

JDS Stargate Plugin for HomeSeer

Introduction

Thank you for the purchase of the HomeSeer JDS Stargate Plugin! The HomeSeer JDS Stargate plugin gives you total automation control of your JDS Stargate System.

Requirements

There are several requirements to using the HomeSeer JDS Stargate plugin:

- HomeSeer Version 2.1.122 or higher must be installed.
- A JDS Stargate, JDS Stargate IP, JDS Stargate Lite, TimeCommander, TimeCommander Plus, or RCS CS30 must be installed in your home.
- The Stargate must be connected to your HomeSeer computer via a COM port.
- Your Stargate Devices should be defined using the WinEVM program in order to import them into HomeSeer.

Installation

1. To install the JDS Stargate plugin plug-in for HS2, select the "Updater" button on the web interface, or select "Updates" from the "Help" menu. Follow the on-screen instructions for the Updater.
2. Select the JDS Stargate plugin plug-in on the package selection screen, then follow the on-screen instructions to finish the update process, and restart HomeSeer.
3. After restarting HomeSeer, click the "Setup" tab and then the "Interfaces" tab on the web site. Click "Disabled" to enable the plugin, on X10, IR, or "Other" interfaces. See below for more information. Click "Save" at the bottom of the screen to start the plugin.
4. To use the JDS Stargate plugin, you must first **register** the plug-in. There are two methods of registration, depending upon the information that you have been provided from the time of purchase.
 - a. Click "Unregistered" or "Trial" button on the line containing the JDS Stargate plugin Plug-in to register. This will display the Registration Screen.
 - b. Enter your License ID and Password included on your order receipt. Click the "Register" button. If you have any technical difficulties, see the Support section of this manual and open a ticket at or help desk.

Select only the interfaces you wish to use (X10, Infrared, and Other). You can use just the functionality of the Stargate that you need. You will also probably want to select JDS Stargate as one of your "Other" interfaces. Note that if you wish to control Stargate variables, flags, etc. you must select the Stargate as one of your "Other" interfaces.

JDS Stargate Configuration Screen

JDS StarGate Configuration - Windows Internet Explorer

http://localhost:83/JDS-Config.aspx

JDS StarGate Configuration

10/29/2006 3:54:48 PM Sunrise: 6:13 AM Sunset: 4:42 PM User: HomeSeer

default

[Status](#) [Events](#) [Log](#) [Control](#) [TV Timer](#) [Setup](#) [Threads](#) [Phone](#) [VRemind](#)
[Updater](#) [Help](#) [About](#) [Log Out](#)

Stargate Control

Status Page

Baud Rate 9600 ▾

Poll Interval 15 seconds

Variables	<input type="checkbox"/>
Flags	<input type="checkbox"/>
Digital	<input type="checkbox"/>
Analog	<input type="checkbox"/>
Relay	<input type="checkbox"/>
X10	<input type="checkbox"/>

Please note: This plugin enables Echo mode on the Stargate to get the instant status of device changes. When an item changes state in the Stargate, HomeSeer will see this change. Only non-Stargate devices (8CUR Relay XPander) need to be polled.

Enable Debug Messages

Function Debug	<input type="checkbox"/>
COMM Debug	<input checked="" type="checkbox"/>
HomeSeer Trace	<input type="checkbox"/>

WinEVM Connect

Timer Display

Latitude

Longitude

Set Stargate Time [Set Time](#)

Path to JDS Stargate DBF Files:

C:\HS2\JDS_Stargate

[Browse...](#) [Import/Update Devices](#)

Select a subfolder... ▾

[Save Settings](#)

Done Internet 100%

Baud Rate

The baud rate should be set to 9600 for JDS Stargate and 2400 for JDS Time Commander.

Poll Interval

Timed polling is one way of compensating for things that eventually get out of sync in even the best-designed system. When the Stargate plug-in is started, it reads the current states of the various digital and analog inputs, relays, X10 devices, and so on from the Stargate. Timed polling allows you to repeat this initial query at selected intervals.

The Box will allow you to set how often the Panel should be polled (in seconds). The Checkboxes on the next line allow you to select which categories of Stargate devices you would like to include in the polling procedure. All devices will update automatically without polling, but Analog inputs and external relays (RS-485) must be polled. Please read the note on this page for more information.

Debug Controls

The output of the debug functions is complex and non-intuitive. Explaining how to interpret it is far beyond the scope of this help file. Using the functionality in this section is recommended only under the direction of HomeSeer or plug-in tech support.

All of these functions are time-consuming and generate a lot of log entries, so they should not be left on when not actively in use. These are defined as follows.

Function Debug

When checked, this turns on a function-by-function trace that writes to the HomeSeer log. This should be regarded as undocumented, because it is only implemented in certain areas of the plugin. Again, the output is only really useful to someone who knows the internal structure of the plug-in, so it is primarily for the use of tech support.

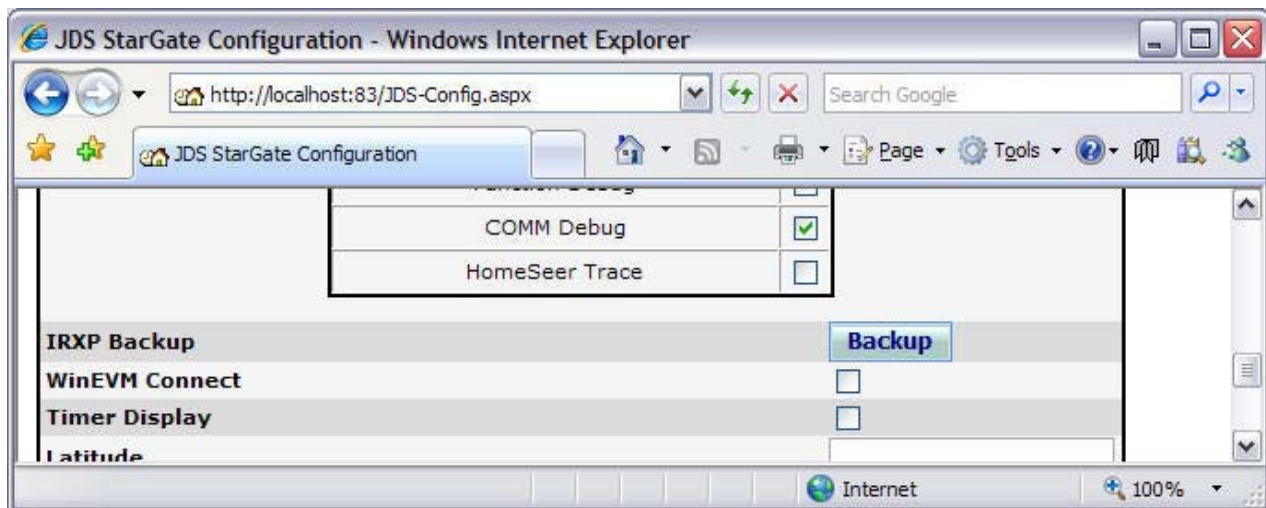
COMM Debug

This provides a low level window into everything that goes in or out over the serial link between the HomeSeer PC and the Stargate. This is used for troubleshooting the serial link and making sure that it is sending and receiving what it is supposed to. The output is obscure, and requires the Stargate protocol specification document to interpret.

HS Trace On

This isn't a plug-in function at all, but rather a way of controlling through the plug-in a debug function that is built into HomeSeer. It controls the creation of a file called hstrace.log in the HomeSeer program directory that traces internal HomeSeer program execution. It is useful primarily to HomeSeer tech support.

IRXP Backup



If you use the Infrared portion of the plugin interface, this button will get all the data from the Infrared XPanders and write it to the log. This button will only appear if the Infrared interface is enabled.

WinEVM Connect

{This information from Jeff Stein of JDS Technologies}

It is possible to run the Stargate WinEVM console and the HomeSeer Stargate plug-in together. Setting this up is a three part process. You will need a second serial cable. This cable connects to the Stargate COM2 or COM3 port on one end and to a free PC serial port on the other end. Since WinEVM is limited in the serial ports that it can understand, you should probably consider putting WinEVM on the PC's COM1 or COM2 (and on Stargate's COM1) and the HomeSeer plug-in on the higher ports on each side.

The Second Cable is essentially identical to the primary Stargate cable; an RS-232 data cable with a RJ-11 connector on the PC end and a DB-9 or DB-25 connector on the PC end. The easiest way to do this is to use a 'silver satin' flat RJ-11 data (not phone) cable and an RJ-11 to DB9 or RJ-11 to DB25 adapter.

The selected port on the Stargate needs to be configured as a Modem port.

The unit on the Stargate's secondary port needs to announce itself to the Stargate by sending a CONNECT<cr> string. This can be enabled from the HomeSeer configuration dialog by checking the WinEVM Connect box. If WinEVM Connect is enabled, it also enables a button on the Control panel that allows you to send the connect string manually. The connect string may also be sent through the scripting interface.

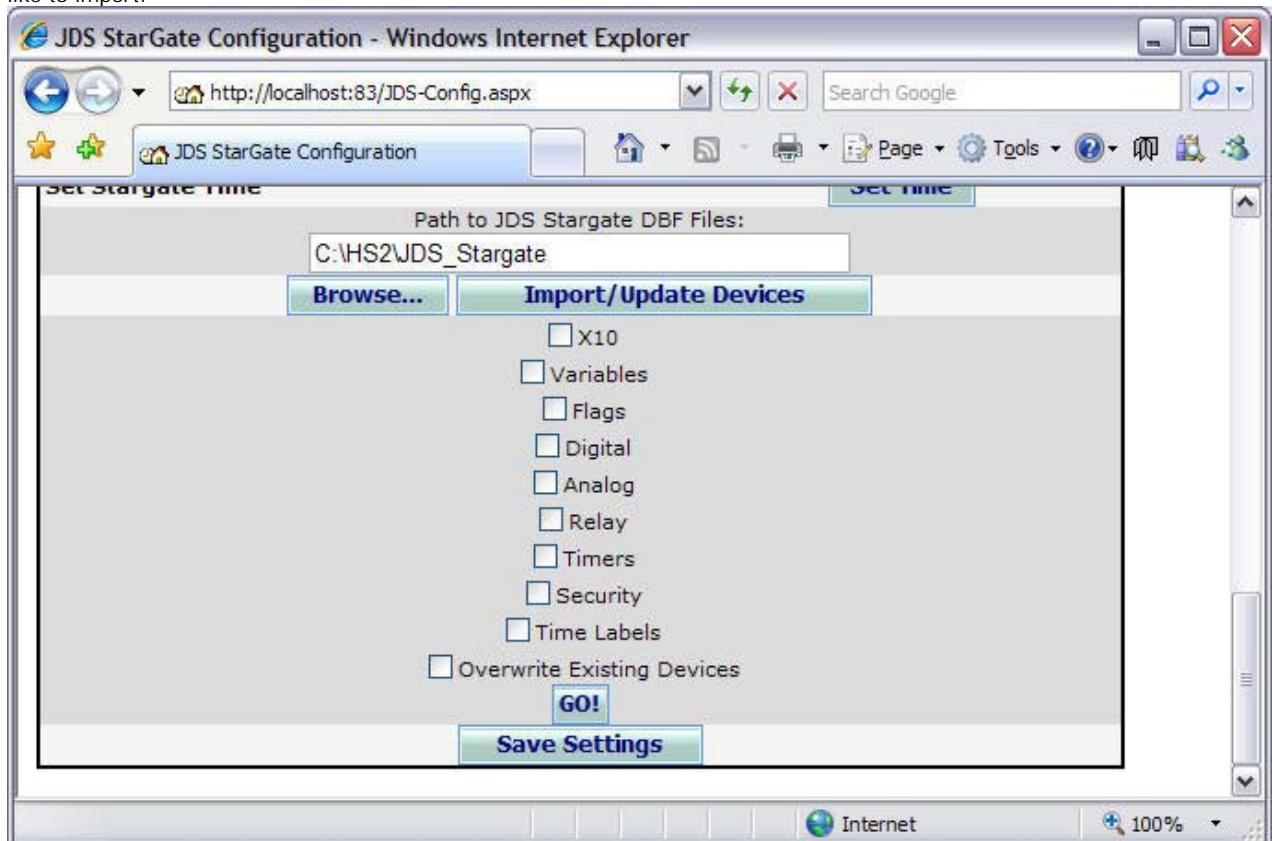
Timer Display

This enables a timer within the plugin, so that when any timer is loaded in the Stargate, HomeSeer will count down and reflect the values in the corresponding device. This can be useful if you are using hs.DeviceValue to read the number of seconds left before a Timer expires.

Setting the Stargate clock

Enter your Latitude and Longitude, then click "Set Time" to set the Stargate time. This is controlled by the plugin and your PC's clock, so the Stargate time will reflect these. Importing WinEVM databases

1. Click on the "Browse" button to browse to your DBF files. This will display a dropdown list that you can use to browse for the file.
2. Click "Import/Update Devices," the page will refresh, and you will see a number of checkboxes to select the devices you would like to import:



3. Check the devices that you want to Import, and check "Overwrite Existing Devices" to update your HomeSeer devices with your WinEVM information.
4. Click "GO!". The plugin will write a message to the log when the import has been completed, usually this will only take a few seconds.

Save Settings

Click this button to save all of the settings from the plugin. This occurs automatically whenever the plugin is shut down.

JDS Stargate Status Screen

JDS Stargate Status

10/29/2006 4:53:53 PM Sunrise: 6:13 AM Sunset: 4:42 PM User: HomeSeer default

- Status
- Events
- Log
- Control
- TV Timer
- Setup
- Threads
- Phone
- IR Signals
- VRemind
- Updater
- Help
- About
- Log Out

Stargate Control

[Configure JDS Stargate](#)

[JDS Stargate Phone Pad](#)

JDS Stargate Control Panel

Mailbox Status

Mailbox	New Messages	Old Messages
1	0	0
2	0	0
3	0	0
4	0	0
5	0	0
6	0	0
7	0	0
8	0	0

Mailbox to Control: 1

< Repeat Stop Play First > Play Next >>

Back 5 sec Forward 5 sec

Play All Play All New

Caller ID Delete

Audio Out

Speaker
Line Out
CO
ICM

Set Audio

VOX Setting

0C
0D
0E
0F

Set VOX

Schedule Settings

Connect

Start Schedule Halt Schedule

Stargate Message Log

Message Count Display

This is a three column list display. The first column displays the mailbox number (1-8). The second column displays the number of new messages in that mailbox. The third column displays the number of old (already played) messages in that mailbox.

Voice Mail Function Buttons

The Drop-down list controls which mailbox (1-8) these function buttons will control.

Playback Device Selection

This list allows you to configure which Stargate audio output is used for voice mail playback. Choices are one or more of : Stargate speaker, Stargate line output, Intercom (internal phone), or CO line (external phone). This is a multiple-select list, so press Ctrl+Click to select more than one output.

VOX Setting

This allows setting of the Stargate voicemail VOX threshold (build 3.08a of Stargate Firmware and above). Click the "Set VOX" button to send this information to Stargate.

Start Schedule

This instructs the Stargate to start running it's programmed schedule. (This has no relation to HomeSeer events or devices. It is a Stargate command.)

Stop Schedule

This instructs the Stargate to stop running it's programmed schedule. (This has no relation to HomeSeer events or devices. It is a Stargate command.)

Connect

This call sends the "Connect<CR>" sequence required when the HomeSeer plug-in is being used as a secondary Stargate interface.

Log Window

This is the display window for the log and status functions. It shows the text output returned by the Stargate.

Stargate Status

This displays the System Status text readout from the Stargate.

Message Log

The 'Message Log' button dumps the contents of the Stargate message log to the log display window.

The 'Clear' button underneath the phone log button tells the Stargate to clear the message log.

Phone Log

The 'Phone Log' button dumps the contents of the Stargate phone log to the log display window.

The 'Clear' button underneath the phone log button tells the Stargate to clear the phone log.

Stargate ASCII Out functions

The Stargate plug-in has several sets of functions that can be activated by using the 'ASCII Out' function from a Stargate schedule. Currently implemented are Shell to DOS, Play Media File, and Execute Script.

Using Play WAV file (ASCII Out) from the Stargate

This works ALMOST exactly as with WinEVM. Using ASCII Out from the Stargate, a line prefixed with '@@' will be played as an audio file using HomeSeer's media capability (actually Windows Media). The difference lies in it's interpretation of file locations. Since HomeSeer isn't (we most definitely hope) in the same directory as Stargate, the plug-in cannot make the same assumptions about file location. Thus, file location works as follows:

- 1) If no path is specified, it will look in the current directory and then along the system path.
- 2) If the filename is prefixed with '.', it will look in the 'media' subdirectory under the HomeSeer directory.
- 3) If the filename is prefixed with '*\', it will look in the StarGate directory specified in the Config dialog box.
- 4) If another absolute or relative path is specified in the filename, it will attempt to use that path.

Refer to the description of 'ASCII Out' in the Stargate documentation.

Using DOS shell (ASCII Out) from the Stargate

This works exactly as with WinEVM. Using ASCII Out from the Stargate, a line prefixed with '&&' will be passed to the DOS shell to execute. Refer to the description of 'ASCII Out' in the Stargate documentation.

Calling HomeSeer scripts (ASCII Out) from the Stargate

Using ASCII Out from the Stargate, a line prefixed with '\$\$' will be passed to the the HomeSeer script engine as a script file name. See the 'Run()' command in HS Scripting documentation and refer to the description of 'ASCII Out' in the Stargate documentation. The equivalent of RunEx() is also available, using The format :

```
ASCII-Out:"filename.vbs:function(variable)
```

With filename being the script file name, function being the function or subroutine name within the file, and variable being a variable number or string. Thus, an event could be written in Stargate

```
EVENT: Phone Call  
If  
CO: Ring 2  
Then  
ASCII-Out: '$$phonecall.vbs:CallerID(<CID>)
```


End

Using Stargate's CID macro (in the ASCII_Out dialog box). This would send the caller ID string to a user-written script in HomeSeer that would do whatever with it.

ASCII Capture

Using ASCII Out from the Stargate, a line prefixed with '>>' will be saved in the plug-in and can be read using the scripting LastAscii() method. This is intended primarily for harnessing the Stargate's Caller ID functionality, but also can be used for anything else that you can devise.

Stargate Phone Pad



This window allows direct control of the Stargate Phone functionality. From the "Stargate Control" page, click on "JDS Stargate Phone Pad". The buttons form the dial string in the box at the top of the page, then click "Dial" to send this to Stargate.

The phone panel is intended to duplicate the functionality of the manual telephone control utility window in WinEVM. As a result, operation is slightly less than intuitive. You assemble a dial string in the top window, and then click the 'Dial' button to send it to the Stargate. Normally, a phone session starts by taking the line Off Hook, and ends by placing it back On Hook. The rest of the buttons should be self-explanatory.

Accessing the Stargate Infrared Interface

In order to use the Infrared Xpander interface through the Stargate, the Stargate must be installed as the Infrared interface. From the

"Interfaces" tab of the HomeSeer setup page, click "Disabled" under the Infrared column on the JDS Stargate line, then click "Save" at the bottom of the page. Access to the Infrared functionality is through the standard Infrared interface facilities (scripting and control panel) defined in HomeSeer. See the HomeSeer manual for further information.

The reason that there is no import method for the Stargate Infrared database is as follows. Under HomeSeer the Infrared commands are grouped into devices (not related to HomeSeer devices - these are the physical devices that the Infrared commands control. This mapping extends into the way that they are stored in the HomeSeer database. Since WinEVM has no concept of Infrared devices, there is no way of reliably mapping an existing WinEVM Infrared database into HomeSeer. An import facility was written and then abandoned for just this reason. Rather, it is recommended that you re-learn the Infrared commands under HomeSeer.

Interface Scripting

The following scripting interface consists of methods on the Stargate plug-in object, This is only available to the user in HomeSeer 1.52 Build 26 and above.

Scripting capability at this point is divided by function into:

- Internal clock functions
- Status and log functions
- Voice mail functions
- Schedule functions
- Stargate polling
- SendConnect
- SelectPlaybackDevice

Getting the plug-in object

In order to call any public method of a plug-in from VBScript (HomeSeer's scripting language), you first have to get an object representing the plug-in. The easiest way to do this is by using the `.plugin()` method of the HomeSeer object. The following code fragment performs this function:

```
dim oSG  
  
set oSG = hs.plugin("JDS StarGate")
```

The interface methods documented here are then methods of `oSG`. This same method works for any other plug-in if you know what the names of the interface methods are.

Stargate Internal Clock Functions

```
SetTime(strLatitude As String, strLongitude As String)
```

Set the Stargate time/date from the PC system clock. The plug-in reads the station latitude and longitude, clock time and time zone information directly from the operating system.

```
SetStargateTime(strLatitude As String, strLongitude As String)
```

This function is for when you want to use a different latitude and longitude for the Stargate clock settings for some reason. (Stargate doesn't track well for some locations outside of the US.) The arguments are integer values for latitude and longitude, expressed as strings. The best way to set this up is probably to establish these as global variables in HomeSeer. The control panel uses the names 'Site Latitude' and 'Site Longitude' for these. The plug-in reads the clock time and time zone information directly from the operating system.

```
GetStargateTime()
```

Returns the current Stargate date and time as a string.

Status and Log Functions

```
Public Function ReadSystemStatus() As String
```

This reads the system status from the Stargate and returns the result as a multi-line string.

```
Public Function ReadMessageLog() As String
```

This reads the message log from the Stargate and returns the result as a multi-line string.

```
Public Function ClearMessageLog() As String
```

This erases the contents of the Stargate message log

```
Public Function ReadPhoneLog() As String
```

This reads the phone log from the Stargate and returns the result as a multi-line string.

```
Public Function ClearPhoneLog() As String
```

This erases the contents of the Stargate phone log

Voice Mail Functions

Stargate supports up to eight voice mailboxes (see the Stargate documentation for further details.) Each of these functions takes the mailbox number as the first argument. For single mailbox configurations, this should always be 1. The function names should be self-documenting.

```
Public Sub PlayFirstMessage(mbx As Integer)
```

```
Public Sub PlayNextMessage(mbx As Integer)
```

```
Public Sub PlayRepeat(mbx As Integer)
```

```
Public Sub PlayStop(mbx As Integer)
```

```
Public Sub PlayAllMessages(mbx As Integer)
```

```
Public Sub PlayAllNewMessages(mbx As Integer)
```

```
Public Sub PlayForward5Sec(mbx As Integer)
```

```
Public Sub PlayBack5Sec(mbx As Integer)
```

```
Public Sub PlayCallerID(mbx As Integer)
```

```
Public Sub PlayDeleteMessage(mbx As Integer)
```

```
Public Function GetMessageCount(mbx As Integer, ByRef newMStargates As Integer, ByRef oldMStargates As Integer) As Boolean
```

```
Public Function GetMessageCountV(mbx As Integer, ByRef newMStargates As Object, ByRef oldMStargates As Object) As Boolean
```

This one needs a little explaining. It is the same as `PlayGetMessageCount()` except that the two `ByRef` count variables are typed as `Objects`, for use on ASP pages, in VB scripts, and the like.

```
Public Function SetVoxThreshold(voxLevel As Integer) as Integer
```

This allows scriptable setting of the Stargate voicemail VOX threshold (build 3.08a and above). The function returns the old value of the VOX level. Please note that unlike the control page version of this function, the plug-in does not 'remember' VOX levels set through `SetVoxThreshold()`. Stargate, of course, remembers, but this information is unreadable.

Schedule functions

```
Public Sub StartSchedule()
```

Starts the Stargate schedule.

```
Public Sub HaltSchedule()
```

Halts the Stargate schedule.

SendConnect

SendConnect

This call sends the "Connect<CR>" sequence required when the HomeSeer plug-in is being used as a secondary Stargate interface.

SelectPlaybackDevice

SelectPlaybackDevice(iSetting As Integer, Optional bPersist As Boolean)

This selects the audio output device for voicemail playback. It is the equivalent of the selection on the control page.

The iSetting argument selects the device or devices to play back voice mail messages through. It is made up of one or more of the following flags:

```
PLAYBACK_SPEAKER = &H1  
PLAYBACK_LINE = &H2  
PLAYBACK_CO = &H4  
PLAYBACK_ICM = &H8
```

The bPersist argument tells the function whether or not to save the setting to the registry. If it is False, the setting will be lost when HomeSeer restarts. If it is True, the setting persists. The default is False.

PhoneHangup

PhoneHangup()

Hangs up the Stargate phone line. Takes no arguments. This command has no Control page equivalent.

PhoneDial

PhoneDial(strNumber)

Dials (sends Touch-Tone) to the Stargate phone line. The strNumber argument is the dial string to send. This command has no Control Page equivalent.

SendRaw

```
Public Function SendRaw(ByVal Send As String, ByVal AckType As Integer) As String
```

SendRaw allows a script to send a command string directly to the Stargate. See the Stargate protocol specification for string formats. This command has no Control page equivalent.

ThenMacro

ThenMacro(strMacro as String)

This function allows direct access to (execution of) the Stargate/TC Then macros. The strMacro argument is a string (or integer) containing either the macro name (as defined in WinEVM) or macro ordinal number (0-255) to be executed. Returns TRUE if macro name/number was found, FALSE otherwise. There is no way of determining programmatically whether the macro itself executed successfully.

Version

The version method returns a string made up of the plug-in major version number, minor version number, and build number, such as

0.1.90. It takes no arguments. This method has no Control page equivalent.

LastAscii

The LastAscii method returns the last ASCII string captured by the plug-in. See the description of the ASCII Capture functionality. This method has no Control page equivalent.

Email-Aware Functions

These functions are as follows:

```
Public Function ShortName() As Object
```

Takes no arguments. Returns a string giving the default 'short name' of the module.

```
Public Function HelpText() As Object
```

Takes no arguments. Returns a string containing the help text for that specific module. This will be rolled into the email message that is returned when Help is requested of the email processor.

```
Public Function ProcessLine(strLine As Object) As Object
```

Takes one argument consisting of a command/request line as a string. This is the 'guts' of the functionality. This function interprets the command/request, performs the directed actions, and returns the results, if any. Result strings are defined by the specific module implementations. The return string is displayed in the response email generated by the processor. The following commands are supported:

START

Starts the Stargate schedule

HALT

Halts the Stargate schedule

READ_MESSAGE_LOG

Returns the text of the Stargate phone log

CLEAR_MESSAGE_LOG

Clears the Stargate phone log

READ_STATUS

Returns the Stargate status read-out

READ_PHONE_LOG

Returns the text of the Stargate phone log

CLEAR_PHONE_LOG

Clears the Stargate phone log

Polling Stargate Devices

```
Public Sub PollStargate(iPollMask As Integer)
```

This initiates a 'read' of the various StarGate devices, similar to that performed when the plug-in starts up. An optional argument is a device mask, which selects the device types to be read. The mask is made up of one or more of the following values

POLL_VARIABLES = &H1

POLL_FLAGS = &H2

POLL_DIGITAL = &H4

POLL_ANALOG = &H8

POLL_RELAYS = &H10

POLL_X10 = &H20

POLL_ALL = &H3F

Event Functionality

The HomeSeer Stargate plug-in has the ability to create events in HomeSeer and to trigger those events based on events received from Stargate. These events are created automatically in HomeSeer by the plug-in and are stored in the JDS group. Since the plug-in accesses these events by name in order to trigger them, please do not rename them. Also, please note that these are specific events,

not event types. Events are linked to actions in the normal way, by opening the event in HomeSeer and associating the appropriate X10, script, voice, or other action with it.

Not all events in the 'JDS' category are designed to be linked to, so please read the sections on the individual events.

Phone Event

This is triggered by activity on the Stargate phone board. Whenever activity activity comes in from the phone board, an event called "_PhoneEvent_" is triggered. Two callback functions are then used to get the specific event information from the plug-in, since events don't pass arguments.

```
Public Function GetLastPhoneEvent() As Integer
```

This function returns the last phone event received by the Stargate as a numeric value. Since an effort has been made to use the Stargate values themselves as closely as possible, the numbering system is a trifle non-intuitive.

```
112 - Off hook (internal)
113 - On hook (internal)
210 - No dial tone
211 - Dial tone "" ""
240 - External phone ring (GetLastPhoneDigit() returns ring number)
5xx - Touch tone digit - Intercom (GetLastPhoneDigit() returns digit; 10 = -0, 11 = *, 12 = #)
6xx - Touch tone digit - External (GetLastPhoneDigit() returns digit; 10 = -0, 11 = *, 12 = #)
```

The value 10 is used for the digit '0' deliberately, as the value 0 is often used to represent 'no value'. (The plug-in uses -1 for that.)

```
Public Function GetLastPhoneDigit() As Integer
```

For those events that have digits associated with them (i.e. received DTMF), this function returns the last digit received, as described above.

Here's a very minimal script sample demonstrating this. This script would be attached to the "_PhoneEvent_" event in HomeSeer.

```
Sub Main()

Dim oPlug
Dim iEvent
Dim iDigit

Set oPlug = hs.plugin("JDS Stargate")
iEvent = oPlug.GetLastPhoneEvent
iDigit = oPlug.GetLastPhoneDigit

hs.WriteLog("PHONE_SCRIPT", "Phone event " & iEvent & " digit " & iDigit)

End Sub
```

Heartbeat (keep-alive) management

Keep-alive monitoring for the Stargate / HomeSeer combo

One of the beauties of having an intelligent controller AND a PC running the home automation system is that the two can keep tabs on each other. Here's the way that I do it. I've created a set of four flags to do this. They are:

```
HEARTBEAT
HS_HEARTBEAT
HS RUNNING
Stargate RUNNING
```

The first two compose what amounts to (for the hardware types) a bistable oscillator. Every minute Stargate toggles the HEARTBEAT flag. HomeSeer responds to a change of state in this flag by toggling the HS_HEARTBEAT flag to match. Each side also sets a re-triggerable timer, so that the timer will only expire if the next expected heartbeat event doesn't arrive within a reasonable time. I use a two minute window. If the timer expires, the appropriate flag (Stargate Running on the HomeSeer side or HS Running on the Stargate side) is set to OFF.

Other events can then be set to trigger on these flags going OFF. For instance, in my set-up 'Stargate Running' going Off triggers a text message to my cell phone, a log entry, and an email to my configured alert address. It then attempts to cycle the Stargate by sending a 'Schedule Stop' command followed by a 'Schedule Start' command. If this fails, I want it to eventually be able to power-cycle the Stargate, but haven't figured out a way yet, since if the Stargate is down the X10 capability is down.

There's also a secondary benefit. I use the Stargate schedule to respond to events such as Infrared detectors that turn on lights, for performance reasons. By testing the state of the 'HS Running' flag, I can then determine whether or not Stargate should handle starting a timer to turn the light back off. (Generally, HomeSeer handles this.) Thus I can write a schedule that gracefully degrades functionality if HomeSeer isn't running. The same could be done for any other Stargate event for which you want to have a 'backup' behavior.

{Note that while I'm writing this with HomeSeer and the JDS Stargate specifically in mind, the same solution could be implemented for any intelligent X10 controller that offers flags and re-triggerable timers and for any PC HA program that offers a similar level of functionality.}

Stargate side

Defined flags:

HEARTBEAT

HS_HEARTBEAT

HS RUNNING

Stargate RUNNING

These are the applicable fragments from a Stargate schedule implementing the above heartbeat processing.

```
EVENT: Startup
If
First pass through schedule
Then
(F:Stargate RUNNING) SET
(V:HEARTBEAT TIME) LOAD with 1
End

EVENT: HomeSeer started
If
(F:HS RUNNING) is SET
Then
(T:HS_HEARTBEAT) LOAD with 0:02:00
End

EVENT: Stargate Heartbeat

If
(T:HEARTBEAT) is Expiring
Then
If
(F:HEARTBEAT) is SET
Then
(F:HEARTBEAT) CLEAR
Else
(F:HEARTBEAT) SET
Nest End
(T:HEARTBEAT) LOAD with 0:01:00
(V:HEARTBEAT TIME) LOAD with 1
End

EVENT: HomeSeer HB expired
If
(T:HS_HEARTBEAT) is Expiring
Then
LOG 'Detected HomeSeer not running'
Voice:STTRALRT STTRALRT STTRALRT STTRALRT [Spkr]
(F:HS RUNNING) CLEAR

End

EVENT: HS Heartbeat
If
(F:HS_HEARTBEAT) is SET
Then
(T:HS_HEARTBEAT) LOAD with 0:02:00
Else
(T:HS_HEARTBEAT) LOAD with 0:02:00
End

EVENT: Start Heartbeat
If
(T:HEARTBEAT) is Not Running
Then
(T:HEARTBEAT) LOAD with 0:01:00
End
```


HomeSeer side

The following script both implements all of the HomeSeer-side functionality of the heartbeat processing and implements some code to automatically create the various events that drive it. The latter is in the function `FirstPass()`. `FirstPass()` is called by an initialization script called `firstpass.vbs`, which in turn is called by the HomeSeer start-up script.

heartbeat.vbs

```
Option Explicit

Public Const MISC_DEL_AFTER_TRIGGER = &H10
Public Const MISC_HIDE = &h30

Public Const MISC_NO_RETRIGGER = &H2000
Public Const MISC_EVNO_LOG = &h3000
Public Const X10_ON = 2
Public Const X10_OFF = 3

Public Const HB_EVENT = "_Heartbeat_Event"
Public Const HEARTBEAT_EVENT = "Heartbeat"
Public Const HEARTBEAT_FAIL_EVENT = "Heartbeat_Fail"
Public Const HEARTBEAT_GROUP = "ROUTINE"
Public Const Stargate_HEARTBEAT = "JDS Heartbeat"
Public Const HS_HEARTBEAT = "JDS HS_Heartbeat"
Public Const Stargate_RUNNING = "JDS Stargate RUNNING"
Public Const HS_RUNNING = "JDS HS RUNNING"

sub main()

Dim hb
On Error Resume Next

hb=hs.IsOnByName(Stargate_HEARTBEAT)
If hb Then
hs.ExecX10ByName HS_HEARTBEAT, "ON"
Else
hs.ExecX10ByName HS_HEARTBEAT, "OFF"
End If
'If we're receiving heartbeat pulses, then we can assume that Stargate is on line
Heartbeat(3)
If hs.IsOffByName(Stargate_RUNNING) Then
hs.SetDeviceValueByName HS_RUNNING, 0
hs.ExecX10ByName Stargate_RUNNING, "ON"
End If
end sub

' This code is called by the FirstPass script, which in turn is called by the start-up script

' It checks for the existence of the devices used by the heartbeat monitor, and creates the
' associated events as necessary
Public Function FirstPass(dummy)
Dim strResult
Dim evHeartbeat
Dim evReset
Dim i
Dim strCode
Dim cd
Dim dv

FirstPass = dummy
strResult = ""
hs.writelog "Heartbeat", "Heartbeat first pass"

' set up heartbeat event
' does device exist?
Set dv = hs.GetDeviceEx(Stargate_HEARTBEAT)
If dv Is Nothing Then
hs.writelog "HEARTBEAT ERROR", Stargate_HEARTBEAT & " does not exist"

If Len(strError) > 0 Then
strResult = strResult & ";"
End If
strResult = strResult & Stargate_HEARTBEAT & " does not exist"
Else
'Is there an event running?
set evHeartbeat = hs.GetEventEx(HEARTBEAT_EVENT)
If TypeName(evHeartbeat) = "EventClass" Then
' If so, use it
```

```

Else
i=hs.NewEvent(HEARTBEAT_EVENT)
Set evHeartbeat=hs.GetEvent(i)
End If
evHeartbeat.ev_abs_time = 11 ' Device status change
evHeartbeat.ev_trig_hc = dv.ref ' Device reference

evHeartbeat.ev_trig_dc = 18 ' Any state
evHeartbeat.scripts = "heartbeat.vbs" ' script to run
evHeartbeat.misc = MISC_EVNO_LOG + MISC_HIDE
evHeartbeat.group = HEARTBEAT_GROUP
End If

' set up heartbeat failure event
' does device exist?
Set dv = hs.GetDeviceEx(Stargate_RUNNING)
If dv Is Nothing Then
hs.writelog "HEARTBEAT ERROR", Stargate_RUNNING & " does not exist"
If Len(strError) > 0 Then
strResult = strResult & ";"
End If
strResult = strResult & Stargate_RUNNING & " does not exist"
Else
'Is there an event running?
set evReset = hs.GetEventEx(HEARTBEAT_FAIL_EVENT)
If TypeName(evReset) = "EventClass" Then
' If so, use it
Else
i=hs.NewEvent(HEARTBEAT_FAIL_EVENT)
Set evHeartbeat=hs.GetEvent(i)
End If
evReset.ev_abs_time = 11 ' Device status change
evReset.ev_trig_hc = dv.ref ' Device reference
evReset.ev_trig_dc = 3 ' Off

evReset.scripts = "heartbeat.vbs("ResetStargate",0)" ' script to run
evReset.misc = 0
evReset.group = HEARTBEAT_GROUP
End If

Set dv = hs.GetDeviceEx(HS_HEARTBEAT)
If dv Is Nothing Then
hs.writelog "HEARTBEAT ERROR", HS_HEARTBEAT & " does not exist"
If Len(strError) > 0 Then
strResult = strResult & ";"
End If
strResult = strResult & HS_HEARTBEAT & " does not exist"
End If

Set dv = hs.GetDeviceEx(HS_RUNNING)
If dv Is Nothing Then

hs.writelog "HEARTBEAT ERROR", HS_HEARTBEAT & " does not exist"
If Len(strError) > 0 Then
strResult = strResult & ";"
End If
strResult = strResult & HS_RUNNING & " does not exist"
FirstPass = strResult
Exit Function
End If

If Len(strResult) = 0 Then
' Set up HS monitor
hs.SetDeviceValueByName HS_RUNNING, 0
hs.ExecX10ByName HS_RUNNING, "ON"
Else
hs.SetDeviceValueByName HS_RUNNING, 0
hs.ExecX10ByName HS_RUNNING, "OFF"

End If

FirstPass = strResult
End Function

Private Sub Heartbeat(iDelay)
Dim ev
Dim idx

'Is there an event running?
Set ev = hs.GetEventEx(HB_EVENT)
If TypeName(ev) = "EventClass" Then

```

```

' Remove from queue for retriggering
hs.RemoveDelayedEvent "", HB_EVENT
'hs.writelog "HEARTBEAT", "Retriggering event " & HB_EVENT
Else
' Create new event
Set ev=HeartbeatEvent()
'hs.writelog "HEARTBEAT", "Triggering event" & HB_EVENT

End If
' Delay and fire event
hs.DelayTrigger (iDelay*60), HB_EVENT
End Sub

Private Function HeartbeatEvent()
Dim i
Dim ev
Dim df
Dim dv

i=hs.NewEvent(HB_EVENT)
set ev=hs.GetEvent(i)
'Set up device function
set df=hs.NewDevFunc

' Set it to turn Stargate_RUNNING flag off
set dv = hs.GetDeviceEx(Stargate_RUNNING)
if dv is nothing then
hs.writelog "HEARTBEAT", "Device " & Stargate_RUNNING & " not found"
Exit Function
end if

df.devid = dv.ref

df.func=X10_OFF ' Off

' Connect it to event
ev.ev_devices.add df
' Event is hidden, not logged, and deleted after being triggered
' ev.misc = MISC_EVNO_LOG' + MISC_DEL_AFTER_TRIGGER + MISC_HIDE
ev.group = HEARTBEAT_GROUP
Set HeartbeatEvent = ev
End Function

' Note that this assumes that the HRC HomeSeer/Stargate plug-in is installed
Public Sub ResetStargate(dummy)
Dim retries
Dim oPlug
hs.writelog "HEARTBEAT", "StargateReset"
retries = hs.DeviceValueByName(HS_RUNNING)

If retries = 0 Then
' ' Try resetting Stargate
Set oPlug=hs.plugin("JDS Stargate")
oPlug.HaltSchedule
hs.WaitSecs 5
oPlug.StartSchedule
Set oPlug=Nothing
hs.SetDeviceValueByName HS_RUNNING, 1
Else
hs.writelog "HEARTBEAT", "Need to figure out what to do here"
'Need to figure out what to do here
hs.RunEx "stdlib.vbs", "AlertPage", "STARGATE ERROR ALERT"
hs.RunEx "stdlib.vbs", "AlertEmail", "STARGATE ERROR ALERT"
hs.RunEx "stdlib.vbs", "BannerMessage", "WARNING:Stargate down alert at " & Time & "!"

hs.Writelog "SECURITY", "Stargate down alert at " & Time & "!"
End If
End Sub

```

firstpass.vbs

```

Option Explicit

' Modules to be initialised should be entered in the list, and
' should contain a function FirstPass that returns a string

sub main()
Dim oList ' List of modules
Dim oModule

```

```
Dim s

hs.CreateVar "vFirstPass"
hs.SaveVar "vFirstPass", True
' Module list contains names of modules to be initialised
oList = Array("security.vbs","heartbeat.vbs")

hs.WriteLog "First Pass", "Beginning first pass"
For Each oModule In oList
hs.WriteLog "First Pass", "Initialising " & oModule
' call the script and get the return value

s = hs.RunEx(oModule,"FirstPass","")
If Len(s) > 0 Then

' display the returned string
hs.WriteLog "First Pass ERROR", oModule & " returned " & s
End If
Next 'oModule
hs.WaitSecs 5
hs.SaveVar "vFirstPass", False
hs.WriteLog "First Pass", "First pass completed"
End Sub
```