



Integration Note

Manufacturer:	Nest Labs, Inc
Model Number(s):	Nest Thermostat
Minimum Core Module Version:	7.3
Document Revision Date:	10/17/2017

OVERVIEW AND SUPPORTED FEATURES

The Nest Learning Thermostat is a thermostat that interacts with the g! system through the Nest cloud-based interface.

THE NEST THERMOSTAT SUPPORTS THE FOLLOWING FEATURES:

Temperature Control: Temperature set points can be adjusted via the g! interface, and will have the equivalent effect as adjusting the temperature on the Nest directly.

Important! Nest employs an algorithm which limits 3rd party control to approximately 10 adjustments in a single hour. When this limitation is reached, control for that thermostat is disabled for a period of one hour. Control via the Nest Application is still functional during this lockout period. g! attempts to minimize the risk of a lockout by bundling multiple rapid adjustments into a single large adjustment prior to transmission to the cloud

Mode Control: The climate system can be set to run in the following heating and cooling modes: **Heat** only, **Cool** only, **Heat/Cool** or **Off**. The fan will support **On** or **Off**. **NOTE:** These are only temporary overrides to Nest's internal scheduling. Nest will revert to its schedule on a user-defined interval, defined on the Nest Site.

Home & Away Modes: Control Nest home and away modes from any ELAN g! interface.

History View: The history view shows the inside temperature, outside temperature (internet based), outside temperature (remote sensor based), humidity, system run and fan run times, and cooling and heating setpoints. **See limitation below.**

Fahrenheit or Celsius Temperatures: Temperature can be displayed in Fahrenheit or Celsius.

Auto Thermostat Detection: After initial configuration and authentication with the Nest cloud, the g! software will automatically detect Structures and thermostats connected to the system. **Note:** g! supports a maximum of 10 Thermostats and 2 Structures.

Event Map Events and Conditions: The Nest Driver supports a wide range of Event Map Events (Triggers) and Conditions.

THE NEST THERMOSTAT DOES NOT SUPPORT THE FOLLOWING FEATURES:

g! Scheduling: Nest does not allow 3rd parties to control scheduling, therefore scheduling capabilities of the g! system will not be available with a Nest installation.

History Beyond 10 Days: Nest does not allow 3rd party History data collection to exceed 10 days, g! has been limited to accommodate this. This limitation will only affect Nest installed thermostat history.

Auto Fan Mode: Nest does not allow the use of the term Auto, fan will be On/Off only, Modes will be Heat, Cool or Heat-Cool

Multiple Nest Accounts: g! will only support a single nest account for each Elan “Master” Controller

Cross Structure Control: Nest does not support cross-structure control.

Thermostat Configuration: Configuring individual thermostats is not possible in g!. Nest does not allow 3rd party device configuration. Devices are expected to be configured via the Nest UI or at the device itself.

Event Mapper Commands: The Nest driver does not currently support any Event Map Commands, as Nest does not currently allow this level of automated control of the thermostat.

Any feature not specifically noted as “supported” should be assumed to be unsupported.
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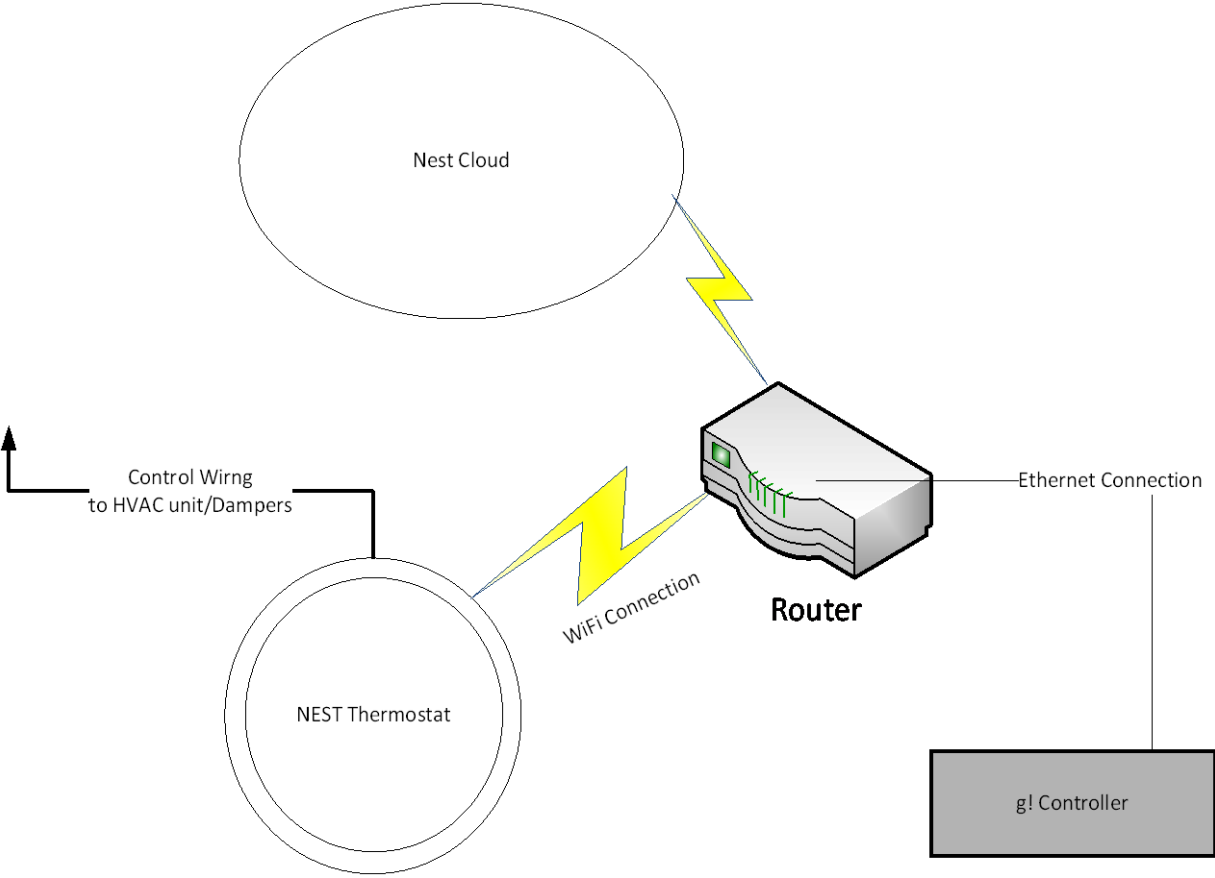
INSTALLATION OVERVIEW

1. Install the Nest Thermostats and configure the thermostats independently of g!. See the Nest documentation for detailed instructions.

Note: When a Nest Thermostat's battery is depleted, the thermostat will take itself off-line, but continue to control the HVAC system. Control via g! and the Nest application is not available when the thermostat is recharging in this off-line mode. We strongly recommend that dealers charge the Nest Thermostat before heading to the job site to expedite the installation process.

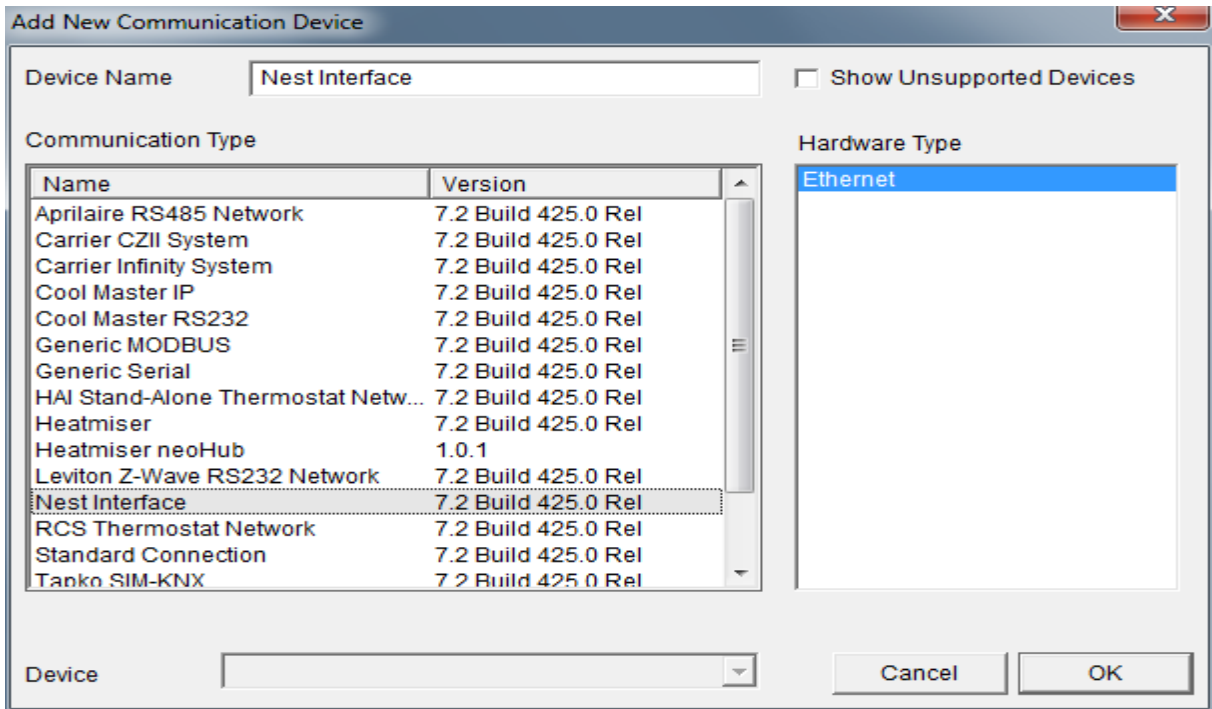
2. Test the Nest Thermostat as a stand-alone system to ensure that the zones correctly turn on the appropriate heating or cooling equipment, and open or close the appropriate valves / dampers.
3. Connect the **g!** system to the Nest Thermostat. See the **Connection Diagrams** for more information.
4. Configure the **g!** software for the Nest Thermostat and confirm communication between the system and the **g!** system controller. See **g! Configuration Details**. Installed devices will auto-detect. Use the Discover Devices button feature to find the Thermostats and Structures that were added to the system after initial configuration.
5. Test the system by changing the set points, modes and schedules on the viewer and various zones, confirming that the various components in the system are in communicating with each other.

CONNECTION DIAGRAMS

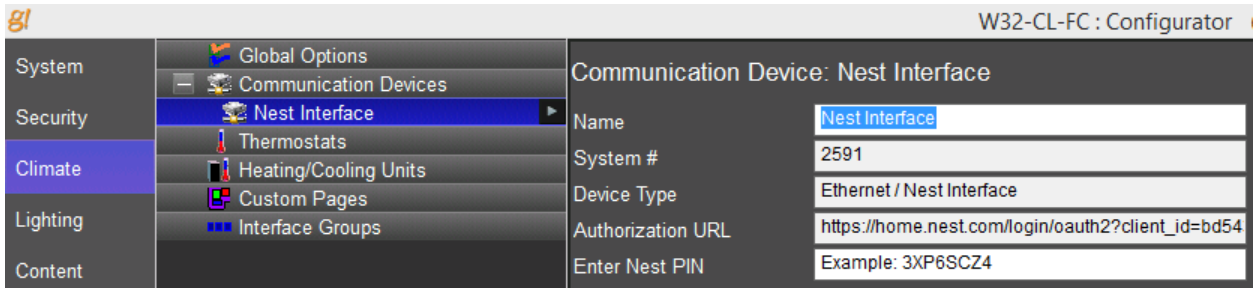


g! CONFIGURATION STEPS

1. In Configurator, Add the Nest Interface Communication Device



2. Copy the AUTHORIZATION URL from the interface page into a browser:

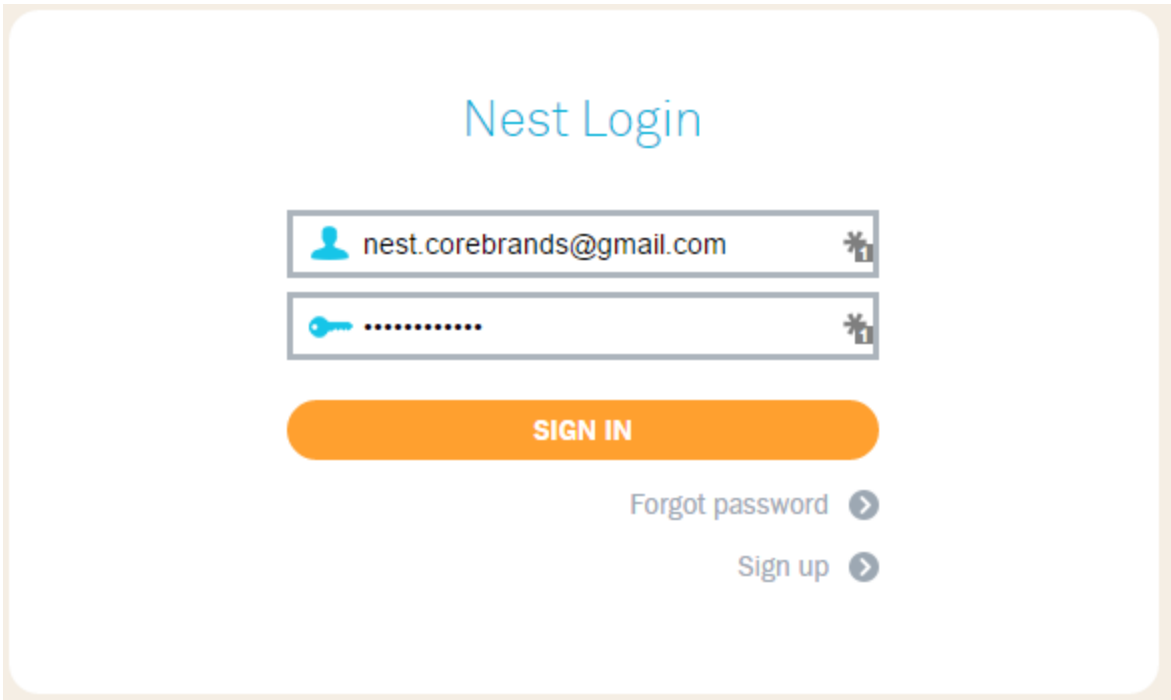


3. Click CONTINUE AND PROCEED TO SELECT:

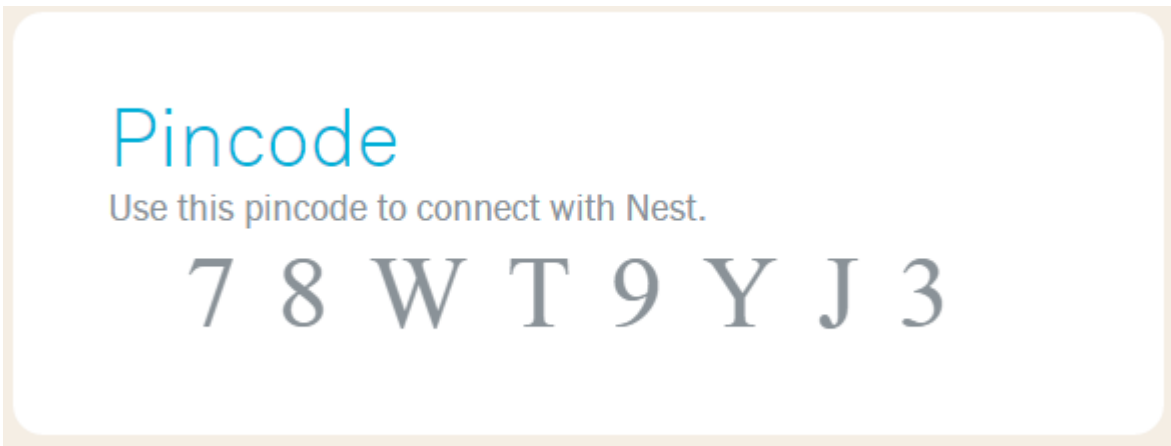


Control temperature and thermostat settings.
Allows ELAN to read & write Thermostat information

4. Login with a Nest account or create one if you don't already have one e.g.:



5. Copy the PIN from the browser back into the configurator interface e.g.:



Communication Device: Nest Interface	
Name	Nest Interface
System #	2591
Device Type	Ethernet / Nest Interface
Authorization URL	https://home.nest.com/login/oauth2?client_id=bd54
Enter Nest PIN	78WT9YJ3

6. Click APPLY
7. Click DISCOVER DEVICES to generate the device tree

g! CONFIGURATION DETAILS

The following table provides settings used in the **g!** Configurator. Please refer to the *Configurator Reference Guide* for more details.

In the table below:

- “<Select>” Select the appropriate item from the list (or drop-down) in the Configurator.
- “<User Defined>”, etc. Type in the desired name for the item.
- “<Auto Detect>”, etc. The system will auto detect this variable.

Devices	Variable Name	Setting	Comments
Global Options	Units	<Select> Default: Fahrenheit	
	Temporary Hold Mode	<Select> Default: Timed Hold	
	Temporary Hold Default Time	<Select> Default: 4 Hours	
	Outside Temperature Sensor	<Select> Default: Internet	
	Outside Humidity Sensor	<Select> Default: Internet	
Communication Devices	Name	<User Defined>	
	Device Type	Serial Port	
	Communication Type	Ethernet / Nest Interface	
	Authorization URL	<System Generated>	See g! Configuration steps in this document for details
	Nest Pin	<Obtained From Nest>	See g! Configuration steps in this document for details
	Structure	<Auto Detect> <Select from List>	
HVAC Units	Name	<Auto Generated>	See Note 1 Below
	Model	Generic HVAC Unit	
	Controls Heat	<Auto Generated>	
	Controls Cooling	<Auto Generated>	
	Controls Fan	<Auto Generated>	
<Discover Devices>			Only necessary if Tstat is added after initial setup.
Thermostats	Name	<Auto Detect>	Zones will pull in labeled as Zone#1, Zone#2 etc.
	Com Device	<Auto Detect>	
	Thermostat ID	<Auto Detect>	Zone Number
	Heating Unit	<Select from list>	
	Cooling Unit	<Select from list>	
	Show Usage in History	<Select from list>	
Notes:			
1. Nest implementation requires 1 HVAC Unit for each supported Mode. These are auto-generated and will be regenerated if deleted. There are 6 Possible Modes.			

COMMON MISTAKES

1. **Failing to Configure Nest Thermostat prior to g! integration:** The Nest Thermostat must be fully configured independently from g! before adding it to a g! System.
2. **No Control (Initial Install):** When a Nest Thermostat's battery is depleted, the thermostat will take itself off-line to recharge, but continue to control the HVAC system. Control via g! and the Nest application is not available when the thermostat is recharging in this off-line mode. We strongly recommend that dealers charge the Nest Thermostat before heading to the job site, in order to expedite the installation process.
3. **No Control (Normal Usage):** Nest employs an algorithm which limits 3rd party control to approximately 10 adjustments in a single hour. When this limitation is reached, control for that thermostat is disabled for a period of one hour. Control via the Nest Application is still functional during this lockout period. g! attempts to minimize the risk of a lockout by bundling multiple rapid adjustments into a single large adjustment prior to transmission to the cloud. When an adjustment is made in g!, the controller software will wait 7 seconds for any additional adjustments, then package and send the 7 seconds' worth of adjustments as a single adjustment to Nest.
4. **Failure to Discover Thermostats or Structure Names:** When pairing nest you must use a primary, owner account. You cannot use a secondary, non-owner account. Only the owner account can be used to pair to a 3rd party controller.