Initial Registration</i> web method every 30 seconds.
-2	Invalid Machine Host (Duplicate Entity)	Where another Machine Host is already setup on System Host with the same Asset Number but different Serial Number or MAC Address, or the <i>Initial System Host Key</i> is invalid. Machine Host sets its status to Not Registered for the relevant System Host connection, clears any Initial System Host Key within NVRAM, disables the function related to the System Host and then calls <i>Machine Host Initial Registration</i> web method every 30 seconds until a [0] response code is received from the System Host.
-3	Valid Machine Host (Awaiting Authorisation)	Machine Host setup on System Host, however initial registration has not been manually authorised by the System Administrator. Machine Host sets its status to Awaiting Authentication for the relevant System Host connection, clears any Initial System Host Key within NVRAM and continues to call <i>Machine Host Initial Registration</i> web method every 30 seconds until a [0] response code is received from the System Host.
-1000	General Error	If this is seen, cancel current operation, system has failed operation.

APPENDIX 2 – MACHINE REGISTRATION PROCESS FLOWCHART

The flowchart below outlines the process for Initial and Powerup Registration processes when a Machine Host is powered up, has its network connection to the System Host re-established or an Authorised user selects Register on the Machine Host GBG Configuration Menu screen.

