Science On a Sphere - 5.3 Release Notes

Version 5.3.1
April 27, 2018

Last modified on Feb. 3, 2020

Table of Contents

Introduction

This document summarizes the changes and additions to the Science On a Sphere® (SOS) main software in the version 5.3.x releases. Be sure to make note of the Wibu CodeMeter dongle and Ubuntu 16.04 LTS operating system requirements in the "Requirements & Installation Instructions" section below.

For detailed information on SOS display features, please refer to the SOS Display Software Manual (or browse to *Support > Manuals > Display Software* on the SOS website).

Release Dates

- Version 5.3.1 - Apr. 27, 2018
- Version 5.3.0 - Feb. 5, 2018

Release Highlights for the SOS Product Suite

- Improved Graphics: better display performance and all graphics elements (i.e., labels, annotations, pips, etc.) displayed in zoom magnifier and splitter sections
- Spotlight Datasets: a new user interface in the Remote App that provides access to a handful of timely and compelling datasets that get updated periodically by the NOAA SOS Team
- High resolution dataset downloads from a new FTP server for sites using 4K projectors
- Stronger software security using a new Wibu CodeMeter dongle
- Improved labels resolution with flexible customization options
- Faster/cleaner Usage Statistics on the SOS website (please e-mail us if you'd like instructions on how to view your own site-specific statistics)
- Bug fixes throughout the Product Suite

Requirements & Installation Instructions (Please Read!)

- **We have increased our software security measures starting in SOS version 5.3. SOS now requires a new licensed Wibu CodeMeter security USB dongle before you can do the software upgrade.** You can request one using an online SOS Version 5.3.0 Upgrade Request form. Once SOS Support has received your request, a dongle will be mailed to your site. If you run into any problems using the request form you can e-mail us at sos.support@noaa.gov. We will provide instructions on how to upgrade your system to 5.3 once we have mailed out your new CodeMeter device. Also, please note that the installation processes for the iOS Remote App and Public Kiosk have not changed for 5.3.

- Like the previous 5.1 and 5.2 versions, SOS 5.3 requires your SOS computers to be running **Ubuntu 16.04 LTS**. If you are already running SOS 5.1 or 5.2, you already have the operating system you need and you will only need to install SOS 5.3 on your SOS systems.
    - This can be accomplished by logging in as the 'sos' user and using Ubuntu's 'Software Updater'. Simply follow these instructions to update using a GUI.
    - Alternatively, you can update via the terminal.
    - If you are unsure which version of Ubuntu your SOS computer is using you can follow these instructions to check.
- However, if you are running SOS 5.0 or earlier, your systems have Ubuntu 12.04 LTS, which is no longer being maintained or updated. You will need to install Ubuntu 16.04 LTS before you install SOS 5.3.

    - If you are reinstalling Ubuntu, we strongly recommended that you reinstall your backup SOS machine (typically called SOS2) first with Ubuntu 16.04 and then SOS 5.3. This process requires a full wiping of the SOS computer's disk, including user home directories, data files, and presentations.

Because this is a major operating system change, you should verify that everything is working well on SOS2 after the upgrade at your site before reinstalling your primary machine (typically called SOS1).

- Do NOT upgrade your SOS computer to Ubuntu 14.04 LTS, even if prompted. The SOS software will not work with this version of Ubuntu.
- A detailed set of directions for the installation of Ubuntu 16.04 and SOS 5.3 are available in the document entitled: Upgrade Instructions for Ubuntu 12.04 & SOS 5.0 to Ubuntu 16.04 & SOS 5.1. Please read that guide thoroughly before you begin! (Note that the document mentions upgrading to SOS 5.1 - it also works well for upgrading to 5.3)
- We are happy to assist you in your SOS 5.3 installation (just email our support team at sos.support@noaa.gov).

Product Component Enhancements

The 5.3 release includes new features, enhancements, and fixes in applications across the SOS application suite. Each of the following have links to their own 5.3 Release Notes and updated documentation as indicated:

- SOS Remote App ("SOS App"): see the SOS Remote App Manual (or browse to: *Support > Manuals > SOS Remote App* on the SOS website). The new Spotlight Dataset feature is described in the Remote App release notes and manual.
- NOAA SOS Public Kiosk ("Kiosk"): see the Public Kiosk Manual (or browse to: *Support > Manuals > Public Kiosk* on the SOS website).
- Visual Playlist Editor ("VPLE"): see the Visual Playlist Editor Manual (or browse to: *Support > Manuals > Visual Playlist Editor* on the SOS website).
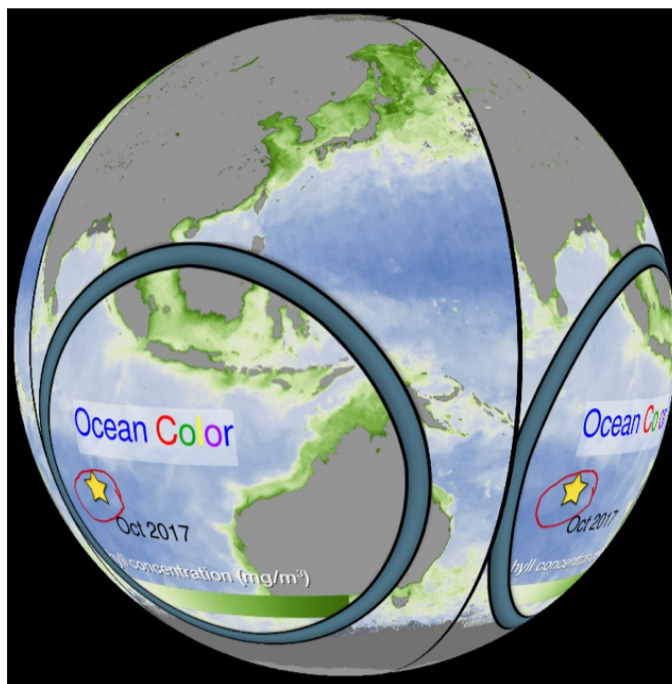
Fixes in 5.3.1

Main SOS Program

- **Intermittent stability issue.** SOS would occasionally freeze while loading a dataset, which was most frequently observed with real-time animations that have directories of frames. The issue was related to the interaction and synchronization of activity between different processes running simultaneously in the main SOS program. Several fixes were implemented and extensive testing verified that SOS stability was much more robust.

New Features, Enhancements, and Fixes in 5.3.0

Main SOS Program

- **Improved graphics.** A major rewrite of the SOS graphics display software that leverages your Graphical Processing Unit (GPU) hardware using OpenGL Shaders. The benefits of this are faster animations of large image sequences, better color contrast for some datasets, and making it easier to add new graphics improvements in the future.
- **Graphics elements are now displayed in the Splitter Slices and the Zoom Magnifier**. This includes image and Text PIPs, labels, icons, and drawn annotations (see example screenshot).

- **Improved labels.** The labels used with animated sequences are now rendered at a higher resolution, and can have customized font, color, size, and style. Labels are fully backward compatible with previous label settings and by default are displayed in a white Free Sans font. Labels may also be turned off in the playlist using the new `labelvisible` property.

- **SOS now incorporates a new security measure using a sophisticated Wibu CodeMeter dongle** that replaces the previous dongle keys plugged into the SOS machines. NOAA will mail these licensed dongles to SOS sites at no charge. **A CodeMeter dongle is required to run SOS 5.3, so one must be obtained and installed before doing the upgrade (see instructions above)**. Note that if your site is using Bluetooth to connect your iPad to SOS, you will still need to keep the current dongle keys in place as the Bluetooth software depends on them.

- Descending characters were getting cut off in some Text PIPs. There is now a little more padding in the text area which should address this problem in most cases.
- Added a new configuration option to allow more threads to be used in SOS than the default 2. This won't commonly be used, but it provides a way to adjust an SOS system if display performance is an issue. The threads are set with the SOS_THREAD_COUNT variable in the `sos_stream_control.config` file (see the Operation and System Administration Manual for more information).

Utilities / SOS Stream GUI

- Added new options to translate Spotlight datasets and their categories to the catalog database (see the Translations Manual for more information).
- Added the new Spotlight dataset translation operations to **SOS Stream GUI** menu items (see the Display

Software Manual for more information).

- Modified the behavior of the **SOS Stream GUI** menu option **File > Download All Missing Datasets** to also download a fresh NOAA catalog database each time.
- Replaced the NOAA splash screen with the new SOS graphic when SOS starts up.
- Modified the behavior of the **SOS Stream GUI** menu option **Library > Update Library** to add dataset variations to the Major Category entries. Also, the previous "Site_Custom" category is now combined with "Site-Custom".
- The crontab was modified to do downloads for Spotlight datasets every day since these are likely to change more quickly than regular NOAA datasets.
- The projector control was not working without a display when run from the crontab.

Dataset Access

- Higher Resolution (hi-res) datasets (i.e., with a frame width > 4096) are now distributed from a separate FTP site. Downloads will be automatic for all SOS sites using 4K projectors, which are able to make use of the additional detail provided in these hi-res datasets.

Usage Statistics

- The dataset usage statistics that are accessed from the SOS Website have had significant performance problems when applying the filters to limit the statistics that are included. This occurred as the amount of statistics gathered has greatly accumulated over the past several years. The usage statistics software and database have been cleaned up and optimized to improve the ability to isolate specific information on what datasets are being used at different kinds of sites over time periods of interest.

Known Bugs in 5.3.0

The following issues identified in SOS were not changed in this release, but will be fixed in the future.

- Hidden layers briefly flash on the sphere when dynamically added to another dataset using the iOS Remote App.
- Icons added to a playlist cannot use absolute paths.
- The iPad may continually prompt to update the database after the upgrade. This issue should go away after 24 hours or if you manually update the local data catalog. You can do that by opening the SOS program and then selecting Library -> Update Library or by manually running the /shared/sos/bin/sitecustom2db program from a terminal.

Backward Compatibility Considerations

For best results, we strongly encourage you to update all your SOS software applications at the same time to version 5.3.x, including the Visual Playlist Editor, SOS Remote App, and Public Kiosk. To assist you in planning your SOS software upgrades, you can visit the SOS Product Suite page on the SOS website.

Where possible, individual SOS 5.3 software components have been updated so that they will continue working with SOS versions as far back as 4.3, recognizing there may be some limitations. Components older than 4.3 are incompatible with version 5.3, so you will need to do a full update of all the SOS software applications to version 5.3.

SOS Remote App ("SOS App")

- SOS App 5.3 should work with SOS 5.0 and later.
- SOS App 5.3 may work with SOS 4.3, but has not been tested.
  - There are some incompatibilities in the SOS Data Catalog, for example. Dataset variations (such as Blue Marble with audio) will not show up in the Data Catalog on the iPad. However, they can still be displayed on the sphere if they are already in presentation playlists.

- The Splitter tool, Text PIPs, and individual PIP controls are not supported.
- SOS App 5.0, 5.1, and 5.2 should work with SOS 5.3, but has not been tested.
- SOS App 4.3 may work with SOS 5.3, but is inadvisable and has not been tested. The following limitations were documented previously when testing SOS App 4.3.1 with SOS 5.0.0:

  - Transferring the Data Catalog from the SOS machine to the iPad may timeout and fail to complete. This would prevent any new updates to the Data Catalog from being loaded onto the iPad.
  - The iPad would still display datasets that are in presentation playlists on the sphere.

NOAA Kiosk ("Kiosk")

- Kiosk 5.3 should work with SOS 4.3 and later.
  - Note that you cannot customize datasets and groups in the Kiosk using the media2kiosk in SOS 5.0 or 4.3. However, the default kiosk configuration should work okay.
- Kiosk 5.0, 5.1, and 5.2 may work with SOS 5.3, but have not been tested.

Visual Playlist Editor ("VPLE")

- VPLE 5.3 presentation and dataset output should run fine in SOS 5.1 and earlier, but has not been tested. Text PIPs may be created in VPLE 5.3 but cannot be displayed using SOS 5.1 or earlier versions.
- VPLE 5.0 and later will be replaced automatically when installing SOS 5.3, so backward compatibility will not be an issue.