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wrap;">#####
#
# Trellis Suite Release Notes
# contact: support@rppl.com
#
#####
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[1.12.0] 2019/5/14

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\*\*\* NOTE: REQUIRES Grapevine Software Version 1.12.x \*\*\*  
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- Feature: Video Controller - Added Video Controller application with webcam support
- Feature: Trellis - Added support for Pico Front Ends
- Bug Fix: Trellis - Fixed issue where EMG v2, ADIO, and LINK32 configuration settings were not saving properly
- Bug Fix: Python NS - Fixed bug with timestamp when using 'get\_time'

[1.11.1] 2018/10/02

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\*\*\* NOTE: REQUIRES Grapevine Software Version 1.11.x \*\*\*  
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- Bug Fix: Trellis - Fixed issue where config packets could get lapped at high channel counts

[1.11.0] 2018/07/02

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\*\*\* NOTE: REQUIRES Grapevine Software Version 1.11.x \*\*\*  
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- Feature: Trellis - Modifications to LINK32 info display panel to support new Link32 firmware
- Feature: Impedance - Added support for LINK32
- Bug Fix: Raster - Fixed issue with signals being displayed out of order across channels
- Bug Fix: Trellis - Fixed issue where screens not showing on main display when monitor unplugged
- Bug Fix: Trellis - Fixed issue with SurfS2 features not fully enabled
- Feature: xippmex - Added support for Impedance and On/Off control for LINK32

[1.10.0] 2018/03/26

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\*\*\* NOTE: REQUIRES Grapevine Software Version 1.10.x \*\*\*  
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- Bug Fix: Stimulation - Fixed issue with micro+stim R-Number check in stim controller
- Bug Fix: Stimulation - Fixed issue with loading saved stimulation configuration files
- Feature: Stimulation - Changed max stimulation limit (100 times step size)
- Feature: Trellis - Added support for new stim lookup method
- Feature: Trellis - Added support for port trip error reporting in title bar
- Feature: File Save - Added message dialog and warning tone if hardware error is detected during an active recording
- Feature: xippmex - Added support for new stim lookup method
- Feature: xippmex - Added support for xipp error messages
- Feature: xippmex - Changed Stimulation output limits for stim front ends (100 times step size)
- Feature: xippmex - Added Support for changing spike threshold values
- Bug fix: xippmex - Fixed issue with potential misrepresentation of Analog inputs
- Bug fix: xippmex - Fixed issue with missing data having the wrong filler values

[1.9.0] 2017/10/18

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\*\*\* NOTE: REQUIRES Grapevine Software Version 1.9.x \*\*\*  
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Bug Fix: Trellis - Fixed issue where UDP packets with multiple Xipp packets were being split up by packet forwarder  
Bug Fix: Trellis - Fixed issue where network was not initializing correctly when network interface adapter changed after Trellis closed  
Bug Fix: Trellis - Fixed timer access issue that was causing spurious crashes  
Bug Fix: Trellis - Fixed handling of multi-xipp UDP internal routing in when Trellis-processor communication is TCP  
Feature: Trellis - Added code to reinitialize network if interface change is detected while Trellis is running.  
Feature: Trellis - Added support for Link32 front end  
Feature: Trellis - Added support for Nomad processor  
Feature: Trellis - Added support for ADIO front end

[1.8.3] - 2017/05/04

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\*\*\* NOTE: REQUIRES Grapevine Software Version 1.8.x \*\*\*  
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[1.8.2] - 2017/04/28

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\*\*\* NOTE: REQUIRES Grapevine Software Version 1.8.x \*\*\*  
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Bug Fix: Xippmex - Incorrect scaling for continuous data for raw and lfp  
Feature: Xippmex - Changed format for returned spikes to 2D array, from cell arrays with 1D arrays.

[1.8.1] - 2017/04/28

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\*\*\* NOTE: REQUIRES Grapevine Software Version 1.8.x \*\*\*  
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[1.8.0] - 2016/12/09

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\*\*\* NOTE: REQUIRES Grapevine Software Version 1.7.x \*\*\*  
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Feature: Trellis - TCP network connection to Grapevine and xippmex  
Feature: Trellis - Wireless connection to Nomad Grapevine  
Feature: Xippmex - TCP network connection to Grapevine and Trellis  
Feature: Xippmex - all functions block until the change is confirmed (or timeout is reached)

[1.7.4] - 2016/09/15

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\*\*\* NOTE: REQUIRES Grapevine Software Version 1.7.x \*\*\*  
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Feature: Trellis - Support for v2 EMG front end with 7.5 kHz sample rate

[1.7.3] - 2016/04/29

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\*\*\* NOTE: REQUIRES Grapevine Software Version 1.7.x \*\*\*  
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Bug Fix: Trellis - Fixed how Trellis handles remote control recording requests with invalid start time

[1.7.2] - 2016/04/08

\*\*\* NOTE: REQUIRES Grapevine Software Version 1.7.x \*\*\*

Feature: Trellis - Support for micro2+stim front ends  
Bug Fix: Trellis - Fixed error with unintuitive digital routing signal drop down behavior

[1.7.1] - 2016/03/24

\*\*\* NOTE: REQUIRES Grapevine Software Version 1.7.x \*\*\*

Feature: Trellis - All File Save errors are reported with the same dialog box (not one per error)  
Bug Fix: Trellis - Loading configs caused spike filter settings to change unexpectedly  
Bug Fix: Trellis - (Mac) Shared memory not deleted correctly causing problems on Trellis launch  
Bug Fix: Stimulation - nano2+stim HC front ends (R02014) were not enabled in hardware browser

[1.7.0] - 2016/03/14

\*\*\* NOTE: REQUIRES Grapevine Software Version 1.7.x \*\*\*

Feature: Trellis - Added warning when front end error is reported by NIP (i.e. when port light turns red)  
Feature: Trellis - Support for micro2 front end  
Feature: Trellis - Support for global channel labeling (i.e. to reflect electrode map)  
Feature: Trellis - Support for synchronization of data and recording with 2 NIPs  
Feature: Trellis - Support for loading nano2+stim stim lookup table data  
Feature: Trellis - Support for echoing stimulation output to digital output  
Feature: Raster - Support for showing Digital Output events (when UDP loopback is enabled)  
Feature: Stimulation - Stimulation interface is disabled (and all stimulation terminated) if astimulation front end reports a hardware error  
Bug Fix: File Save - The last 2 Digital Input events were being truncated from NEV file  
Bug Fix: File Save - Playing a tone on recording start and stop was not working  
Bug Fix: Raster - Spike event display erroneously showed colored ticks, and ticks of varying heights  
Bug Fix: Raster - Does not show both 30K and 1K continuous Analog I/O signals at same time  
Bug Fix: xippmin - Example program to control Trellis recording fails to stop recording

[1.6.0] - 2015/10/27

\*\*\* NOTE: REQUIRES Grapevine Software Version 1.6.x \*\*\*

Feature: Trellis - Support for nano2 front end  
Feature: Trellis - Support for nano2 HV front end  
Feature: Trellis - Support for nano2+stim front end  
Feature: Trellis - Support for configuring nano2 hardware filter low-corner (0.1 Hz - 100 Hz)  
Feature: Trellis - Support for configuring nano2 and nano2+stim ADC resolution (0.125 uV/bit, 0.25 uV/bit, 0.5 uV/bit)  
Feature: Trellis - New "Front End Settings" section in Instrument Network tree  
Feature: Trellis - Enhanced logging (logs saved in ~\Trellis\logFiles directory)  
Feature: Trellis - Changed gain for EMG front end signals routed through analog i/o.  
Bug Fix: Trellis - Digital input triggers File Save even when triggering is not

enabled  
Feature: xippmin - Compiles on Windows (with MinGW GCC)  
Feature: xippmex - Can now be run on same machine as Trellis  
Feature: xippmex - Support for changing nano2 and nano2+stim ADC resolution  
Feature: xippmex - Support for changing nano2 hardware filter low-corner  
Bug Fix: xippmex - Occasionally the 'trial' command crashed MATLAB  
Bug Fix: neuroshare - large data sets had overflow of a pointer in nsGetXXData  
Bug Fix: mksort - Added support for MATLAB 2015a and 2015b

[1.5.0] - 2015/03/13

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\*\*\* NOTE: REQUIRES Grapevine Software Version 1.5.x \*\*\*  
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Feature: File Save - Support for auto file segmentation (by size or time) during a recording  
Feature: File Save - Low disk warning and recording auto-stop (when free space < 100MB)  
Feature: Impedance - Support for impedance measurement with nano front ends (version 2.2 or greater)  
Feature: Spike Scope - Event waveforms are drawn in a continuous fifo manner (i.e. not cleared when persistence level is reached)  
Feature: Spike Grid - Event waveforms are drawn in a continuous fifo manner (i.e. not cleared when persistence level is reached)  
Feature: Spike Grid - An expansion icon is shown on the toolbar whenever toolbar elements are hidden  
Feature: Trellis - Support for new 24-bit EMG front end in Trellis and all applications  
Bug Fix: Raster - Second Micro HV does not show up in hardware browser  
Feature: xippmex - Control of fast-settle added  
Feature: xippmex - Control of digital i/o 'capture on digital bit change' added  
Feature: xippmex - Can modify stim sequence 'action' property in 'stimseq' command  
Bug Fix: xippmex - 'time' command could return less than zero with long running NIP  
Bug Fix: xippmex - digital parallel inputs were returned as signed integer  
Bug Fix: xippmex - rare failures when bad streams were requested with 'signal' command

[1.4.3] - 2014/08/28

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\*\*\* NOTE: REQUIRES Grapevine Software Version 1.4.x \*\*\*  
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Bug Fix: Raster - Upper 4 channels of analog parallel inputs not showing up correctly  
Bug Fix: Raster - Shift+Click channel selection not working for more than 16 channels  
Bug Fix: Trellis - Added default signal for analog output routing  
Bug Fix: Trellis - Digital parallel port file save triggering not restoring from config file correctly  
Feature: Spike Grid - Adjusted the window width at which toolbar controls are hidden/shown

[1.4.2] - 2014/08/08

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\*\*\* NOTE: REQUIRES Grapevine Software Version 1.4.x \*\*\*  
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Bug Fix: Trellis - Fixing digital triggering (which broke in the previous release)

[1.4.1] - 2014/08/03

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\*\*\* NOTE: REQUIRES Grapevine Software Version 1.4.x \*\*\*  
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Feature: SpikeGrid - Heat Map

Feature: Stimulation - Stim score play launches a separate window with a button that is a safety switch for stopping stimulation at any time.  
Feature: Trellis - Major performance improvements  
Feature: Trellis Apps - Major performance improvements  
Feature: File Save - Added NIP time at file start to NEV, NSx, and NFX file header  
Feature: neuroshare - Added function to retrieve NIP time at file start  
Bug Fix: Stimulation - App crashes when loading a second stimulation configuration file  
Bug Fix: Stimulation - Some frequencies (such as 30 Hz) cause errors when playing score stimulation  
Bug Fix: xippmex - Major memory leak  
Bug Fix: xippmex - 'signal' command returns empty strings  
Bug Fix: xippmex - Can't close xippmex after error  
Bug Fix: xippmex - global stim disable occurs at wrong time  
Bug Fix: xippmex - signal can cause seg fault  
Bug Fix: xippmex - cannot enable/disable 'stim' data stream on per-channel basis  
Bug Fix: xippmex - filter 'custom' elec off by one  
Bug Fix: xippmex - surf D v1.3 hi-res stream producing all 0s when using 'cont' function  
Bug Fix: xippmex - 'stim' command doesn't handle spaces in string  
Bug Fix: xippmex - fails to initialize for NIP with no headstages

[1.4.0] - 2014/04/08

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\*\*\* NOTE: REQUIRES Grapevine Software Version 1.4.x \*\*\*  
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Feature: Trellis - Interface to link front end fast settle behavior to digital inputs, stimulation, signal saturation, and user input  
Feature: Trellis - Configuration save/load now supports restoring tracking settings in Analog/Digital output tracking interface  
Feature: Trellis - New interface to select signal filters in instrument details panel  
Feature: Trellis - Support for color schemes (light-on-dark and dark-on-light)  
Feature: xippmex - Support for MATLAB-based interaction with Grapevine and Trellis  
Feature: File Save - Support for new "hi-res" float-32 streams  
Bug Fix: File Save - Some form fields were overwriting user input  
Bug Fix: Stimulation - NIP clock and Trellis CPU clock were not synchronized  
Bug Fix: Stimulation - Stimulation trains stopped unexpectedly after 4095 (0xFFF) pulses

[1.3.0] - 2013/07/01 (BETA)

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\*\*\* NOTE: REQUIRES Grapevine Software Version 1.3 \*\*\*  
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New App: Stimulation - Provides an interface for controlling stimulation on Ripple's micro+stim front ends  
New App: Impedance - Supports measuring and recording of impedance on micro and surfs front ends  
Feature: Apps - State persistence (i.e. When opened Apps restore themselves to the last used settings)  
Feature: Spike Scope - New electrode map file format.  
Feature: Spike Scope - Ability to set display scale at a per view level  
Feature: Trellis - Input-to-output Network latency test (requires wrap-around SMA cable)  
Feature: Trellis - NIP status monitoring. User is notified if Trellis restarts with new/different hardware configuration  
Feature: File Save - NIP status monitoring. User is notified if interruption in network connection is detected  
Feature: File Save - NIP status monitoring. Recording is stopped if NIP restart is detected  
Bug Fix: Raster - Changed spike rendering code to ensure proper alignment with respect to continuous channels  
New Doc: Trellis - Trellis user manual

([trellis\_install\_dir]/Trellis/Documentation/Grapevine/GrapevineNIP.pdf)  
New Tool: Wisteria - Matlab-based application for viewing files recorded in the NEV/NSx2.2 file format ([trellis\_install\_dir]/Trellis/Tools/wisteria)  
New Tool: MKsort - Open source Matlab-based spike sorter. Supports NEV and NS5 data file format ([trellis\_install\_dir]/Trellis/Tools/mksort)

[1.2.1] - 2013/02/22

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Bug Fix: FileSave - Fixed bug that occasionally caused recordings to become very large

[1.2.0] - 2013/01/09

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\*\*\* NOTE: REQUIRES Grapevine Software Version 1.2 \*\*\*  
=====  
Feature: Support for new Scout NIP  
Feature: FileSave - Added support for saving stimulation waveforms  
Feature: Trellis - Checkbox for toggling whether nip captures digital input on parallel port bit change  
Bug Fix: FileSave - (Mac/Linux) month and day in "Time Origin" field in NEV Neuralev header now 1-indexed

[1.1.1] - 2012/10/11

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Bug Fix: File Save - Fixed \*CRITICAL\* error which had potential to cause data loss

[1.1.0] - 2012/09/28

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\*\*\* NOTE: REQUIRES Grapevine Software Version 1.1 \*\*\*  
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Feature: NIP Config - Ability to configure fast settle/recovery of recording after stimulation  
Feature: NIP Config - Minor UI changes  
Feature: File Save - Ability to save individual channels from micro/nano/surf front ends  
Feature: Simulator - Supports NIP Grapevine software version 1.1  
Feature: Simulator - Ability to save simulation configurations  
Bug Fix: NIP Config - Spike event triggered digital output not working  
Bug Fix: NIP Config - Audio output tracking did not update when Trellis not displaying the "Instruments" tab  
Bug Fix: File Save - Signal selection reverted to default when Digital or Analog signal routing UI changed  
Bug Fix: File Save - Incorrect large timestamps at beginning of NEV files  
Bug Fix: Matlab NS - ns\_GetEventData returned wrong data  
Bug Fix: Python NS - Import of large NEV files failed  
Bug Fix: Python NS - Internal NEV cache data unnecessarily large

[1.0.0] - 2012/08/10

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\*\*\* NOTE: REQUIRES Grapevine Software Version 1.0 \*\*\*  
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Feature: File Save - Trigger file save start/stop pause/unpause with digital input  
Feature: File Save - Specify individual front ends(s) to save data for  
Feature: File Save - Specify subset of analog input channels to save data for  
Feature: File Save - Save NIP configuration with data files  
Feature: File Save - Display of currently recording files  
Feature: File Save - Display of previously recorded files  
Feature: NIP Config - Ability to save/load Instrument configurations  
Feature: NIP Config - Global auto thresholding (micro electrode front ends)  
Feature: NIP Config - UDP-control of digital output  
Feature: NIP Config - Digital output loopback

Feature: NIP Config - Turn on/off individual front end inputs  
Feature: Trellis UI - Minor changes to layout and look of various components.  
Feature: Spike Scope - Dual thresholding  
Feature: Spike Scope - Spike sorting  
Feature: Raster - User specified arrangement of signals  
Feature: Raster - Signal coloring  
Feature: Tools - pyns (Python-native implementation of neuroshare API for Nev/NSx files) see Trellis/Documentation/python/pyns/pyns.pdf  
Feature: Tools - matlab-native implementation of neuroshare API for Nev/NSx files see Trellis/Tools/matlab/neuroshare  
Feature: Tools - matlab example scripts see Trellis/Tools/matlab/scripts  
Feature: General - Official Trellis install package for Linux

[0.9.9] - 2012/02/17

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Feature: File Save - Supports recording SurfD front end data  
Feature: Trellis - Info and error logging  
(&lt;trellis\_install\_dir&gt;\Apps\Trellis\bin\trellis.log)  
Feature: Trellis UI - Minor layout changes

[0.9.8] - 2012/01/20

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Feature: File Save - Remote control over instrument network  
Feature: File Save - Option to play tone when recording starts and stops (for video synchronization)  
Feature: Trellis UI - Several UI changes to improve usability  
Feature: Trellis Tools - XippMin project for external Trellis integration support (see: &lt;install\_dir&gt;/Tools/XippMin)  
Feature: Build - Release notes added to install package

[0.9.7] - 2011/12/23

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Feature: File Save - Analog signals can be saved at 1k (i.e. downsampled from 30k).  
Feature: File Save - Trellis version information inserted into NEURALEV header (\*.NEV) file and prepended to comment field in NEURALCD header (\*.NSx)

Bug Fix: Spike Scope - Threshold edit field not refreshing when focus is lost  
Bug Fix: Spike Grid - Arrow key navigation causes crash.  
Bug Fix: File Save - Erroneous timestamps on first few spikes.

[0.9.6] - 2011/12/05

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Internal Release

[0.9.5] - 2011/11/10

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Internal Release

[0.9.4] - 2011/10/28

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Feature: File Save - NEV/NSx 2.2 added support for saving raw microelectrode signals  
Feature: File Save - NEV/NSx 2.2 added support for saving digital packets

Bug Fix: File Save - NEV/NSx 2.2 header information corrected

[0.9.3]

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Bug Fix: File Save -synchronization of spike and continuous data

[0.9.2]

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Feature: Trellis - Digital output routing

Bug Fix: File Save - scale factors and filter settings now correctly saved in NEV/NSx files

Bug Fix: Spike Grid - improved app load speed

Bug Fix: Spike Scope - preview pane now redraws itself instead of clearing history on window resize

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