



RXP GNS 530W/430W V2

User's Manual For X-Plane

Fly Waas Approaches!

The WAAS-certified GNS 530W and its slightly smaller sibling, GNS 430W, lead the industry with multitasking, integrated avionics and cutting-edge WAAS navigation. The GNS 530W comes with optional Class B TAWS alerting to warn you of potential terrain and obstacle conflicts along your flight path. Both come with optional Ryan 9900B TCAD, Shadin Fuel and Shadin Air input, and cross fill capability.

The Reality XP GNS 530W/430W V2 is an entirely new GNS WAAS simulation product built on our unique expertise in designing the most authentic Garmin devices simulation since 2002.

About This Manual

This manual guides you through the product features and is intended for flight simulation purposes only. It shall not be used for any real world aviation application or reference. By reading this manual, you should become well acquainted with the product, and should be able to obtain the information necessary to use the product in your simulator.

We thank you for having chosen a Reality XP Product and wish you a pleasant and a safe virtual flight with us.

Product disclaimer: this software is designed for entertainment only. Although we have designed the product to resemble and function like the original, it is not designed as a training device. Not all systems have been simulated, and some of those that have been simulated may not be entirely functional.

NOT FOR USE IN REAL FLIGHT OR AIRCRAFT OPERATION.

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Introduction

The Reality XP GNS 530W and GNS 430W V2 gauges is a faithful reproduction that pilots and flight simulator users can use it as a training tool to familiarize themselves with the workings of the actual equipment. Each button and knob is fully functional and performs identically to its real-world counterpart.

Garmin avionics have become the clear #1 choice in the owner-flown aircraft market. Nearly three-fourths of all U.S. single- and twin-engine piston and turbine aircraft retrofitted since 2000 are now flying with Garmin GPS-enabled equipment. The provision of the integrated communication and navigation radios in the unit gives the extra capabilities of auto tuning and pre-fetching your navigation and approaches frequencies. Flying has never been easier!

The Reality XP GNS 530W and GNS 430W V2 are navigator's heaven with an extraordinary number of user customizable navigation information fields. In short, there is simply no better simulation of the GNS 530W and GNS 430W for any flight simulator, period.



System Requirements

The Reality XP GNS 530W/430W V2 requires Laminar Research X-Plane 11, 10 or 9 for Windows¹.

During installation you will be prompted to download and install the Garmin GNS Trainer Lite². The first time you install this package, or should you need to repair the Garmin Trainer installation, the installer will save a copy of the trainer installer in: "C:\ProgramData\Reality XP\Common\GnsTrainer"

This Garmin trainer is a more recent version never offered before in flight simulation, exclusively showcased in our solution. It has main software version 3.3 released in 2010 and includes bug fixes, faster updates, takes less resources and adds some new capabilities to the integrated navigator.

¹ X-Plane minimum versions required: 11.x (64bits), 10.5(64/32bits), 9.42(32bits) ; Windows versions required: WinXP to Win10

² Compatible trainer versions: 3.3

Getting Started

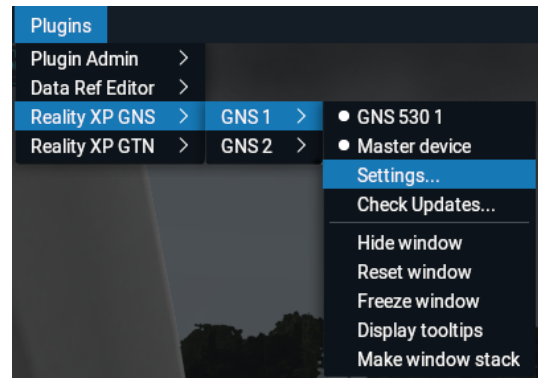
Garmin Reference Guides

In addition to this user's manual which guide you through the functions within the simulator, we recommend referring to the original Garmin GNS series pilots and cockpit reference guide that is installed in its own Garmin program group. Please take the time to read all manuals completely so that you can become properly acquainted with the product and its operation.

Plugins Menu

The GNS 530W/430W V2 plug-in loads automatically and is operated using the X-Plane Plugins menu.

Select the menu **Plugins | Reality XP GNS** to add or remove a GNS unit to your aircraft. Once a device is active, additional options appear in the menu:



Master Device	The Master Device has autopilot and navigation authority in dual-GNS panel installations.
Settings...	Open the configuration panel.
Check Updates...	Check whether there is a new version released.
Show Window	Show or hide the gauge window.
Reset Window	Reset default gauge size.
Freeze Window	Locks window dimensions.
Popout Window	Toggles the window between popup (in-sim) and popout (detached) modes.
Display tooltips	Show or hide mouse tooltips.
Make window stack	Make this window the top of the stack, the other adjusts below.

Configuration Panel

The GNS can be tailored to suit your needs by configuring the way each device looks and behaves. Most of each device configuration options are available from the configuration panel.

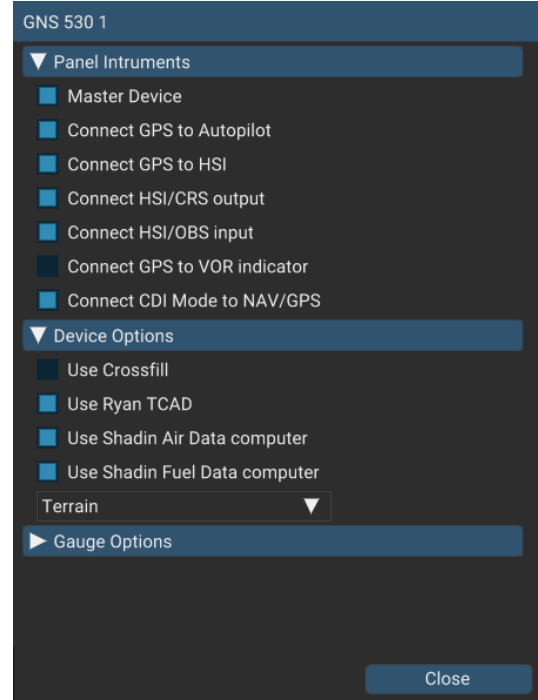
Press and hold the SHIFT key then RIGHT-Click the top edge of the GNS device to open the configuration panel³.

Options are set up for an individual aircraft and then saved to the "RealityXP.GNS.ini" file in the aircraft folder. When loading the aircraft the plug-in restores the last known settings, including window size and position.

Whenever the configuration changes, the last row changes to display 'Cancel' and 'Accept' buttons.

When changed settings require rebooting the device, a warning 'Reboot Device' tag displays next to each one and the confirmation button changes to 'Accept and Reboot'.

You can also **Drag and Drop** any RealityXP.GNS.ini file onto the panel window to import another aircraft settings.



Using The Mouse

This gauge implements a relatively unique implementation of click spots. They work as follows:

- The mouse cursor contextually changes depending on the possible actions.
- As the mouse cursor passes over a click spot it changes from an arrow cursor to a “hand” cursor.
- Whenever a single click spot is used, a left click will accomplish the task.
- Left clicks turn knobs to the counter-clockwise direction when the mouse is in an area to the left of the knob and to the clockwise direction when the mouse is in an area to the right of the knob.
- Mouse wheel turns knobs in either direction regardless if the mouse is to the left or to the right.

Resizing The Gauge Window

The simulation window resizes and maintains its aspect ratio. **Press and hold the SHIFT key then LEFT-Click the top edge** of the GNS device to scale the window to either 1:1 or 2:1 screen sizes⁴.

While the mouse cursor is grabbing any of its edges or corners, **press and hold the SHIFT key** to relax the aspect ratio constraint while resizing.

³ **SHIFT+LEFT Click** for **XP10** and **XP9**. The settings panel also opens with menu: **Plugins | Reality XP GNS | GNS # | Settings...**

⁴ Requires X-Plane 11 minimum.

Plugin Details

The simulation comes in the form of a plug-in installed in the "XPlane\Resources\Plugin\rxpGNS" folder⁵. There is only one plug-in for both the GNS 530W and the GNS 430W simulation⁶. In addition to GPS integration to the panel system, the GNS offers some additional features described below.

Autopilot

The GNS is capable of precise course deviation and roll steering outputs that can be coupled to the simulator autopilot so that IFR flight procedures may be flown automatically.

Radios

The GNS 530W and GNS 430W V2 can control the simulator COM and NAV audio panel volumes using the **Power** and the **Volume** knobs respectively (XP10+ only).

To accommodate a wider variety of aircraft panels, the GNS 530W license unlocks the **GPS 500W**. Similar in form and function to the 530W, the radio-less sibling fits panels already equipped with radios. It also fits in any panel equipped with the default FS GPS. The GNS 430W license includes the **GPS 400W** and the **GNC 420W**.



Traffic Collision Alerting Device

The GNS offers a faithful simulation of the Ryan 9900B TCAD (Traffic Collision Alerting Device). Internally powered by a complete TCAS II Mark 7 simulation passing the 250 TSIM tests, it comes integrated to the RXP GNS 530W and the RXP GNS 430W V2. Take full control of the TCAD detection shields, view nearby traffic and take actions upon visual and aural TA advisories directly on the GNS device. The TCAD simulation takes its data source from the standard X-Plane multiplayer datarefs.

TAWS-B

The GNS V2 offers both TAWS-B and TERR Proximity modes. Proper integration and use in TAWS-B mode require advanced settings. The GNS also connects to the flaps and the gear in order to adjust its detection sensitivity and operating limits depending on the phase of flight.

Integral Lighting

The plug-in integrates with the X-Plane panel system and provides adjustable integral lighting through the default X-Plane integral lighting rheostats. Using the configuration panel, select whether you prefer constant or adjustable brightness. The later offers a choice among the first 4 available X-Plane standard rheostats.

⁵ X-Plane 9: "Resources\Plugin\rxpGNS2.xpl"

⁶ The same plugin file installs both but It requires purchasing and installing both products to unlock both GNS models.

Cross Fill

When enabled in both GNS, this option allows you to transfer a direct-to destination, the active flight plan including VNAV parameters, any stored flight plan or user waypoints to a second 400W or 500W device.

If both units are set to automatic (in the Garmin GNS device settings), a change in the active flight plan, or VNAV parameters, on one unit can also be seen in the other. Initiating a direct-to course to a waypoint on one unit also initiates a direct-to course to the same waypoint on the other unit.

X-Plane GPS commands

The GNS can be configured to intercept all of the default X-Plane GPS commands. When the option is enabled in the configuration panel, the X-Plane GPS bezel buttons and knobs control the GNS.

Keyboard Shortcuts

To change hotkeys, use the X-Plane Plugin Admin Menu. These are saved in a "RealityXP.GNS.INI" file located in the X-Plane preference folders.

Discrete Inputs

Each device supports additional external controls, either through the keyboard shortcuts, custom commands or the default GPS commands. These controls change a GNS operating mode (discrete input in a real GNS):

- Toggle CDI source
- Toggle OBS mode
- Inhibit TAWS

Pilotedge Integration

Real flying takes place in a dynamic environment populated by other human beings. In a real airplane there's no Pause key, and the pilots and air traffic controllers you interact with on the radio are real people. Enter PilotEdge. Connecting your flight simulation software to PilotEdge⁷ instantly creates the same mental environment you find yourself in when you fly a real airplane.

When using the Pilotedge plugin online, the GNS COM box automatically annunciates the **RX flag** when receiving audio and the **TX flag** when transmitting audio.

⁷ <https://www.pilotedge.net>

REALITY XP GNS 530W/430W V2 X-PLANE

Failures Annunciation

When enabled in the configuration panel, the GNS plugin uses the following datarefs⁸ as failures sources:

sim/operation/failures/rel_gps sim/operation/failures/rel_gps2 sim/operation/failures/rel_g430_gps1 sim/operation/failures/rel_g430_gps2	Satellite reception failure, displays "No GPS Position"
sim/operation/failures/rel_gp	Differential GPS failure, reduces location accuracy (satellite reception mode switches to 3D)
RXP/operation/failures/rel_raim_gps1 RXP/operation/failures/rel_raim_gps2	RAIM check failure.



Hardware Controllers

The GNS supports a selection of external hardware controllers⁹. When the plug-in loads, it automatically detects the connected hardware and saves the bindings to the "RealityXP.GNS.ini" file in the aircraft folder. The following hardware devices are supported:

- PFC 430 Control Head Standalone.
- PFC 430 Control Head included in PFC Avionics Stack.

⁸ datarefs starting with 'RXP' use the same 'failure' values as X-Plane datarefs (0: normal, 6: inop).

⁹ Requires separate activation or a hardware enabled version. See reality-xp.com for available options. Existing customers of the GNS Driver don't have to purchase the driver a second time.

Flight Plans And User Waypoints

Flight plans can be created on a computer using compatible flight planning software and saved to a virtual datacard folder to be imported into the GNS. The imported flight plans can then be stored to the GNS flight plan catalog. This chapter describes how to enable and use this feature.

Preparing the virtual datacard

The first step is to create a virtual datacard folder where to store the flight plans and the user waypoints. This folder must be named **FPL** and be located in the GNS Trainer Data folder, typically¹⁰:

```
"C:\ProgramData\Garmin\GNS Trainer Data\GNS\FPL"
```

The second step is to create one or more flight plan files with the ".fpl" file extension. The product comes with a starter pack installed into the following folder:

```
"C:\ProgramData\Reality XP\Common\GnsTrainer\flightplans.zip"
```

Alternatively, this could be a "FPL" shortcut instead of a folder, linked to any other folder on the hard drive, for example:

1. Create a folder "Documents\GNS Flight Plans" where to copy the flight plan files and user waypoints file.
2. Open "C:\ProgramData\Garmin\GNS Trainer Data\GNS", right-click the empty area to the right, select **new | shortcut**
3. Name the shortcut "FPL" and select the browse button
4. Browse to select the "Documents\GNS Flight Plans" folder and press OK.

Importing flight plans

The last step is to import the flight plans into the GNS device. To proceed with the starter pack, unzip the "flightplans.zip" archive file to extract the "LFATLFRG.fpl" flight plan sample file, then copy the file to the "FPL" folder.

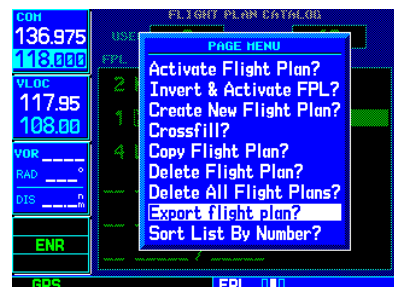
On the GNS device, while viewing the Flight Plan pages, turn the outer GPS knob clockwise to reach the 3rd FPL page and select flight plan file, and the FPL number this flight plan will be assigned to. When done, select **Import?**



Exporting flight plans

The GNS offers a feature to export the flight plans from the device. On the GNS device, while viewing the Flight Plan Catalog page, press the GPS knob to activate the cursor and select a flight plan in the list.

Then press the **Menu** key and select the **Export Flight Plan?** option. The exported flight plan is saved to the same "FPL" folder with a unique file name.



¹⁰ The "FPL" folder must reside in the folder equivalent to "GNSAPPPDATA" (see Configuring Alternate Paths chapter for more information).

Configuration

Aircraft Configuration

This chapter details the general organization of the settings file. The GNS settings are automatically saved in the file **RealityXP.GNS.ini** located in the aircraft folder. Every time a GNS opens from the Reality XP GNS menu, it creates this self-documented settings file on save.

The INI file consists of sections and keys. The name of a section is always entered inside the square brackets. Each section contains several keys (the key must be always assigned to the section that begins in the file before this key). The content of one section ends by a definition of the next section. The name of a key is always on a separate line and the content is assigned by the = char. A line comment starts with the ; char.

```
[GNS]
; comma separated list of gauges
gauges = GNS_530_1, GNS_430_2

[GNS_530_1]
; comma separated list of render targets.
drawto = WINDOW, PANEL2D
; is the master device if true.
MasterDevice = true

[GNS_530_1.WINDOW]
; display window if true.
visible = true

[GNS_530_1.PANEL2D]
; display window if true.
visible = false
```

There are multiple sections in the Reality.GNS.ini file:

- The **GNS** section contains the gauges key with the content "GNS_530_1, GNS_430_2. These are the names of the sections for each gauge.
- The **GNS_530_1** gauge section contains the drawto key with the default content "WINDOW, PANEL2D". These are the names of the sections for each render target.
- The **GNS_530_1.WINDOW** and **GNS_530_1.PANEL2D** render target sections contain the rendering settings.¹¹

Advanced Settings

Advanced settings are only manually editable in the **RealityXP.GNS.ini** settings file in a **[GNS_###_#]** section:

CpuAffinity = -1	selects the CPU running the trainer process: 1 to 32; 0: last core, -1: automatic.
HardwareDevice =	; connects to: 'PFC_STACK', 'PFC_430', 'PFC_530' or any '#PID' (#D002 for PFC_430) no value connects to first found, 'OFF' disables connection (requires the Reality XP GNS Driver add-on)
HardwareIdx = -1	; hardware selector number or -1 to disable (requires the Reality XP GNS Driver add-on)

¹¹ Please note you can only configure one window per gauge, but you can configure multiple panels per gauge.

Third Party Vendor Settings

Third party aircraft vendor might want to prevent users from altering settings which would break the integration. For example, a specific aircraft integration might require the device to be set to 'Copilot' side, and connected to the HSI. The plugin support additional setting to make any entry read-only. When locked, settings appear disable in the configuration panel.

The following key must be manually added in the **RealityXP.GNS.ini** settings file in a **[GNS_###_#]** section:

locked = CopilotSide, LinkHsi	comma separated list of read only settings. (NB: case sensitive names)
-------------------------------	--

Custom Commands

This chapter describes the list of custom X-Plane commands available to control the GNS with hardware controllers. Each command exists with a "_1" suffix for unit #1, and "_2" suffix for unit #2

RXP/GNS/CFLP	press button: COM fLIP	RXP/GNS/PWR_PUSH	press knob: POWER
RXP/GNS/VFLP	press button: NAV flip	RXP/GNS/PWR_CCW	rotate knob: POWER (ccw)
RXP/GNS/CDI	press button: CDI	RXP/GNS/PWR_CW	rotate knob: POWER (clock-wise)
RXP/GNS/OBS	press button: OBS	RXP/GNS/VOL_PUSH	press knob: VOLUME
RXP/GNS/MSG	press button: MSG	RXP/GNS/VOL_CCW	rotate knob: VOLUME (ccw)
RXP/GNS/FPL	press button: FPL	RXP/GNS/VOL_CW	rotate knob: VOLUME (clock-wise)
RXP/GNS/VNAV	press button: VNAV	RXP/GNS/COM_PUSH	press knob: COM
RXP/GNS/PROC	press button: PROC	RXP/GNS/COM_OUTR_CCW	rotate outer: COM (ccw)
RXP/GNS/ENT	press button: ENT	RXP/GNS/COM_OUTR_CW	rotate outer: COM (clock-wise)
RXP/GNS/CLR	press button: CLR	RXP/GNS/COM_INNR_CCW	rotate inner: COM (ccw)
RXP/GNS/MNU	press button: MNU	RXP/GNS/COM_INNR_CW	rotate inner: COM (clock-wise)
RXP/GNS/DTO	press button: DTO	RXP/GNS/GPS_PUSH	press knob: GPS
RXP/GNS/RDN	press button: RNG UP	RXP/GNS/GPS_OUTR_CCW	rotate outer: GPS (ccw)
RXP/GNS/RUP	press button: RNG DWN	RXP/GNS/GPS_OUTR_CW	rotate outer: GPS (clock-wise)
RXP/GNS/CDI_SOURCE	toggle CDI source (discrete input)	RXP/GNS/GPS_INNR_CCW	rotate inner: GPS (ccw)
RXP/GNS/OBS_MODE	toggle OBS mode (discrete input)	RXP/GNS/GPS_INNR_CW	rotate inner: GPS (clock-wise)
RXP/GNS/TAWS_INHIBIT	inhibit TAWS (discrete input)	RXP/GNS/TOGGLE_WINDOW	toggle window visibility

In addition the plugin exports the following commands designed to work across multiple Reality XP plugins:

"RXP/GPS/MASTER_DEVICE_0	select master device: default GPS
"RXP/GPS/MASTER_DEVICE_1	select master device: Reality XP GPS 1
"RXP/GPS/MASTER_DEVICE_2	select master device: Reality XP GPS 2
RXP/GPS/MASTER_DEVICE_NEXT	select next available master device

Custom Datarefs

This chapter describes the list of datarefs the GNS publishes to third party plugins¹².

```

RXP/radios/indicators/hsi_bearing_deg_mag_pilot
RXP/radios/indicators/hsi_flag_from_to_pilot
RXP/radios/indicators/hsi_hdef_dots_pilot
RXP/radios/indicators/hsi_vdef_dots_pilot
RXP/radios/indicators/hsi_has_dme_pilot
RXP/radios/indicators/hsi_dme_distance_nm_pilot
RXP/radios/indicators/hsi_dme_speed_kts_pilot
RXP/radios/indicators/hsi_dme_time_min_pilot
RXP/radios/indicators/hsi_flag_glideslope_pilot
RXP/radios/indicators/hsi_display_horizontal_pilot
RXP/radios/indicators/hsi_display_vertical_pilot

RXP/radios/indicators/gps_course_degtm
RXP/radios/indicators/gps_cross_track_nm
RXP/radios/indicators/gps_time_min_eta
RXP/radios/indicators/gps_nav_id
RXP/radios/indicators/gps_discrete_out
RXP/radios/indicators/gns_unit1      (4 chars encoded device id or 0 as int)13
RXP/radios/indicators/gns_unit2      (4 chars encoded device id or 0 as int)

```

Control Variables

Third party plugins write to the following sim datarefs to further enhance the GTN operation:

```

RXP/operation/failures/rel_raim_gps1 failure enum   (6 to inop)
RXP/operation/failures/rel_raim_gps2 failure enum   (6 to inop)
RXP/gps/dscrt_in/obs_mode_sel_1      boolean      GPS #1 discrete in signal (1 to trigger)
RXP/gps/dscrt_in/obs_mode_sel_2      boolean      GPS #2 discrete in signal (1 to trigger)
RXP/gps/dscrt_in/taws_inhib_1        boolean      GPS #1discrete in signal (1 to trigger)
RXP/gps/dscrt_in/taws_inhib_2        boolean      GPS #2 discrete in signal (1 to trigger)
RXP/gps/dscrt_in/cdi_src_1           boolean      GPS #1 discrete in signal (1 to trigger)
RXP/gps/dscrt_in/cdi_src_2           boolean      GPS #2 discrete in signal (1 to trigger)
RXP/gps/dscrt_in/mute_actv_caut_1    boolean      GPS #1 discrete in signal (1 to trigger) (INOP)
RXP/gps/dscrt_in/mute_actv_caut_2    boolean      GPS #2 discrete in signal (1 to trigger) (INOP)

```

¹² The "master" device is the only one updating the "hsi_" and the "gps_" variables.

¹³ 'G431','G432','G501','G502','G531','G532' ; In hex: 0x31333447, 0x32333447, 0x31303547, 0x32303547, 0x31333547, 0x32333547

Configuring Alternate Paths

The Garmin trainer installs various components, each one in a specific path. This chapter describes supported Windows environment variables¹⁴ to configure alternate trainer paths in a typical scenario.

Set the general trainer application path, that is where the trainer is installed:

```
GNSSIMPATH="C:\Program Files (x86)\Garmin\GNS Trainer\GNS"
```

Set the application data path, that is where it stores the non volatile memory files (where routes, user waypoints and device settings are saved)¹⁵:

```
GNSAPDATA="C:\ProgramData\Garmin\GNS Trainer Data\GNS"
```

Set the application database path, that is where to look for all the db files (terrain, obstacle, navigation etc.):

```
GNSNAVDATA="C:\Program Files (x86)\Garmin\GNS Trainer\GNS\DB"
```

Configuring Aviation Database File

Copy the aviation database file to the location of your choice on your hard drive, for example in your "My Documents" folder, with a file name "gns_db.bin", then add the following Windows environment variable:

```
GNSDBFILE="C:\Users\MyName\Documents\gns_db.bin"
```

Installing Multiple Garmin Trainers

This chapter describes a procedure when you want or need to install two different versions of the Garmin GNS Trainer on your computer. The Garmin GNS Trainer installer prevents installing two different versions, such as the latest compatible with the Reality XP GNS and an older one. However, the GNS Touch plugin can be configured to use alternate trainer path and data path. Please note the following for dual Trainer installation:

1. Install the trainer for the Reality XP GNS
2. Copy the "GNS" folder located in "C:\Program Files (x86)\Garmin\GNS Trainer\" to the location of your choice, or rename it for example to: "C:\Program Files (x86)\Garmin\GNS Trainer\GNS (3300)\"
3. Add the following Windows environment variables:
name = "GNSSIMPATH" value = *the path to the 'GNS' folder you have chosen above*

for example:

```
GNSSIMPATH="C:\Program Files (x86)\Garmin\GNS Trainer\GNS (3300)\"
```

4. You can now uninstall the trainer and reinstall the old one: the GNS plugin will use the trainer and its data from the location indicated in your environment variables.

¹⁴ how to add environment variables:

<http://www.kunal-chowdhury.com/2016/09/windows-10-anniversary-update-how-to-edit-environment-variables.html>

¹⁵ The GNSAPDATA default to the path shown If not manually configured otherwise.

Device Embedded Memory

The GNS Trainer stores all user settings in a file similarly to a real device using embedded non-volatile memory. Settings include user preferences such as displayed navigation units, map settings, routes catalog and the user waypoints. They are saved in the following folder:

```
C:\ProgramData\Garmin\GNS Trainer Data\GNS
```

The Reality XP GNS simulation manages individual non-volatile memory file copies, one per-device and per-unit. These are saved in the same folder next to the original file, using the following file name convention:

```
sys_nand0           : default original file.  
sys_nanda, sys_nandb: GNS 5XX #1 and GNS 5XX #2  
sys_nandc, sys_nandd: GNS 4XX #1 and GNS 4XX #2
```

Should you want to backup and restore the settings, you just need to make a copy of the corresponding file(s) listed above to a safe location, then copy them back to the aforementioned folder to restore.

The simulation automatically creates and manages per-device/per-unit nonvol file. In addition, should the original `sys_nand0` file is missing, the GNS Trainer recreates it from scratch. When upgrading from one trainer version to the next, the setting files are upgraded automatically as well.

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Tutorial: Upgrade X-Plane 11 Baron 58 GPS

Replacing any aircraft default X-Plane GPS requires a few easy steps. This chapter is a step-by-step guide to replace the aircraft default GPS with the Reality XP GNS 530W/430W V2 on the stock X-Plane 11 Baron 58.

Find gauge panel coordinates

The first step consists in finding where to draw the gauge to the 3D panel.

1. Start X-Plane 11 with the Baron 58 and wait until the aircraft is ready on the tarmac.
2. Press the **CTRL+ALT+SHIFT+SPACE** keys to save the panel preview snapshot.
3. Select **Plugin | Reality XP GNS | GNS 1 | GNS 530W 1** if not already opened.
4. Exit X-Plane 11.
5. Open the saved panel preview snapshot with any paint program, like "Paint" included in Windows:

```
XPlane\Aircraft\Laminar Research\Baron B58\cockpit_3d\-PANELS-\Panel_Preview.png
```

6. In the paint program, zoom to the centre section where you find the default GPS screen.
7. Write down corners coordinates (pixels highlighted in red below)

8. compute display width like this: **width** =
 $(X2 - X1 + 1) = (534 - 275 + 1) = 260^{16}$

9. compute display height like this: **height** =
 $(Y2 - Y1 + 1) = (550 - 356 + 1) = 195$



¹⁶ When opening the Baron 58 in plane maker, you'll notice the GPS 500 properties show 0.5 scale. The size computed above equals half the genuine XPlane GPS size, which is 520x390 for the GPS500 and 430x240 for the GPS400.

Add the RXP GNS 530W Gauge to the 3D panel

The second step consists in configuring the GNS 530W to display in the 3D panel.

10. With notepad or any other text editor, open the following file:

```
XPlane\Aircraft\Laminar Research\Baron B58\RealityXP.GNS.ini
```

11. Locate the section header: **[GNS_530_1]**

12. Right below the section header, locate the line starting with **drawto =** .

13. Type a new render target to the end of the list¹⁷. For example: **drawto = WINDOW, Garmin_530_screen**

14. Add the following text to create a new section at the end of the file, then save and exit notepad.

```
[GNS_530_1.Garmin_530_screen]
visible = true
nobezel = true
frame.type = PANEL3D
; display position and dimension (left,top,width,height)
frame.rect = 275,668,260,195
```

Note: **frame.rect** is the actual render position and size: **X1** is the **left** value, the **width** and **height** are the value computed in the previous steps. The **top** value is computed like this: ("height of Panel_Preview.png" - Y1)¹⁸

Fly the RXP GNS 530W

15. When you are done, open X-Plane 11, select the Baron 58 and open the GNS 530W 1 configuration panel.

16. Enable **Use X-Plane GPS Commands** option then **Accept** to close the panel.

17. Your GNS 530W displays in the 3D panel, and the bezel knobs and keys are working!



¹⁷ It is a comma separated list.

¹⁸ In this example: 1024 - 356 = 668

Troubleshooting

This chapter describes solutions available to help troubleshooting problems with the plugin and the Garmin Trainer.

Log Files

The solution monitors certain key operations and logs runtime data to specific files. When troubleshooting a problem, the first step is to analyze runtime data saved to the log files.

The Plugin log file: "**My Documents\rxpGNS2.xpl.log**".

The GNS Simulation log file: "**My Document\rxpGnsSim.dll.log**"

Debug Settings

The GNS simulation support additional settings to help troubleshooting video card drivers, and to report internal Garmin trainer errors. When enabled, the trainer will log additional information to "rxpGnsSim.dll.log"

The following keys must be manually added in the **RealityXP.GNS.ini** settings file in a **[GNS_###_#]** section:

LogTrainer = 0	1 to enable Garmin Trainer logs.
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