

Raiden

User Guide

Version 1.1

ROSS

Thank You for Choosing Ross

You've made a great choice. We expect you will be very happy with your purchase of Ross Technology.

Our mission is to:

1. Provide a Superior Customer Experience

- offer the best product quality and support

2. Make Cool Practical Technology

- develop great products that customers love

Ross has become well known for the Ross Video Code of Ethics. It guides our interactions and empowers our employees. I hope you enjoy reading it below.

If anything at all with your Ross experience does not live up to your expectations be sure to reach out to us at solutions@rossvideo.com.



David Ross

CEO, Ross Video

dross@rossvideo.com

Ross Video Code of Ethics

Any company is the sum total of the people that make things happen. At Ross, our employees are a special group. Our employees truly care about doing a great job and delivering a high quality customer experience every day. This code of ethics hangs on the wall of all Ross Video locations to guide our behavior:

1. We will always act in our customers' best interest.
2. We will do our best to understand our customers' requirements.
3. We will not ship crap.
4. We will be great to work with.
5. We will do something extra for our customers, as an apology, when something big goes wrong and it's our fault.
6. We will keep our promises.
7. We will treat the competition with respect.
8. We will cooperate with and help other friendly companies.
9. We will go above and beyond in times of crisis. *If there's no one to authorize the required action in times of company or customer crisis - do what you know in your heart is right. (You may rent helicopters if necessary.)*

Raiden User Guide

- Ross Part Number: 3800DR-001-1.1
- Version: 1.1
- Date/Time: 2/7/2025 1:09 PM

The information contained in this guide is subject to change without notice or obligation.

Copyright

©2025 Ross Video Limited, Ross®, and any related marks are trademarks or registered trademarks of Ross Video Limited. All other trademarks are the property of their respective companies. PATENTS ISSUED and PENDING. All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, mechanical, photocopying, recording or otherwise, without the prior written permission of Ross Video. While every precaution has been taken in the preparation of this document, Ross Video assumes no responsibility for errors or omissions. Neither is any liability assumed for damages resulting from the use of the information contained herein.

Patents

Patent numbers US 7,034,886; US 7,508,455; US 7,602,446; US 7,802,802 B2; US 7,834,886; US 7,914,332; US 8,307,284; US 8,407,374 B2; US 8,499,019 B2; US 8,519,949 B2; US 8,743,292 B2; GB 2,419,119 B; GB 2,447,380 B; and other patents pending.

Notice

The material in this manual is furnished for informational use only. It is subject to change without notice and should not be construed as commitment by Ross Video Limited. Ross Video Limited assumes no responsibility or liability for errors or inaccuracies that may appear in this manual.

End User Software License Agreement

This End User Software License Agreement is a legal agreement between you (the "Licensee") and Ross Video Limited ("Ross Video") specifying the terms and conditions of your installation and use of the Software and all Documentation (as those terms are defined herein).

IMPORTANT:

BY DOWNLOADING, ACCESSING, INSTALLING OR USING THE SOFTWARE AND/OR DOCUMENTATION AND/OR BY AUTHORIZING ANY THIRD PARTY, INCLUDING WITHOUT LIMITATION AN INSTALLER OR COMMISSIONER ACTING ON YOUR BEHALF TO DO SO, LICENSEE AGREES TO THE TERMS OF THIS AGREEMENT AND THE LICENSE GRANTED HEREUNDER SHALL BE EFFECTIVE AS OF AND FROM SUCH DATE. IF YOU DO NOT WISH TO ACCEPT THE TERMS AND CONDITIONS OF THIS AGREEMENT, DO NOT DOWNLOAD, ACCESS, INSTALL, REFER TO OR OTHERWISE USE THE SOFTWARE AND/OR DOCUMENTATION.

1. **INTERPRETATION.** In this Agreement, (a) words signifying the singular number include the plural and vice versa, and words signifying gender include all genders; (b) every use of the words "herein", "hereof", "hereto" "hereunder" and similar words shall be construed to refer to this Agreement in its entirety and not to any particular provision hereof; (c) reference to any agreement or other document herein will be construed as referring to such agreement or other document as from time to time amended, modified or supplemented (subject to any restrictions on such amendment, modification or supplement set forth therein); (d) every use of the words "including" or "includes" is to be construed as meaning "including, without limitation" or "includes, without limitation", respectively; and (e) references to an Article or a Section are to be construed as references to an Article or Section of or to this Agreement unless otherwise specified.
2. **DEFINITIONS.** In this Agreement, in addition to the terms defined elsewhere in this Agreement, the following terms have the meanings set out below:

"**Affiliate**" means, with respect to any Person, any other Person who directly or indirectly controls, is controlled by, or is under direct or indirect common control with, such Person. A Person shall be deemed to control a Person if such Person possesses, directly or indirectly, the power to direct or cause the direction of the management and policies of such Person, whether through the ownership of voting securities, by contract or otherwise; and the term "controlled" and "controlling" shall have a similar meaning.

"**Agreement**" means this End User Software License Agreement including the recitals hereto, as the same may be amended from time to time in accordance with the provisions hereof.

"**Backup System**" means the secondary piece of Designated Equipment upon which the Software is installed and mirrored for the sole purpose of replacing a Primary System in the event such Primary System is not available or functioning properly for any reason.

"**Change of Control**" means (a) the direct or indirect sale, transfer or exchange by the shareholders of a Party of more than fifty percent (50%) of the voting securities of such Party, (b) a merger or amalgamation or reorganization or other transaction to which a Party is party after which the shareholders of such Party immediately prior to such transaction hold less than fifty percent (50%) of the voting securities of the surviving entity, (c) the sale, exchange, or transfer of all or substantially all of the assets of a Party.

"Confidential Information" means all data and information relating to the business and management of either Party, including the Software, trade secrets and other technology to which access is obtained or granted hereunder by the other Party, and any materials provided by Ross Video to Licensee; provided, however, that Confidential Information shall not include any data or information which:

- (i) is or becomes publicly available through no fault of the other Party;
- (ii) is already in the rightful possession of the other Party prior to its receipt from the other Party;
- (iii) is already known to the receiving Party at the time of its disclosure to the receiving Party by the disclosing Party and is not the subject of an obligation of confidence of any kind;
- (iv) is independently developed by the other Party;
- (v) is rightfully obtained by the other Party from a third party; or
- (vi) is disclosed with the written consent of the Party whose information it is.

"Designated Equipment" shall mean (a) the hardware products sold by Ross Video to Licensee on which the Software is installed and licensed for use, as the same may be replaced from time to time by Ross Video; or (b) in the case of Software licensed on a stand-alone basis, the equipment of Licensee on which the Software is to be installed and meets the minimum specifications set out in the Documentation.

"Documentation" shall mean manuals, instruction guides, user documentation and other related materials of any kind pertaining to the Software (whether in electronic, hard-copy or other media format) that are furnished to Licensee by or on behalf of Ross Video in relation to the Software.

"Freeware" means Software that is available free of charge from Ross Video, and includes, without limitation the master control system software known as "DashBoard".

"Governmental Authority" means (a) any federal, provincial, state, local, municipal, regional, territorial, aboriginal, or other government, governmental or public department, branch, ministry, or court, domestic or foreign, including any district, agency, commission, board, arbitration panel or authority and any subdivision of any of them exercising or entitled to exercise any administrative, executive, judicial, ministerial, prerogative, legislative, regulatory, or taxing authority or power of any nature; and (b) any quasi-governmental or private body exercising any regulatory, expropriation or taxing authority under or for the account of any of them, and any subdivision of any of them.

"Improvements" means all inventions, works, discoveries, improvements and innovations of or in connection with the Software, including error corrections, bug fixes, patches and other updates in Object Code form to the extent made available to Licensee in accordance with Ross Video's release schedule.

"License Fee" means the fee(s), if any, payable in respect of the Software in accordance with the relevant invoice(s) or other purchase documents delivered in connection with this Agreement.

"License Period" means the period of time that Licensee will have the rights granted under this Agreement, as may be specified in an Order.

"Modifications" means any enhancements, changes, corrections, translations, adaptations, revisions, developments, upgrades or updates thereto; and "Modify" shall mean the creation of any of the foregoing.

"Object Code" means the machine readable executable form of a computer software program.

"Open Source Components" means third party Open Source software, libraries or other components.

"Open Source License" means the license that governs each Open Source Component.

"Order" means the documents provided by Ross Video to Licensee detailing the Ross Video products contemplated for purchase, the corresponding fees and License Period that may apply to the Software, including any and all quotations, purchase orders, acknowledgments, pro formas, invoices and other purchase documentation.

"Parties" means both Ross Video and Licensee and "Party" means either one of them as the context requires.

"Person" will be broadly interpreted and includes (a) a natural person, whether acting in his or her own capacity, or in his or her capacity as executor, administrator, estate trustee, trustee or personal or legal representative; (b) a corporation or a company of any kind, a partnership of any kind, a sole proprietorship, a trust, a joint venture, an association, an unincorporated association, an unincorporated syndicate, an unincorporated organization or any other association, organization or entity of any kind; and (c) a Governmental Authority.

"Primary System" means the Designated Equipment upon which the Software is installed and executed to deliver its intended functionality.

"Released Claims" has the meaning ascribed to it in Section 9(b).

"Released Parties" has the meaning ascribed to it in Section 9(b).

"Ross Video" means Ross Video Limited and its Affiliates.

"Software" means the version of the Object Code licensed and delivered to Licensee by Ross Video concurrently with delivery of this Agreement, including without limitation the Freeware, and any subsequent error corrections, updates, Modifications or Improvements provided to Licensee by Ross Video pursuant to this Agreement, but specifically excluding any features or plug-ins that may be purchased by you directly from third parties as upgrades or enhancements to the Software.

"Source Code" means the human readable form of a computer software program, and all tools and documentation necessary for a reasonably competent computer programmer to understand, maintain and Modify the Software.

"Third Party Software" means those portions of the Software, if any, which are owned or controlled by third parties and licensed to Ross Video pursuant to certain license agreements or arrangements with such third parties, including the Open Source Components and NDI®¹ software (<http://NDI.video>); and

"Use" means to execute, run, display, store, merge, network, Modify, translate, host or integrate with Licensee's products or other third party software.

¹ NDI® is a registered trademark of Vizrt NDI AB.

3. **LICENSE.** Subject to the terms and conditions of this Agreement, upon payment of the applicable License Fee by Licensee, or, in the case of Freeware only, upon download of the Software by Licensee onto its Designated Equipment, Ross Video hereby grants to Licensee a non-transferable and non-exclusive right to Use the Software and Documentation solely for the internal use of Licensee (the "License"), during the License Period. In the event that a License Period is not identified on the Order, such License Period shall be deemed to be perpetual, subject to paragraph 10(c) of this Agreement. The Software shall only be used in connection with or installed on the Designated Equipment and, where applicable, shall only be used on the Primary System, provided such Primary System is operating properly."

If the Primary System is not operating properly for any reason, the Software may be used on the designated Backup System for that Primary System until such time that the Primary System begins operating properly. The Software and Documentation are provided to Licensee for the exclusive use by Licensee's organization for its ordinary business purposes and shall not be used by any third party for any purposes. Licensee may make copies of the Software as required for internal backup and archival purposes. To the extent permitted hereunder, Licensee may distribute copies of the Software and/or Documentation to members of its organization, provided (a) this Agreement is included with each copy, (b) any member of its organization who uses the Software and/or Documentation accepts and agrees to be bound by the terms of this Agreement and by any other license agreements or other agreement incorporated by reference into this Agreement, and (c) Licensee has paid any applicable additional License Fees in respect of copying and redistributing of the Software. To the extent Licensee is permitted to make copies of the Software under this Agreement, Licensee agrees to reproduce and include on any copy made or portion merged into another work, all Ross Video proprietary notices, including any notices with respect to copyrights, trademarks and this License. With the exception of copying the Software for backup or archival purposes, Licensee agrees to keep a record of the number and location of all such copies and will make such record available at Ross Video's request. The Software may include mechanisms to limit or inhibit copying.

4. **LICENSE RESTRICTIONS.** Except as otherwise provided in section 3 above, Licensee shall not: (1) copy any Software or Documentation, or part thereof, which is provided to Licensee by Ross Video pursuant to this Agreement, in Object Code form, Source Code form or other human or machine readable form, including written or printed documents, without the prior written consent of Ross Video; (2) in any way market, distribute, export, translate, transmit, merge, Modify, transfer, adapt, loan, rent, lease, assign, share, sub-license, sell, make available for download on any website or make available to another Person, the Software and/or Documentation, in whole or in part, provided that Licensee shall not be prohibited from renting or leasing the Software if Ross Video has consented, in writing, to Licensee engaging in such activities in respect of the Software; (3) reverse engineer, decompile or disassemble the Software or electronically transfer it into another computer language; or (4) use the Software or Documentation in a manner that is inconsistent with the License granted hereunder or that will result in a breach of this Agreement. Licensee agrees to take all reasonable precautions to prevent third parties from using the Software and/or Documentation in any way that would constitute a breach of this Agreement, including such precautions Licensee would ordinarily take to protect its own proprietary software, hardware or information.
5. **DELIVERY.** Ross Video shall deliver to Licensee one (1) master copy of the Software in compiled binary (executable) form suitable for reproduction in electronic files only and Ross Video shall deliver to Licensee a minimum of one copy of the Documentation.
6. **IMPROVEMENTS.** Licensee may from time to time request Ross Video to incorporate certain Improvements into the Software. Ross Video may, in its sole discretion, undertake to incorporate and provide such Improvements to Licensee with or without payment of a fee to be negotiated at the time of such request. All Improvements, whether recommended and developed by Ross Video or Licensee, shall be considered the sole property of Ross Video and shall be used by Licensee pursuant to the terms of the License granted under this Agreement.

7. **FREWARE.** Other than the obligation to pay a License Fee, which does not apply to the Freeware, all other provisions of this End User Software License Agreement apply to the Freeware in the same way as they apply to all other Software that is the subject of this Agreement. In addition, in connection with the Freeware, the following provisions apply:
 - a. Licensee will not Use the Freeware to engage in or allow others to engage in any illegal activity.
 - b. Licensee will not Use the Freeware in any way that will interfere with or damage the operation of the services of any third parties by overburdening/disabling network resources through automated queries, excessive usage or similar conduct.
 - c. Licensee will not Use the Freeware to engage in any activity that will violate the rights of others, including, without limitation, by using it for operations that involve child labour, suppressing the right of freedom of expression or endangering the security of person.
8. **OWNERSHIP.** The Parties acknowledge and agree that, as between the Parties, Ross Video shall be the owner of all intellectual property rights in the Software, Documentation and all related Modifications and Improvements, written materials, logos, trademarks, trade names, copyright, patents, trade secrets and moral rights, registered or unregistered. No proprietary interest or title in or to the intellectual property in the Software, Documentation or any Improvements or Modifications is transferred to Licensee by this Agreement. Ross Video reserves all rights not expressly licensed to Licensee under section 3.
9. **OPEN SOURCE SOFTWARE.**
 - a. Software may use and/or be provided with Open Source Components, including those detailed in the Third Party section below. To the extent stipulated by its Open Source License, each such Open Source Component is licensed directly to Licensee from its respective licensors and not sub-licensed to Licensee by Ross Video, and such Open Source Component is subject to its respective Open Source License, and not to this Agreement. If, and to the extent, an Open Source Component requires that this Agreement effectively impose, or incorporate by reference, certain disclaimers, permissions, provisions, prohibitions or restrictions, then such disclaimers, permissions, provisions, prohibitions or restrictions shall be deemed to be imposed, or incorporated by reference into this Agreement, as required, and shall supersede any conflicting provision of this Agreement, solely with respect to the corresponding Open Source Component which is governed by such Open Source License.
 - b. If Licensee, or another party on Licensee's behalf, modifies, replaces or substitutes any Open Source Component used in or provided with this Software, Licensee hereby fully, forever, irrevocably and unconditionally releases and discharges Ross Video, its Affiliates and its and their employees, officers, directors, resellers, distributors and representatives (collectively, "Released Parties") from any and all claims, charges, complaints, demands, actions, causes of action, suits, rights, debts, covenants, liabilities, warranties, performance and maintenance and support obligations (collectively, "Released Claims"), of every kind and nature, with respect to such Software, including without limitation any such Released Claims that arise as a matter of applicable Law.
 - c. If an Open Source License requires that the source code of its corresponding Open Source Component be made available to Licensee, and such source code was not delivered to Licensee with the Software, then Ross Video hereby extends a written offer, valid for the period prescribed in such Open Source License, to obtain a copy of the source code of the corresponding Open Source Component, from Ross Video from <https://www.rossvideo.com/open-source-information/>.

10. **THIRD PARTY SOFTWARE.**

- a. Licensee acknowledges that the Third Party Software is not owned by Ross Video. Notwithstanding any other provision of this Agreement, Ross Video, to the extent permitted by applicable law, offers no warranties (whether express, implied, statutory or by course of communication or dealing with Licensee, or otherwise) with respect to the Third Party Software. Ross Video may pass through to Licensee, if and to the extent permitted by applicable law, any warranties expressly provided by such third parties to Ross Video for such Third Party Software.
- b. FFmpeg Notice. The Software may utilize FFmpeg video components and their included libraries. FFmpeg is a trademark of Fabrice Bellard (originator of the FFmpeg project). Ross Video disclaims any ownership claim to FFmpeg. Please refer to <http://ffmpeg.org> (copyright is in the FFmpeg developers). FFmpeg is licensed under the GNU Lesser General Public License v2.1 or Lesser General Public License v3.0. GNU Lesser General Public License contact information: Free Software Foundation, Inc., 51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA. Licensee can distribute it and/or modify it under the terms of such licenses."

11. **INTELLECTUAL PROPERTY INDEMNITY.**

- a. Ross Video agrees to defend, indemnify and hold harmless Licensee from final damages awarded by a court of competent jurisdiction (hereinafter referred to as the "**Losses**"), which Licensee, or any of its officers or directors, may incur, suffer or become liable for as a result of, or in connection with, any third party claim asserted against Licensee to the extent such claim is based on a contention that the Software, Documentation or any portion thereof, infringes any valid, registered, enforceable patents, copyrights, trade secrets, trademarks or other intellectual property rights of any third party, provided that (a) the allegedly infringing Software or Documentation has been used within the scope of and in accordance with the terms of this Agreement, and (b) Licensee notifies Ross Video in writing of such claim within ten (10) days of a responsible officer of Licensee becoming aware of such claim. If the Software, Documentation or any portion thereof is held to constitute an infringement of a third party's intellectual property rights, and use thereof is enjoined, Ross Video shall, at its election and expense, either (i) procure the right to use the infringing element of the Software or Documentation; or (ii) replace or modify the element of the Software or Documentation so that the infringing portion is no longer infringing and still performs the same function without any material loss of functionality. Ross Video shall make every reasonable effort to correct the situation with minimal effect upon the operations of Licensee.
- b. Notwithstanding the above, Ross Video reserves the right to terminate this Agreement and the License granted hereunder on immediate notice to Licensee, and without liability to Licensee, in the event that the Software or Documentation constitutes or may, in Ross Video's determination, constitute, an infringement of the rights of a third party that Ross Video, in its sole discretion, does not consider to be affordably remediable.
- c. Either party may terminate this Agreement immediately should any Software become, or in either party's opinion be likely to become, the subject of a claim of infringement of any intellectual property right and, in such event, there shall be no claim by either Licensee or Ross Video against the other arising out of such termination, provided that the foregoing shall not apply to a claim for infringement by Ross Video against Licensee in the event that Licensee is alleged to have infringed Ross Video's intellectual property rights, in which case Licensee shall remain liable for all outstanding License Fees and other amounts owing to Ross Video.
- d. Notwithstanding the foregoing, Ross Video shall have no liability for any claim of infringement based on use of other than a current, unaltered release of the Software and/or Documentation available from Ross Video if such infringement would have been avoided by the use of a current, unaltered release of the Software and/or Documentation provided that such current, unaltered release performs substantially in conformity with the specifications set out in the Documentation and was provided, at no additional cost by Ross Video, to those subscribing for maintenance services for the Software or Documentation.

12. **CONFIDENTIALITY.** Each Party shall maintain in confidence all Confidential Information of the other Party, shall use such Confidential Information only for the purpose of exercising its rights and fulfilling its obligations under this Agreement, and shall not disclose any Confidential Information of the disclosing Party to any third party except as expressly permitted hereunder or make any unauthorized use thereof. Each Party shall disclose the Confidential Information only to those of its employees, consultants, advisors, and/or subcontractors who have a need to know the Confidential Information. Each Party shall, prior to disclosing the Confidential Information to such employees, consultants, advisors and/or subcontractors, obtain their agreement to receive and use the Confidential Information on a confidential basis on the same terms and conditions contained in this Agreement. The receiving Party shall treat the Confidential Information of the disclosing Party with the same degree of care against disclosure and/or unauthorized use as it affords to its own information of a similar nature, or a reasonable degree of care, whichever is greater. The receiving Party further agrees not to remove or destroy any proprietary or confidential legends or markings placed upon any documents or other materials of the disclosing Party. The obligations of confidence set forth in this Agreement shall extend to any Affiliates that have received Confidential Information of the disclosing Party and shall also cover Confidential Information disclosed by any Affiliate. The receiving Party shall be responsible for any actions or omissions of its Affiliates as if such actions or omissions were its own.

Either party may disclose certain Confidential Information if it is expressly required to do so pursuant to legal, judicial, or administrative proceedings, or otherwise required by law, provided that (i) such Party provides the other Party with reasonable written notice prior to such disclosure; (ii) such Party seeks confidential treatment for such Confidential Information; (iii) the extent of such disclosure is only to the extent expressly required by law or under the applicable court order; and (iv) such Party complies with any applicable protective or equivalent order.

Each of Ross Video and Licensee (the "**Indemnifying Party**", as applicable) agree to indemnify the other (the "**Indemnified Party**", as applicable) for all Losses incurred by the Indemnified Party as a result of a failure of the Indemnifying Party to comply with its obligations under this Section 12 provided that the Indemnified Party has given prompt notice of any such claim and, to the extent that a claim may lie against a third party for the unauthorized disclosure of such Confidential Information, the right to control and direct the investigation, preparation, action and settlement of each such claim and, further, provided that the Indemnified Party reasonably co-operates with the Indemnifying Party in connection with the foregoing and provides the Indemnifying Party with all information in the Indemnified Party's possession related to such claim and such further assistance as reasonably requested by the Indemnifying Party.

The Parties acknowledge and agree that any breach of the confidentiality provisions of this Agreement by one Party may cause significant and irreparable injury to the other Party that is not compensable monetarily, as well as damages that may be difficult to ascertain, and agrees that, in addition to such other remedies that may be available at law or in equity, the other Party shall be entitled to seek injunctive relief (including temporary restraining orders, interim injunctions and permanent injunctions) in a court of competent jurisdiction in the event of the breach or threatened breach by such party of any of the confidentiality provisions of this Agreement. The relief contemplated in this Section shall be available to each Party without the necessity of having to prove actual damages and without the necessity of having to post any bond or other security. Each Party further agrees to notify the other Party in the event that it learns of or has reason to believe that any Person has breached the confidentiality provisions of this Agreement.

13. **LIMITATION OF LIABILITY.** The limitation of liability provisions of this Agreement reflect an informed voluntary allocation of the risks (known and unknown) that may exist in connection with the licensing of the Software or Documentation hereunder by Ross Video, and that voluntary risk allocation represents a material part of the Agreement reached between Ross Video and Licensee. Should Ross Video be in breach of any obligation, Licensee agrees that Licensee's remedies will be limited to those set forth in this Agreement. No action, regardless of form, arising out of this Agreement may be brought by Licensee more than twelve (12) months after the facts giving rise to the cause of action have occurred, regardless of whether those facts by that time are known to, or reasonably ought to have been discovered by, Licensee.

(A) EXCEPT AS EXPRESSLY PROVIDED IN THIS AGREEMENT, THE SOFTWARE AND DOCUMENTATION ARE PROVIDED "AS IS" AND ROSS VIDEO (I) MAKES NO OTHER REPRESENTATIONS, AND PROVIDES NO WARRANTIES OR CONDITIONS OF ANY KIND, EXPRESS OR IMPLIED, STATUTORY, BY USAGE OF TRADE CUSTOM OF DEALING, OR OTHERWISE, AND (II) SPECIFICALLY DISCLAIMS ALL IMPLIED WARRANTIES INCLUDING ANY IMPLIED WARRANTY OF UNINTERRUPTED OR ERROR FREE OPERATION, MERCHANTABILITY, QUALITY OR FITNESS FOR A PARTICULAR PURPOSE. ROSS VIDEO DOES NOT REPRESENT OR WARRANT THAT THE SOFTWARE WILL MEET ANY OR ALL OF LICENSEE'S PARTICULAR REQUIREMENTS, THAT THE USE AND OPERATION OF THE SOFTWARE WILL OPERATE ERROR-FREE OR UNINTERRUPTED, THAT ALL PROGRAMMING ERRORS IN THE SOFTWARE CAN BE FOUND IN ORDER TO BE CORRECTED, OR THAT THE SOFTWARE WILL BE COMPATIBLE WITH OTHER PROGRAMS, SYSTEMS, AND HARDWARE.

(B) IN NO EVENT SHALL ROSS VIDEO, ITS AFFILIATES AND LICENSORS, AND THEIR RESPECTIVE DIRECTORS, OFFICERS, EMPLOYEES AND AGENTS, BE LIABLE FOR ANY CLAIM FOR INDIRECT, CONSEQUENTIAL, SPECIAL, INCIDENTAL, PUNITIVE, EXEMPLARY, AGGRAVATED DAMAGES; LOST PROFITS, OR LOST REVENUE ARISING FROM OR IN CONNECTION WITH THIS AGREEMENT, REGARDLESS OF THE FORM OF ACTION, WHETHER IN CONTRACT, OR IN TORT, EVEN IF THE PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

(C) IN ANY EVENT THE AGGREGATE LIABILITY OF ROSS VIDEO, ITS AFFILIATES AND LICENSORS, AND THEIR RESPECTIVE DIRECTORS, OFFICERS, EMPLOYEES AND AGENTS, FOR ANY CLAIM FOR DIRECT DAMAGES WITH RESPECT TO THE SUBJECT MATTER OF THIS AGREEMENT SHALL NOT EXCEED THE AMOUNT OF THE PURCHASE PRICE PAID TO ROSS VIDEO UNDER THIS AGREEMENT.

14. **TERM AND TERMINATION.**

- (1) Unless terminated earlier in accordance with the terms of this Agreement, the term of this Agreement shall commence upon Licensee's first download, access, installation, or other use of the Software or Documentation and continues until, in the case of Software licensed with Designated Equipment provided by Ross Video, the earliest of (a) the end of the License Period, or (b) if the Designated Equipment is assigned or transferred in accordance with this Agreement, the date on which the Designated Equipment is no longer owned by Licensee;
- (2) Either Party shall have the right to terminate this Agreement on notice to the other Party if:
 - (a) the other Party fails to pay any fees or other amounts when due hereunder or under any other agreement between the Parties (or any Affiliates of the Parties, as applicable) in connection with the Software and/or Designated Equipment and such breach is not cured within thirty (30) days after written notice of such failure to pay is given to the defaulting Party by the non-defaulting Party;
 - (b) the other Party shall file a voluntary petition in bankruptcy or insolvency or shall petition for reorganization under any bankruptcy law, consent to an involuntary petition in bankruptcy, or if a receiving order is given against it under the Bankruptcy and Insolvency Act (Canada) or the comparable law of any other jurisdiction (and such is not dismissed within ten (10) days);

- (c) there shall be entered an order, judgment or decree by a court of competent jurisdiction, upon the application of a creditor, approving a petition seeking reorganization or appointing a receiver, trustee or liquidator of all or a substantial part of the other Party's assets and such order, judgment or decree continues in effect for a period of thirty (30) consecutive days; or
- (d) the other Party shall fail to perform any of the other material obligations set forth in this Agreement and such default, in the case of a default which is remediable, continues for a period of thirty (30) days after written notice of such failure has been given by the non-defaulting Party or, in the case of a non-remediable default, immediately upon notice.

(3) Notwithstanding anything to the contrary contained in this Agreement:

- (a) Ross Video may forthwith terminate this Agreement if Licensee is in breach of any of sections 3, 4 or 12 of this Agreement. For greater certainty, in such instances Ross Video shall provide written notice of such termination as soon as practicable but written notice shall not be a necessary prerequisite to such termination; and
- (b) in the event of a Change of Control of Licensee, Ross Video shall have the right to terminate this Agreement and the License granted hereunder upon thirty (30) days' prior written notice to Licensee. For greater certainty, Ross Video's right to terminate in the event of a Change of Control of Licensee shall continue for a period of six (6) months from the date Licensee delivers notice of such Change of Control to Ross Video.
- (c) Ross Video may terminate the License immediately on the date on which it provides notice to Licensee, if its agreements for Third Party Software are terminated.

(4) Upon the termination or expiry of this Agreement:

- (a) Licensee shall immediately cease and desist all use of the Software and Documentation;
- (b) Licensee shall immediately deliver to Ross Video any of Ross Video's Confidential Information provided hereunder (including the Software and Documentation) then in its possession or control, if any, and shall deliver a certificate of an officer of Licensee certifying the completeness of same;
- (c) Licensee shall refrain from further use of such Confidential Information; and
- (d) Licensee shall forthwith pay all amounts owing to Ross Video or any of its Affiliates hereunder.

15. **SURVIVAL.** The provisions of sections 1, 2, 6, 8, 9, 10, 11, 12, 13, 14, 18, 22, 23, and 24 herein shall survive the expiry or termination of this Agreement.
16. **FORCE MAJEURE.** Dates and times by which Ross Video is required to render performance under this Agreement shall be automatically postponed to the extent and for the period that Ross Video is prevented from meeting them by reason of events of force majeure or any cause beyond its reasonable control provided Ross Video notifies Licensee of the commencement and nature of such cause and uses its reasonable efforts to render performance in a timely manner.
17. **ASSIGNMENT.** Ross Video may assign this Agreement, or any of its rights or obligations hereunder, in whole or in part, upon notice to Licensee. Licensee shall not assign this Agreement, or any of its rights or obligations hereunder, in whole or in part, without the prior written consent of Ross Video, which consent may not be unreasonably withheld. This Agreement enures to the benefit of and is binding upon each of the Parties and their respective successors and permitted assigns.

18. **GOVERNING LAW.** If Licensee acquired the Ross Product(s) in the United States or Canada, the laws of the state or province where Licensee's principal place of business is located govern the interpretation of this Agreement, claims for its breach, and all other claims regardless of conflict of laws principles. If Licensee acquired the Ross Product(s) in the European Union or the United Kingdom, then the laws of England and Wales apply. If Licensee acquired the Ross Product(s) in any other country, then the laws of the Province of Ontario, Canada shall apply.
19. **LANGUAGE.** The Parties have expressly required that this Agreement and all documents relating thereto be prepared in English. Les parties ont expressément exigé que cette convention ainsi que tous les documents qui s'y rattachent soient rédigés en anglais.
20. **GOVERNMENT CONTRACTS.** If the Software and/or Documentation to be furnished to Licensee hereunder are to be used in the performance of a government contract or subcontract, the Software and/or Documentation shall be provided on a "restricted rights" basis only and Licensee shall place a legend, in addition to applicable copyright notices, in the form provided under the applicable governmental regulations. For greater certainty, Ross Video shall not be subject to any flow-down provisions required by any customer of Licensee that is a Governmental Authority unless Ross Video expressly agrees to be bound by such flow-down provisions in writing.
21. **EXPORT AND IMPORT LAWS.** Licensee acknowledges and agrees that the Software (including any technical data and related technology) may be subject to the export control laws, rules, regulations, restrictions and national security controls of the United States and other applicable countries (the "**Export Controls**") and agrees not to export, re-export, import or allow the export, re-export or import of such export-controlled Software (including any technical data and related technology) or any copy, portion or direct product of the foregoing in violation of the Export Controls. Licensee hereby represents that it is not an entity or person to whom provision of the Software (including any technical data and related technology) is restricted or prohibited by the Export Controls. Licensee agrees that it has the sole responsibility to obtain any authorization to export, re-export, or import the Software (including any technical data and related technology), as may be required. Licensee will defend, indemnify and hold Ross Video harmless from any and all claims, losses, liabilities, damages, fines, penalties, costs and expenses (including attorney's fees) arising from or relating to any breach by Licensee of its obligations under this Section.
22. **AMENDMENT AND WAIVER.** No amendment, discharge, modification, restatement, supplement, termination or waiver of this Agreement or any Section of this Agreement is binding unless it is in writing and executed by the Party to be bound. No waiver of, failure to exercise or delay in exercising, any Section of this Agreement constitutes a waiver of any other Section (whether or not similar) nor does any waiver constitute a continuing waiver unless otherwise expressly provided.
23. **SEVERABILITY.** Each Section of this Agreement is distinct and severable. If any Section of this Agreement, in whole or in part, is or becomes illegal, invalid, void, voidable or unenforceable in any jurisdiction by any court of competent jurisdiction, the illegality, invalidity or unenforceability of that Section, in whole or in part, will not affect (a) the legality, validity or enforceability of the remaining Sections of this Agreement, in whole or in part; or (b) the legality, validity or enforceability of that Section, in whole or in part, in any other jurisdiction.
24. **ENTIRE AGREEMENT.** This Agreement, and any other documents referred to herein, constitutes the entire agreement between the Parties relating to the subject matter of this Agreement and supersedes all prior written or oral agreements, representations and other communications between the Parties.

Updated: November 1, 2023

Warranty and Repair Policy

Ross Video Limited (Ross) warrants its Raiden systems to be free from defects under normal use and service for the following time periods from the date of shipment:

- Raiden Server — 12 months
- Raiden Software Upgrades — 12 months free of charge
- System and Media hard drives — 12 months

If an item becomes defective within the warranty period Ross will repair or replace the defective item, as determined solely by Ross.

Warranty repairs will be conducted at Ross, with all shipping FOB Ross dock. If repairs are conducted at the customer site, reasonable out-of-pocket charges will apply. At the discretion of Ross, and on a temporary loan basis, plug in circuit boards or other replacement parts may be supplied free of charge while defective items undergo repair. Return packing, shipping, and special handling costs are the responsibility of the customer.

This warranty is void if products are subjected to misuse, neglect, accident, improper installation or application, or unauthorized modification.

In no event shall Ross Video Limited be liable for direct, indirect, special, incidental, or consequential damages (including loss of profit). Implied warranties, including that of merchantability and fitness for a particular purpose, are expressly limited to the duration of this warranty.

This warranty is TRANSFERABLE to subsequent owners, subject to Ross' notification of change of ownership.

Extended Warranty

For customers that require a longer warranty period, Ross offers an extended warranty plan to extend the standard warranty period by one year increments. For more information about an extended warranty for your Raiden system, contact your regional sales manager.

Environmental Information

The equipment that you purchased required the extraction and use of natural resources for its production. It may contain hazardous substances that could impact health and the environment.

To avoid the potential release of those substances into the environment and to diminish the need for the extraction of natural resources, Ross Video encourages you to use the appropriate take-back systems. These systems will reuse or recycle most of the materials from your end-of-life equipment in an environmentally friendly and health conscious manner.

The crossed-out wheeled bin symbol invites you to use these systems.



If you need more information on the collection, reuse, and recycling systems, please contact your local or regional waste administration.

You can also contact Ross Video for more information on the environmental performances of our products.

Company Address

Ross Video Limited

8 John Street
Iroquois, Ontario
Canada, K0E 1K0

Ross Video Incorporated

P.O. Box 880
Ogdensburg, New York
USA 13669-0880

General Business Office: (+1) 613 · 652 · 4886

Fax: (+1) 613 · 652 · 4425

Toll Free Technical Support: 1-844-652-0645 (North America)
+800 3540 3545 (International)

Alternately, you can contact:

Technical Support: (+1) 613 · 652 · 4886

After Hours Emergency: (+1) 613 · 349 · 0006

E-mail for Technical Support: techsupport@rossvideo.com

E-mail for General Information: solutions@rossvideo.com

Website: <http://www.rossvideo.com>

Contents

Introduction	1
About This Guide	2
Documentation Conventions	3
Getting Help	4
Installation Notes	5
Data Aggregator Server	7
Accessing the Data Aggregator	8
Setting the Display Language Preferences	9
Changing Your Password	10
Forecast	11
Creating a Forecast Download Task	11
Viewing the Details of a Forecast Download Task	12
Observations	15
Creating an Observations Download Task	15
Viewing the Details of an Observations Download Task	16
Preview Styles	19
Endpoints	23
Statistics	27
Configuration	28
General	29
Data Visualization	31
Data Files	32
Logging	33
Events	34
Local Server	35
Accessing the Local Server	36
Setting the Display Preferences	37
Changing Your Password	38
Areas of Interest	39
Points	40
Regions	42
Shapefiles	46
Stations	47
Forecast	49
Observations	51

Output Styles	53
Adding Output Styles to a Weather Variable	53
Modifying Output Styles	55
Configuration	57
General	58
Data Visualization	60
Data Files	62
Logging	63
Geographic	64
Configuring the Base Map Preferences	64
Configuring the Labels Map Preferences	65
Configuring the Digital Elevation Models Preferences	66
Configuring the Source Tiles Preferences	67
Story Creator	68
Accessing the Story Creator	69
Setting the Display Preferences	70
Story Browser	71
Creating Stories	72
Creating Templates	76
Editor	78
Scene Types and Customizations	79
Media Scene	80
Forecast 3D World Scene	81
Data Editing	82
Map Layers	88
Drawing Tools	90
Animations	91
Observations 3D World Scene	99
Data Editing	100
Map Layers	105
Drawing Tools	107
Animations	108
Current Conditions Scene	117
Daily Forecast Scene	119
Headlines Scene	121
Next Hours Scene	122
View Scene Information	124
Duplicating Scenes	125
Sharing Scenes	126
Previewing Scenes	128
Publish Rundown	129
Exporting Videos	130
Graphics Objects	131
Icons	132
Videos	134

Configuration	136
General	137
Data Visualization	138
Logging	139
NDI	140
Engine	141
Maintenance	143
Raiden and XPression — Setup	144
Requirements	145
XPression Setup	146
Preparing an XPression Project for Raiden	151
Raiden for XPression—Using Story Creator	165
Raiden for XPression—Using DataLinq	170
Verifying XPression DataLinq is Receiving Raiden Data	173
Connecting XPression to the Raiden DataLinq Source	174
Setting Up User Input Controls	176
Raiden and XPression Maintenance	179
Voyager Plugin	185
Appendix A: Metadata Descriptions	189
Appendix B: Wind Particle Sizing	197
Appendix C: Raiden Licensing	198
Appendix D: Raiden User Rights Management	199
Appendix E: Third Party Licenses	200
Apache Software License Version 2.0	203
BSD License (openpnp)	206
BSD 2 Clause License	207
BSD 2 Clause License (postgresql)	208
BSD 3 Clause License	209
BSD 3 Clause License (adobe.xmp)	210
BSD 3 Clause License (de.micromata.jak)	211
BSD 3 Clause (edu.ucar)	212
BSD 3 Clause License (twelvemonkeys.imageio)	213
BSD License for HSQL	214

GNU Lesser General Public License, vs 2.1	215
GNU Lesser General Public License Version 3.0	220
Eclipse Public License Version 1.0	222
Eclipse Public License Version 2.0	225
Eclipse Public License Version 2.1	229
EPSG Database Distribution License	234
MIT License (github.cosinekitty)	236
MIT License (github.oshi)	237
MIT License (slf4j)	238
Glossary of Terms	239

Introduction

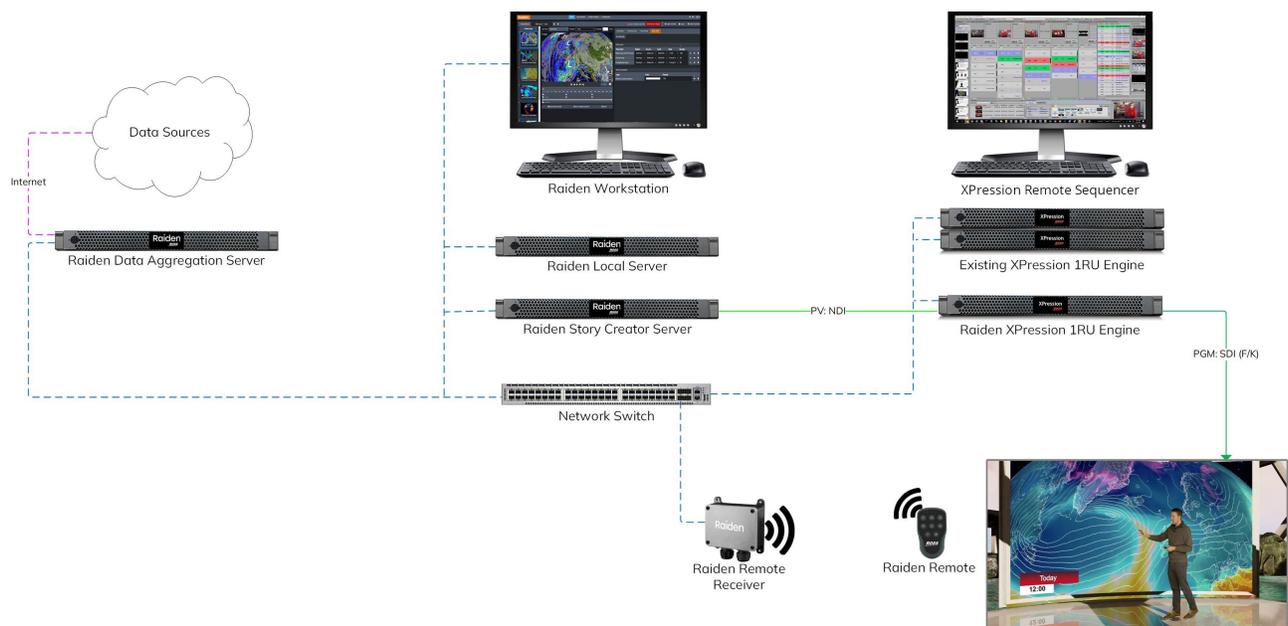
Congratulations on your selection of Raiden, Ross Video's weather broadcast software solution. Raiden is a suite of applications that enables you to extract and localize weather data from a number of data sources and export the data to a renderer (such as XPression or Voyager), a Media Asset Management system (such as Streamline), a DataLinq Server, or to the Raiden Story Creator.

Raiden brings ease-of-use to working with complex graphics applications by means of its weather story creation platform, the Story Creator. The Story Creator is a user-friendly platform that interacts with either XPression or Voyager, enabling users to customize visual representations of weather data and create accurate weather stories.

Raiden is compatible with XPression and Voyager.

The Raiden platform consists of these main components:

- The **Data Aggregator Server** retrieves and processes raw weather data from sources such as the National Centers for Environmental Prediction (NCEP), Global Forecast System (GFS), the Storm Prediction Center, the USA High Resolution Window and others.
- The **Local Server** calls the Data Aggregator Server for data specific to a region or point of interest and then outputs that data to various graphical endpoints.
- The **Story Creator** is a web-based tool that enables users to quickly build or update weather stories, and publish rundowns to a graphics engine, such as XPression.



Raiden Flowchart

About This Guide

This guide covers the use of Raiden. Raiden is a multi-component application, each of which is described in the following sections:

[Data Aggregator Server](#)^[7]: provides a description of the Data Aggregator Server user interface and instructions on how to configure the server to retrieve and pre-process weather data.

[Local Server](#)^[35]: provides a description of the Local Server user interface and instructions for using the server.

[Raiden Story Creator](#)^[68]: provides a description of the Story Creator user interface and instructions for using the application.

If you have questions regarding Raiden, please contact us at the numbers listed in the section [Contacting Technical Support](#). Our technical staff is always available for consultation, training, or service.

Documentation Conventions

Special text formats are used in this guide to identify parts of the user interface, text that a user must enter, or a sequence of menus and sub-menus that must be followed to reach a particular command.

Bold text Bold text identifies a user interface element such as a dialog box, menu item, or button.

For example:

In the **Slug** column, type a slug name for the story.

Bold Italic text Italic text is used to identify the titles of referenced guides, manuals, or documents.

For example:

For more information, refer to the ***DashBoard User Guide***.

Courier text Courier text identifies text that a user must type.

For example:

In the **Username** box, type `postgres`.

[Hypertext](#) Identifies a hyperlink to a related topic.

Getting Help

Raiden documentation is provided with the installation package. For additional assistance please contact Technical Support.

Contacting Technical Support

At Ross Video, we take pride in the quality of our products, but if problems occur, help is as close as the nearest telephone.

Our 24-hour Hot Line service ensures you have access to technical expertise around the clock. After-sales service and technical support is provided directly by Ross Video personnel. During business hours (Eastern Time), technical support personnel are available by telephone. After hours and on weekends, a direct emergency technical support phone line is available. If the technical support person who is on call does not answer this line immediately, a voice message can be left and the call will be returned shortly. This team of highly trained staff is available to react to any problem and to do whatever is necessary to ensure customer satisfaction.

Technical Support:

- 1-844-652-0645 (North America)
- +800 3540 3545 (International)
- After Hours Emergency: (+1) 613-349-0006
- E-mail: techsupport@rossvideo.com
- Website: <http://www.rossvideo.com>

Installation Notes

Java Platform

The Raiden weather application is built on top of Azul Zulu Java 21 LTS. This version is included in the installation software and is automatically installed.

Requirements

Raiden has the following requirements:

Data Aggregator Server

- CPU: 3.0 GHz 8 Cores or higher
- Memory: 32 GB or higher
- Storage: 512 GB or higher
- Operating System: Windows 10
- Requires internet connection for data acquisition.

Local Server

- CPU: 3.0 GHz 12 logical processors or higher
- Memory: 32 GB or higher
- Storage for OS: 256GB or higher
- Storage for Media Drive: 2TB or higher
- Operating System: Windows 10
- Requires internet connection for the web map imagery.

Story Creator:

- CPU: 2.9 GHz 8 logical processors or higher
- Memory: 16 GB or higher
- Storage: 256 GB or higher
- Operating System: Windows 10
- Recommended Browser: Chrome Version 117
- Recommended Screen Resolution: 1920 x 1080 or higher

Each Meteorologist Client PC (recommended):

- OS: Windows 10/11
- Browser: Google Chrome
- Memory: 8GB or higher
- Disk drive: 256GB or higher
- CPU: Intel i7 2.0Ghz or higher
- Screen Resolution: 1920 x 1080 or higher

Installation and Configuration

- Ensure the above requirements are met prior to installation.
- A qualified Ross Video technician will assist you with the installation and configuration process.
- Administrative privileges are required to configure Raiden.

Data Aggregator Server

The Data Aggregator Server extracts weather data from various sources, processes the data and feeds it to one or more Local Servers when requested.

Data sources in the following file formats are supported:

- GeoJSON
- GRIB
- GRIB2
- JSON
- KML
- NetCDF
- XML

★ Other file format types may be supported upon request.

The Data Aggregator has a Web user interface that supports multiple languages and responsive HTML.

Once the Data Aggregator has been set up, it will update the data automatically based on the frequency selected when configuring the data source (such as up to every 6 hours for a global scale model).

The following topics are covered in this section:

[Accessing the Data Aggregator Server](#) 

[Forecast](#) 

[Observations](#) 

[Preview styles](#) 

[Endpoints](#) 

[Statistics](#) 

[Configuration](#) 

★ Administrative privileges are required to configure the Data Aggregator server. Standard users have read-only access.

Accessing the Data Aggregator

This section provides instructions for accessing the Data Aggregator Server.

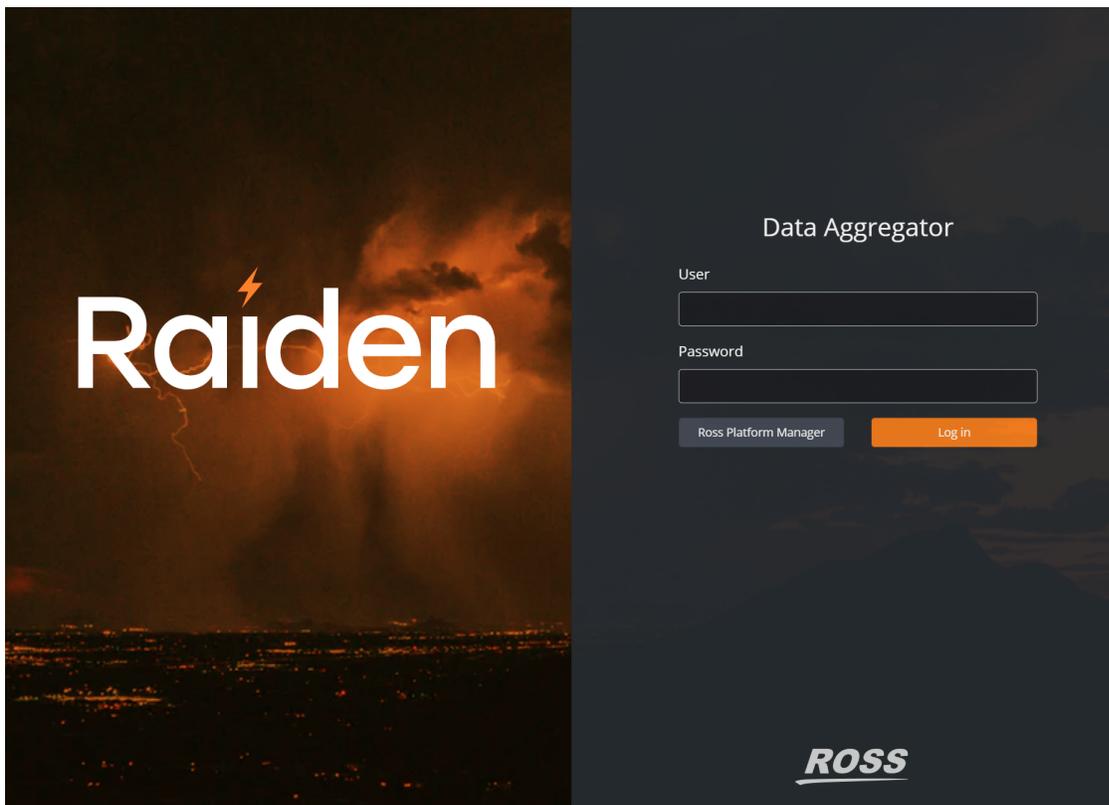
To access the Data Aggregator Server:

1. Open a Web browser.
2. In the **URL** field enter the IP address of the Data Aggregator Server followed by the port number through which you will be communicating with the Local server (**xx.xx.xxx.:8082**).

The default port is **8082**, but you can use another port as long as you make sure that the same port is entered in the URL of the Local server.

3. Press **Enter**.

You will be taken to the Data Aggregator Server **Login** page.



Data Aggregator Login Page

4. Log in with the default **User** name and **Password** provided by Ross Video.
5. To ensure the security of your account, it is recommended that you change your **Password**.

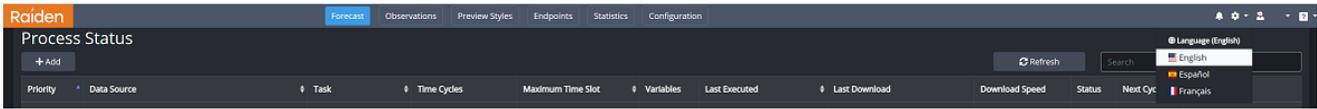
★ For instructions on how to change your **Password**, see [Changing Your Password](#) .

To log out of the Data Aggregator Server:

- In the top-right corner of the UI, select the arrow beside your username and select **Logout**.

Setting the Display Language Preferences

This section provides instructions for setting the user-specific language preferences for the Data Aggregator's web user interface. For instructions on setting the default language for your organization see, [Data Visualization](#) 31.



Data Aggregator Home Page - Display Language Options

To set the web interface display language:

- In the top-right corner, select the arrow beside the **Language** icon and select the language you want to use.

The options are:

- **English** — Default
- **Español**
- **Français**

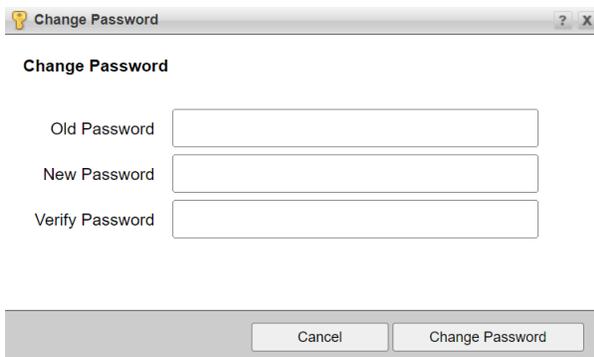
Changing Your Password

If you need to change your password, you can do so through the Ross Platform Manager (RPM). The Ross Platform Manager is a web based application that supports common administrative functions (such as licenses and user access) for Ross products.

★ You will need your current Raiden User name and Password to access RPM. If you do not know your current User name and Password, you will need to contact your System Administrator to recover your login credentials.

To change your User name and Password:

1. In the **Data Aggregator Server** login page, select the **Ross Platform Manager** button.
2. Sign in to **RPM** with your Raiden login credentials.
3. In the navigation bar at the top of your screen, select the  **Tools** button.
4. The **Change Password** dialog opens.



Change Password

Old Password

New Password

Verify Password

Cancel Change Password

RPM Change Password Dialog

5. In the **Old Password** field, enter your old password.
6. In the **New Password** field, enter a new password.
7. In the **Verify Password** field, re-enter the new password.
8. Select **Change Password**.
The **Password** confirmation dialog will appear.
9. Select **OK**.

Forecast

In the **Forecast** section, you can add and configure download tasks and pre-process those tasks so that they are ready to be sent to the [Local Server](#) when requested.

Creating a Forecast Download Task

The first step is to create a **Download Task** for a **Forecast** data source. Once you have created a download task, you can modify the task as needed.

★ **Warning:** Configuring too many download tasks may exceed the server's data limits and cause server-related performance issues. It is recommended that you select only the data you will need for broadcast.

To add a download task:

1. In the **Forecast** section, select the **+Add** button.
2. In the **New Download Task** dialog, enter a name for the task.
3. From the **Data Source** drop-down, select a data source.

The drop-down list displays unassigned data sources to select from. Data sources previously assigned to other download tasks are removed from the drop-down list.

4. Use the **+** and **-** buttons to zoom in or out on the area of the preview map to view the data source's coverage area.

Alternatively, you can use the scroll wheel on your mouse to zoom in and out.

If the area of interest is covered by the selected **Data Source**, continue with the next step. Otherwise, select a different **Data Source**.

5. Scroll down the dialog to **Time Cycles** and select the **Time Cycles** you want downloaded and processed.
6. From the **Maximum Time Slot** drop-down, select the **Maximum Time Slots** you want, which will be the maximum number of timeslots for which **Forecast** data is requested.

For example, 2d 00:00 represents two full days of model data, and all forecast hours up to that point will be acquired.

★ **Warning:** Requesting data for too many time slots may exceed the server's data limit and cause server-related performance issues. It is recommended that you select only the data you will need for broadcast.

7. In the **Variables** section, select the variables you want acquired.
8. Select **Create** to save the settings.

The new **Download Task** will be added to the **Process Status** page.

Data Source	Task	Time Cycles	Maximum Time Slot	Variables / Levels	Last Executed	Last Download	Download Speed	Status	Next Cycle	
NCEP Short-Range Ensemble Forecast (USA)	NCEP_SR_USA	03:00:00 - 21:00:00	00:00:00	1	N/A	-	-	Not executed	In 01h32m	🔍 🔄 📄 🗑️
USA High Resolution Window	HRESW	00:00:00 - 12:00:00	2d 00:00:00	11	9/15/2022, 9:21:07 AM	9/14/2022, 11:24:49 PM	8.64 MB/s	OK	In 10h32m	🔍 🔄 📄 🗑️
Global Forecast System	GFS	00:00:00 - 18:00:00	5d 00:00:00	11	9/15/2022, 9:21:07 AM	9/15/2022, 6:19:53 AM	12.37 MB/s	OK	In 04h32m	🔍 🔄 📄 🗑️

Process Status - New Download Task

To modify a download task

1. From the **Process Status** list, locate the download task you want to modify, and select the  **Edit** button.

The **Modify Download Task** dialog appears, showing the settings that can be modified.

2. When you have made the modifications that you want, select the **Modify** button.

The modifications will be added to the specified download task.

To delete a download task:

1. From the **Process Status** list, locate the download task you want to delete, and select the  **Delete** button.

The **Delete Download Task** confirmation dialog appears.

2. Select **Delete**.

The **Download Task** will be deleted from the **Process Status** list.

Viewing the Details of a Forecast Download Task

With your download task created, you can now view and filter the results of the task.

To view the details of a specific download task:

- From the **Process Status** list, locate the download task you want to view, and select the  **Expand View** button or select the task line.

Alternatively, you can use the **Search** field to search for a task by entering the name of the task and pressing **Enter**.

The results for the download task will be displayed in the **Task** list.

To filter the download task results:

1. From the **Process Status** list, locate the download task you want to view, and select the  **Expand View** button.

The results for the download task will be displayed in the **Task** list.

Task: Vedur Stations, Data Source: Icelandic Met Office (Vedur)

2024-12-10

All Cycles All Slots All Variables All Statuses Search Refresh

Date	Time Cycle	Time Slot	Local Date/Time	Variable (Level)	Executed	File Size	Status	Preview
2024-12-10	12:00:00	5d 12:00:00	12/15/2024, 6:00:00 PM	Weather Code (Ground at 2m)	12/10/2024, 8:39:17 AM	33.6 kB	Finished	
2024-12-10	12:00:00	5d 12:00:00	12/15/2024, 6:00:00 PM	Temperature (Ground at 2m)	12/10/2024, 8:39:17 AM	33.6 kB	Finished	
2024-12-10	12:00:00	5d 12:00:00	12/15/2024, 6:00:00 PM	Wind Direction (Ground at 10m)	12/10/2024, 8:39:17 AM	33.6 kB	Finished	
2024-12-10	12:00:00	5d 12:00:00	12/15/2024, 6:00:00 PM	Wind Speed (Ground at 10m)	12/10/2024, 8:39:17 AM	33.6 kB	Finished	
2024-12-10	12:00:00	5d 09:00:00	12/15/2024, 3:00:00 PM	Weather Code (Ground at 2m)	12/10/2024, 8:39:16 AM	33.4 kB	Finished	
2024-12-10	12:00:00	5d 09:00:00	12/15/2024, 3:00:00 PM	Temperature (Ground at 2m)	12/10/2024, 8:39:16 AM	33.4 kB	Finished	
2024-12-10	12:00:00	5d 09:00:00	12/15/2024, 3:00:00 PM	Wind Direction (Ground at 10m)	12/10/2024, 8:39:16 AM	33.4 kB	Finished	
2024-12-10	12:00:00	5d 09:00:00	12/15/2024, 3:00:00 PM	Wind Speed (Ground at 10m)	12/10/2024, 8:39:16 AM	33.4 kB	Finished	
2024-12-10	12:00:00	5d 06:00:00	12/15/2024, 12:00:00 PM	Weather Code (Ground at 2m)	12/10/2024, 8:39:17 AM	33.7 kB	Finished	
2024-12-10	12:00:00	5d 06:00:00	12/15/2024, 12:00:00 PM	Temperature (Ground at 2m)	12/10/2024, 8:39:17 AM	33.7 kB	Finished	

Showing 1 to 10 of 1760 rows 10 rows per page

< 1 2 3 4 5 ... 176 >

Forecast Download Task - Task Results

- From the **Date** drop-down, select whether to display the results for **All Dates** or for the current date only.
- From the **Cycles** drop-down, select whether to display the results for **All Cycles** or for a specific cycle.
- From the **Slots** drop-down, select whether to display the results for **All Slots** or for a specific time slot.
- From the **Variables** drop-down, select whether you want to display the results for **All Variables** or for a specific variable.
- From the **Statuses** drop-down, select whether to display the results for **All Statuses** or for a specific status.

The filtered results will be displayed in the **Task** page.

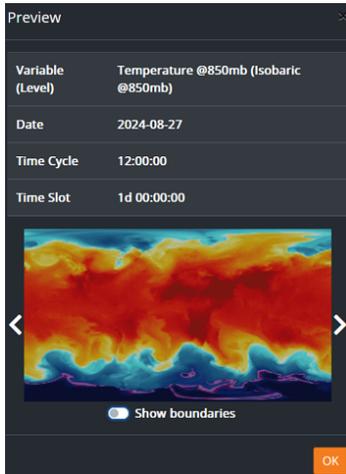
To preview an image for a download task:

- From the **Process Status** list, locate the **Download Task** for which you want to view available preview images, and select the **Expand View** button.

The results for the download task will be displayed in the **Task** list.

- In the **Preview** column, select the **Preview Image** button for the **Task** you want to preview.

The **Preview** window will appear.



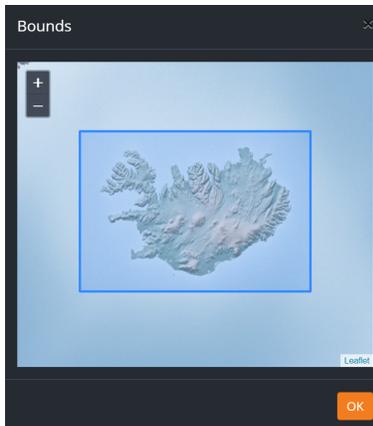
Forecast Download Task - Preview

3. Use the < and > buttons to view the task changing over time.
4. Use the **Show Boundaries** toggle to show/hide **Boundaries** in the preview.
5. Select **OK** to close the preview.

To view the bounds of a download task:

1. From the **Process Status** list, locate the download task for which you want to view the **Bounds**, and select the  **Bounds** button.

The **Bounds** window will appear.



Forecast Download Task - Bounds Preview

2. Use the + and - buttons to zoom in and out of the image.
Alternatively, you can use the scroll wheel on your mouse to zoom in and out.
3. Select **OK** to close the preview.

Observations

In the **Observations** section, you can add and configure download tasks and pre-process those tasks so that they are ready to be sent to the [Local Server](#) when requested.

Creating an Observations Download Task

The first step is to create a download task for the **Observations** data source. Once you have created a download task, you can modify the task as needed.

★ **Warning:** Configuring too many download tasks may exceed the server's data limits and cause server-related performance issues.

To add an Observation download task:

1. In the **Observations** section, select **+Add**.
2. In the **New Download Task** dialog, enter a name for the task.
3. From the **Data Source** drop-down, select a data source.

The drop-down list displays unassigned data sources to select from. Data sources previously assigned to other download tasks are removed from the drop-down list.

4. Use the **+** and **-** buttons to zoom in or out on the preview map to view the data source's coverage area.

Alternatively, you can use the scroll wheel on your mouse to zoom in and out.

If the area of interest is covered by the selected **Data Source**, continue with the next step. Otherwise, select a different **Data Source**.

5. Scroll down the dialog to the **Variables** section.
6. In the **Variables** section, select each **Variable** you want displayed.

★ **Warning:** Selecting too many Variables may exceed data limits and cause server related performance issues.

7. Select **Create** to save the settings.

The new task will be added to the **Process Status** page.

Data Source	Task	Variables / Levels	Last Executed	Last Download	Download Speed	Status
Dirección Meteorológica de Chile	DMCh	6	1/4/2023, 8:42:16 AM	1/4/2023, 8:47:15 AM	0.31 MB/s	OK
RTMA Conus Rapid Update (USA)	RTMA	5	1/4/2023, 8:42:13 AM	1/4/2023, 8:47:30 AM	42.36 MB/s	OK

Process Status - New Task

To modify an Observations download task:

1. From the **Process Status** list, locate the download task you want to modify, and select the  **Edit** button.

The **Modify Download Task** dialog appears, showing the settings that can be modified.

2. When you have made the modifications that you want, select the **Modify** button.

The modifications will be added to the specified **Download Task**.

To delete an Observations download task:

1. From the **Process Status** list, locate the download task you want to delete, and select the  **Delete** button.

The **Delete Download Task** confirmation dialog appears.

2. Select **Delete**.

The **Download Task** will be deleted from the **Process Status** list.

Viewing the Details of an Observations Download Task

With your download task created, you can now view the results of the task. You can also view a [Preview](#)¹⁷⁾ of the weather map for a selected task and variable, as well as a [Bounds map](#)¹⁷⁾ showing the area covered by the task.

To view the details of a specific download task:

• From the **Process Status** list, locate the download task you want to view, and select the  **Expand View** button or select on the task line.

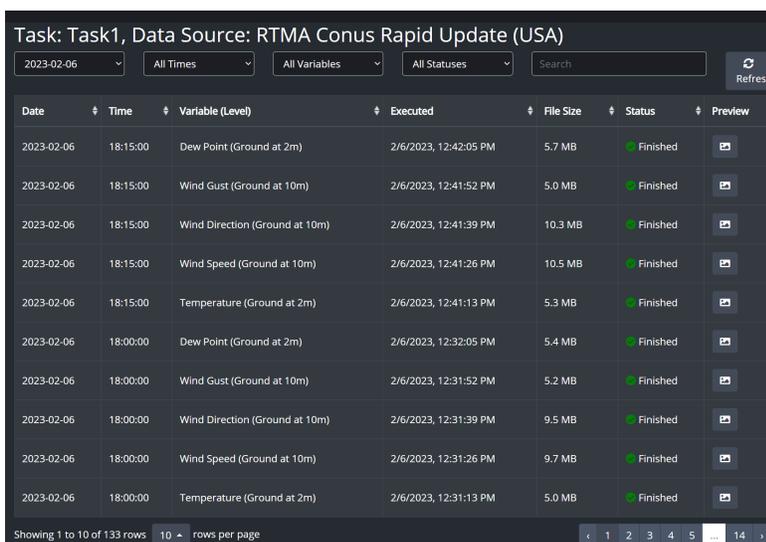
Alternatively, you can use the **Search** field to search for a task by entering the name of the task and pressing **Enter**.

The results for the download task will be displayed in the **Task** list.

To filter the download task results:

1. From the **Process Status** list, locate the download task you want to view, and select the  **Expand View** button or select the task line.

The results for the download task will be displayed in the **Task** list.



Date	Time	Variable (Level)	Executed	File Size	Status	Preview
2023-02-06	18:15:00	Dew Point (Ground at 2m)	2/6/2023, 12:42:05 PM	5.7 MB	Finished	
2023-02-06	18:15:00	Wind Gust (Ground at 10m)	2/6/2023, 12:41:52 PM	5.0 MB	Finished	
2023-02-06	18:15:00	Wind Direction (Ground at 10m)	2/6/2023, 12:41:39 PM	10.3 MB	Finished	
2023-02-06	18:15:00	Wind Speed (Ground at 10m)	2/6/2023, 12:41:26 PM	10.5 MB	Finished	
2023-02-06	18:15:00	Temperature (Ground at 2m)	2/6/2023, 12:41:13 PM	5.3 MB	Finished	
2023-02-06	18:00:00	Dew Point (Ground at 2m)	2/6/2023, 12:32:05 PM	5.4 MB	Finished	
2023-02-06	18:00:00	Wind Gust (Ground at 10m)	2/6/2023, 12:31:52 PM	5.2 MB	Finished	
2023-02-06	18:00:00	Wind Direction (Ground at 10m)	2/6/2023, 12:31:39 PM	9.5 MB	Finished	
2023-02-06	18:00:00	Wind Speed (Ground at 10m)	2/6/2023, 12:31:26 PM	9.7 MB	Finished	
2023-02-06	18:00:00	Temperature (Ground at 2m)	2/6/2023, 12:31:13 PM	5.0 MB	Finished	

Observations - Download Task Results

- From the **Date** drop-down, select whether to display the results for **All Dates** or for the current date only.
- From the **Times** drop-down, select whether to display the results for **All Times** or for a specific time.
- From the **Variables** drop-down, select whether you want to display the results for **All Variables** or for a specific variable.
- From the **Statuses** drop-down, select whether to display the results for **All Statuses** or for a specific status.

The filtered results will be displayed in the **Task** page.

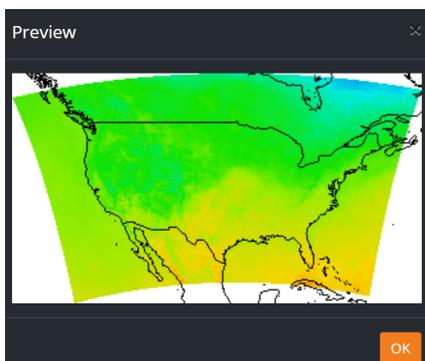
To preview an image for a download task:

- From the **Process Status** list, locate the **Download Task** for which you want to view available preview images, and select the  **Expand View** button.

The results for the download task will be displayed in the **Task** list.

- In the **Preview** column, select the  **Preview Image** button for the **Download Task** you want to preview.

The **Preview** window will appear.



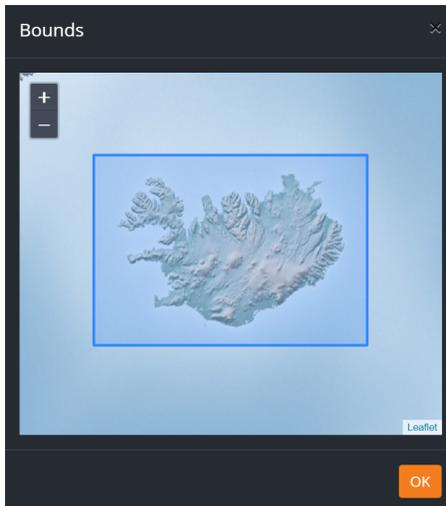
Forecast Download Task - Preview

- Select **OK** to close the preview.

To view the Bounds of a download task:

- From the **Process Status** list, locate the **Download Task** for which you want to view the **Bounds**, and select the  **Bounds** button.

The **Bounds** window will appear.



Forecast Download Task - Bounds Preview

2. Use the **+** and **-** buttons to zoom in and out of the image.
Alternatively, you can use the scroll wheel on your mouse to zoom in and out.
3. Select **OK** to close the preview.

Preview Styles

In the **Preview Styles** section, users can add and customize the color preferences for preview images displayed in both the **Forecast** and **Observations** sections. This feature allows users to create a custom color palette that best suits their visualization needs, with the option to export the palette for future use. Additionally, users can easily import a previously exported color palette, enhancing control over the appearance and clarity of data visualizations.

For information on setting the color preferences for images used in broadcast graphics, see the Local Server's [Preview Styles](#) section.

To add a new Preview Style:

1. In the **Preview Styles** section, select **+Add**.

The **Create Preview Style** dialog appears.

Color	Opacity	Min. Value		Color	Opacity	Max. Value	
<input type="color"/>	1	1	>	<input type="color"/>	1	2	+

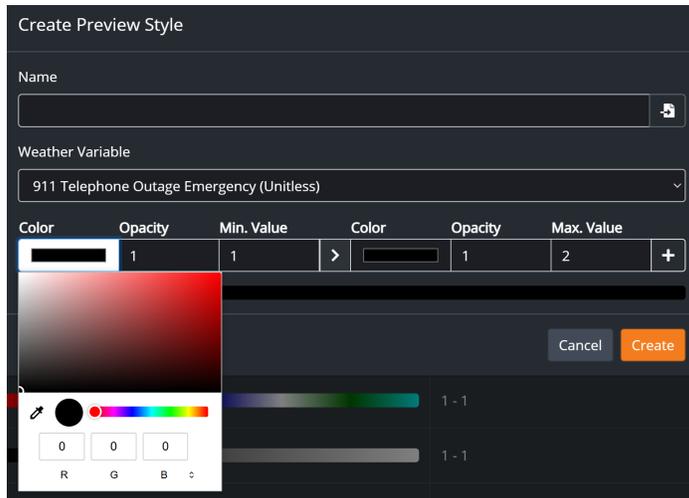
Create Preview Style Dialog

2. In the **Name** field, enter a new name for the style.
3. From the **Weather Variable** drop-down, select the **Weather Variable** to customize.
4. In the **Color/Opacity/Value** ranges table, select the **+** button to add additional rows as needed to create a customized color range for your style.

Each row in the table indicates an increment in the range. The left side of the row sets the starting values for an increment and the right side of the row sets the ending values for an increment.

5. In each row, set the **Color**, **Opacity**, and **Min./Max. Value** as follows:
 - a. In the left side of the row, use the color picker to set the starting color for the range.

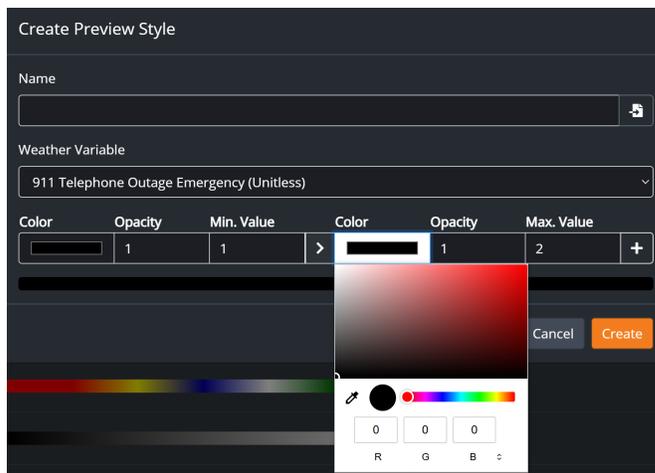
The **Color Selector** opens.



Preview Styles Color Selector

- b. Drag and drop the selector to the color you want.
Alternatively, you can use the eyedropper tool to select a color from another source displayed on your screen or manually enter the RGB values.
- c. In the **Opacity** field, enter or select the value to set the color **Opacity** (values range between 0 and 1).
- d. In the **Min. Value** field, enter or select the starting value.
- e. In the right side of the row, select the color picker to set the ending color for the first increment.

The **Color Selector** opens.



Preview Styles Color Selector

- f. Drag and drop the **Selector** to the color you want.
Alternatively, you can use the eyedropper tool to select a color from another source displayed on your screen or manually enter the RGB values.
 - g. In the **Opacity** field, enter or select the value for the color **Opacity** (values range between 0 and 1).
 - h. In the **Max. Value** field, enter or select the ending value for the **Value Range**.
6. Continue setting the **Color**, **Opacity**, and **Min./Max. Value** for each row you added to the table.

7. When you have finished, select the **Create** button.

The new **Preview Style** will be added to the **Preview Styles** page.



Name	Weather Variable	Color Ramp	Opacity Range	Value Range		
Wind Speed	Wind Speed		1 - 1	0 - 21 (m/s)		
Wind Gust Speed	Wind Gust Speed		1 - 1	0 - 21 (m/s)		
Wind Gust	Wind Gust		1 - 1	0 - 21 (m/s)		
Visibility Style	Visibility		1 - 0	0 - 40 (km)		
Total Solid Precipitation	Total Solid Precipitation		0 - 1	0 - 15 (Unitless)		
Total Precipitation	Total Precipitation		0 - 1	0 - 10 (Unitless)		
Temperature	Temperature		1 - 1	223.15 - 323.15 (K)		
Storm (Wind)	Storm Wind		1 - 1	0 - 1 (Unitless)		
Storm (Tornado)	Storm Hall		1 - 1	0 - 1 (Unitless)		
Storm (Hall)	Tornado		1 - 1	0 - 1 (Unitless)		

Preview Style Page - New Style

To modify a Preview Style:

1. From the **Preview Styles** list, select the  **Edit** button next to the style you want to modify.
2. The **Create Preview Style** dialog appears, showing the settings that can be modified.

The following settings can be modified:

- **Name**
- **Color, Opacity, and Value ranges**

3. When you have made the modifications that you want, select the **Modify** button.

The new style adjustments are made to the **Preview Style**.

To search for a specific Preview Style:

- In the **Preview Styles** list, enter the name of the **Preview Style** in the **Search** field and press **Enter**.

The search results are displayed in the **Preview Styles** list.

To delete a Preview Style:

1. In the **Preview Styles** list, select the  **Delete** button next to the style you want to delete.

The **Delete Preview Style** confirmation dialog appears.

2. Select the **Delete** button.

The style is deleted from the **Preview Style** list.

To export a Preview Style:

- From the **Preview Styles** list, select the  **Export** button for the **Preview Style** you want to export.

The **.rsf** file will download to your system.

To import a Preview Style for an existing Style:

1. From the **Preview Styles** list, select the  **Edit** button next to the style you want to modify.
The **Modify Style** window appears.
2. Select the  **Import** button.
The **File Explorer** opens.
3. Navigate to the **.rsf** file you want and select **Open**.
The **File Explorer** closes.
4. Select **Modify**.
The imported style is applied to the weather variable.

To import a Preview Style for a new Style:

1. While creating a new **Style**, in the **Create Preview Style** window, select the  **Import** button.
The File Explorer opens.
2. Navigate to the **.rsf** file you want and select **Open**.
The File Explorer closes.
3. Select **Create**.
The imported style is applied to the weather variable.

Endpoints

Use the **Endpoints** section to configure API **Endpoints** and view the **API Key** details. In the Data Aggregator server, you can configure endpoints to establish communication between Raiden servers. You can add, modify, or delete as many endpoints as you require for your setup.

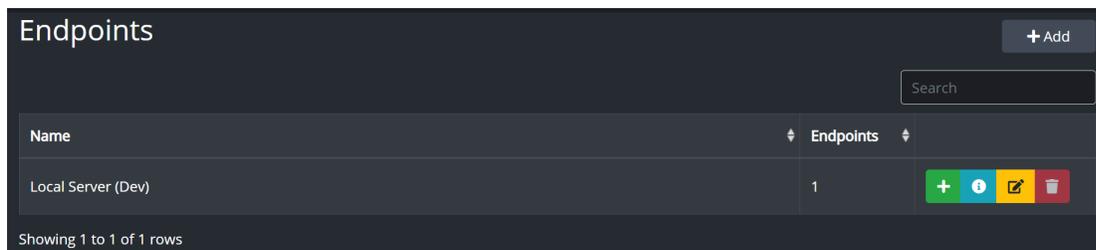
Creating an Endpoint Group

The first step is to create an **Endpoint Group**. Once you have created the group, you can modify or delete the **Endpoint Group** as needed.

To add an Endpoint Group:

1. In the **Endpoint** section, select **+Add**.
The **New Endpoint Group** dialog appears.
2. In the **Name** field, enter a name for the **Endpoint Group**.
3. When you have named the group, select **Create**.

The new group will be added to the **Endpoints** page.



Endpoint - New Group

To modify an Endpoint Group:

1. In the **Endpoint** list, select the  **Edit** button next to the **Endpoint Group** you want to modify.
The **Modify Endpoint Group** dialog will appear, showing the setting that can be modified.
The following setting can be modified:

- **Name**

2. When you have modified the name, select **Modify**.
The modification will be saved to the **Endpoint Group**.

To delete an Endpoint Group:

1. In the **Endpoints** section, select the **Delete** button to the right of the **Endpoint Group** you want to delete.
2. In the **Delete End Group** dialog, select **Delete**.
The **Endpoint Group** will be deleted from the **Endpoint** page.

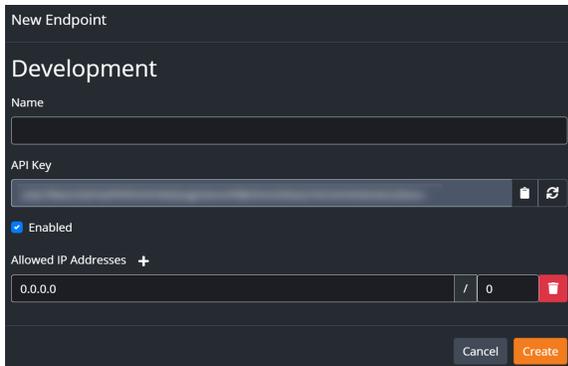
Adding New Endpoints to a Group

Next you'll need to add endpoints to the **Endpoint Group**. Once you have added a **New Endpoint**, you can modify or delete the endpoint if necessary.

To add a New Endpoint to an Endpoint Group:

1. In the **Endpoints** list, select the  **Add** button for the group you want to add a **New Endpoint**.

The **New Endpoint** dialog will be displayed.



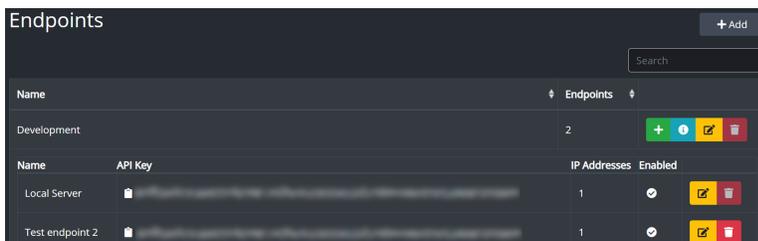
Endpoint - New Endpoint Dialog

2. In the **New Endpoint** dialog, enter a name for the **New Endpoint**.
3. Select the **Enabled** box to enable the **API Key**.
4. In the **Allowed IP Addresses** section, select the **+ Add** button to add any additional **IP Address** fields that may be required.
5. In the **Allowed IP Addresses** field, enter the IP address and subnet mask of the endpoint device.
Alternatively, you can use the **Up - Down** arrows to set the subnet mask number.
6. When you have configured the **New Endpoint** settings, select **Create**.
The **New Endpoint** will be added to the group.

To modify an Endpoint within an Endpoint Group:

1. In the **Endpoints** list, select the  **Information** button to the right of the group you want to modify.

The **Endpoint Group** details will be displayed.



Endpoints - Endpoint Group Modification

2. In the **Endpoint** list, select the  **Edit** button next to the **Endpoint** you want to modify.
The **Modify Endpoint** dialog will appear, showing the settings that can be modified.

The following settings can be modified:

- **Name**
- **API Key**
- **Enabled**
- **Allowed IP Addresses**

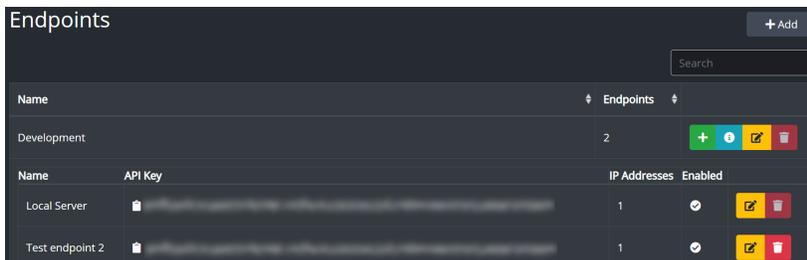
3. When you have made the modifications that you want, select **Modify**.

The modifications will be added to the **Endpoint Group**.

To delete an Endpoint within a group:

1. In the **Endpoint** list, select the  **Information** button to the right of the group containing the **Endpoint** you want to delete.

The **Endpoints** in the **Endpoint Group** will be displayed.



Endpoints Section - Endpoints Within an Endpoint Group

2. In the **Endpoint** list, select the **Delete** button next to the **Endpoint** you want to delete.

3. In the **Delete Endpoint** dialog, select **Delete**.

The **Endpoint** will be deleted from the **Endpoint Group**.

To search for an Endpoint Group:

- In the **Search** field, enter the name of the **Endpoint Group** and press **Enter**.

The search results will be displayed in the **Endpoint** page.

Viewing API Key Details

Once you have created your **Endpoint Groups** you can view the **API Key** details within the group.

To view the API Key details:

- In the **Endpoints** list, select the  **Information** button for the **Endpoint Group** for which you want to view the **API Key** details.

The **API Keys** for the specified **Endpoint Group** will be displayed.

Name		Endpoints	
Local Server (Dev)		1	+ [] [] []
PV Test		0	+ [] [] []
Task11213		6	+ [] [] []
Name	API Key	IP Addresses	Enabled
aaa	[REDACTED]	1	[] [] []
aaaaa	[REDACTED]	1	[] [] []
qa	[REDACTED]	1	[] [] []
123	[REDACTED]	1	[] [] []
qa	[REDACTED]	1	[] [] []
test	[REDACTED]	1	[] [] []
Test Group		1	+ [] [] []

Endpoints - API Keys

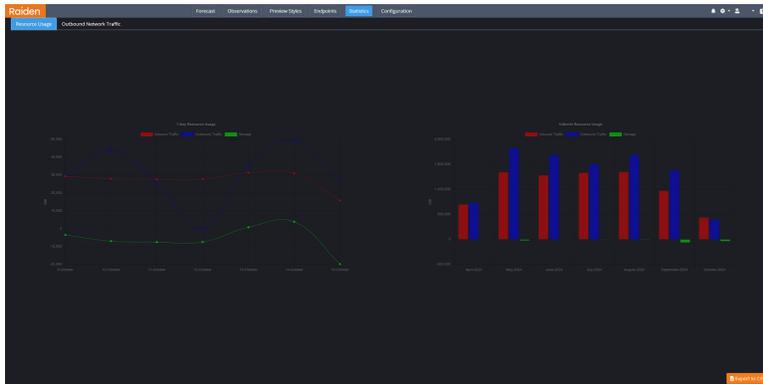
Statistics

In the **Statistics** section, you can monitor the **Resource Usage** and **Outbound Network Traffic**. Additionally, you can export the **Statistics** for the server's **Resource Usage**.

To view the Resource Usage:

- In the **Statistics** section, select the **Resource Usage** tab.

The **7-Day Resource Usage** and **6-Month Resource Usage** graphs will be displayed.

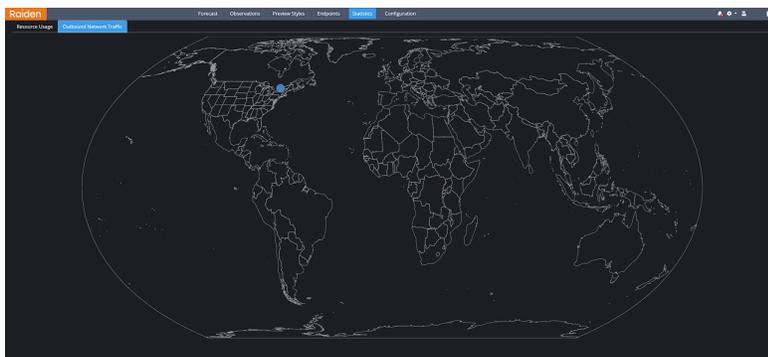


Statistics - Resource Usage

To view the Outbound Network Traffic.

- In the **Statistics** section, select the **Outbound Network Traffic** tab.

The **Outbound Network Traffic** map will be displayed.



Statistics - Outbound Network Traffic

To export the Statistics data:

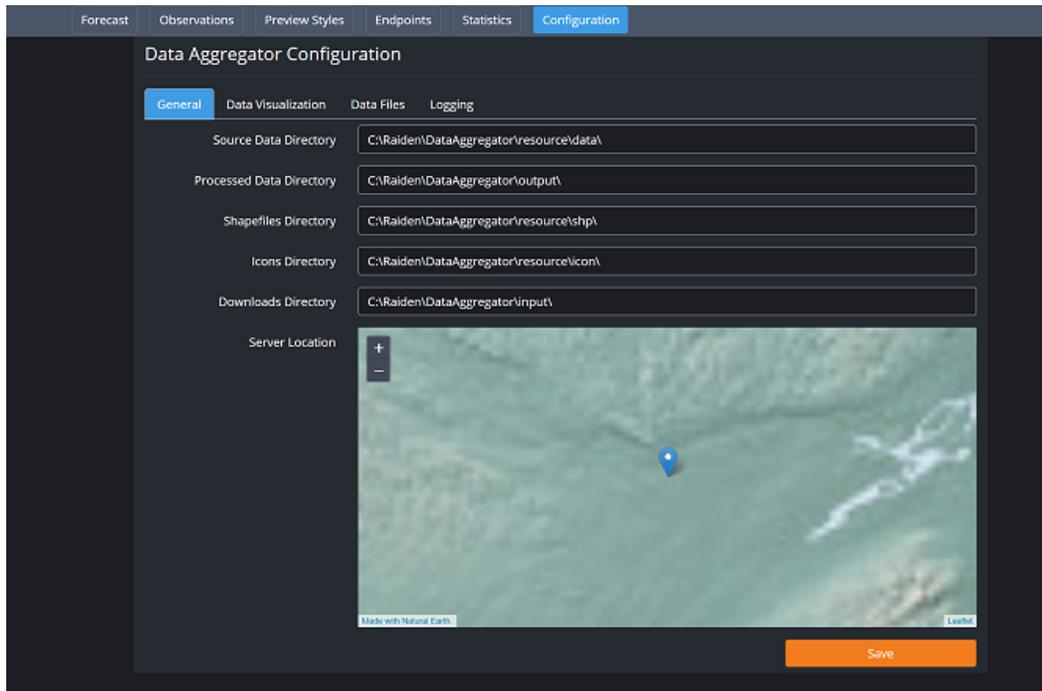
1. In the **Statistics** section, select the **Resource Usage** Tab.
2. In the bottom-right corner, select the **Export to CSV** button to export the **Statistics** data.
The **Raideen_dataaggregator_stats.csv** file will download to your system.
3. Navigate to the location on your system where you want to save the statistics and select **Save**.

Configuration

In the **Configuration** section, you can view and set the properties related to the **Data Aggregator Server** configuration.

- The directory locations and server location details are stored in the **config.da** JSON file, which is located in C:\Raider\DataAggregator.
- Administrative privileges are required to make changes to the **Configuration** section.

Use this panel to access the **Configuration** tabs.



Data Aggregator - Configuration Section

The **Configuration** panel contains the following tabs:

[General](#) ²⁸

[Data Visualization](#) ³¹

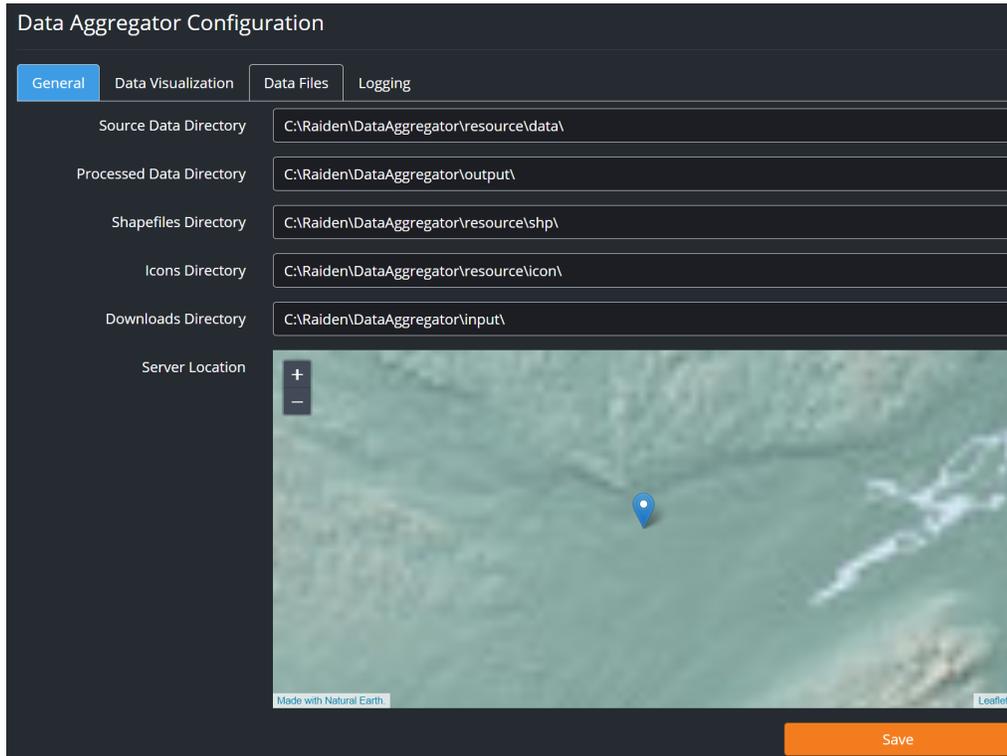
[Data Files](#) ³²

[Logging](#) ³³

★ Saving the properties in each tab will override the **config.da** JSON file and reload the information in the system.

General

In the **General** tab, you can view and configure the **General** directories, as described below.



The screenshot shows the 'Data Aggregator Configuration' window with the 'General' tab selected. The configuration fields are as follows:

Field	Value
Source Data Directory	C:\Raiden\DataAggregator\resource\data\
Processed Data Directory	C:\Raiden\DataAggregator\output\
Shapefiles Directory	C:\Raiden\DataAggregator\resource\shp\
Icons Directory	C:\Raiden\DataAggregator\resource\icon\
Downloads Directory	C:\Raiden\DataAggregator\input\
Server Location	[Map showing a location on a satellite view]

A 'Save' button is located at the bottom right of the configuration window.

General Directories Settings

To map your General directories:

1. Fill in the following fields:

- **Source Data Directory**—in this field, enter the path to the location where you want to store the source data (such as time zones).

The default path is:

C:\Raiden\DataAggregator\resource\data\

- **Processed Data Directory**—in this field, enter the path to the location where you want to store the output directory where the data downloaded and preprocessed by the Data Aggregator is located.

The default path is:

C:\Raiden\DataAggregator\output\

- **Shapefiles Directory**—in this field, enter the path to where you want to store the files used to create **Forecast** and **Observations** previews.

The default path is:

C:\Raiden\DataAggregator\resource\shp\

- **Icons Directory**—in this field, enter the path to the location where you want to store the icon files used in **Forecast** and **Observations** previews.

The default path is:

C:\Raiden\DataAggregator\resource\icon\

- **Downloads Directory**—in this field, enter the path to the location where you want to store the input directory, where the original files downloaded by the Data Aggregator Server are located.

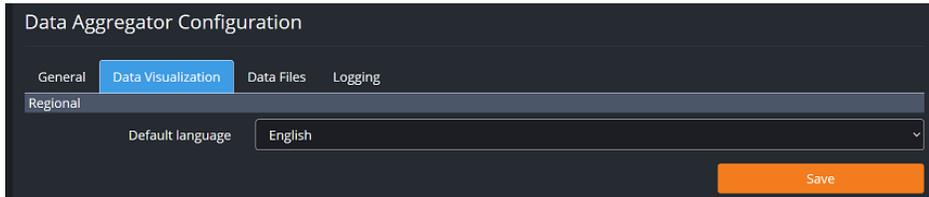
The default path is:

C:\Raider\DataAggregator\input\

2. In the **Server Location** map, select the point to drag and drop it on the location of your server.
3. Select **Save** to apply your changes.

Data Visualization

Use the **Data Visualization** tab to configure the **Default Language** settings. This setting will establish the default language format for your organization.



Configuration - Data Visualization

To configure the Default Language settings:

1. From the **Default Language** dropdown, select the language you want to use.

The options are:

- **English** — Default
- **Español**
- **Français**

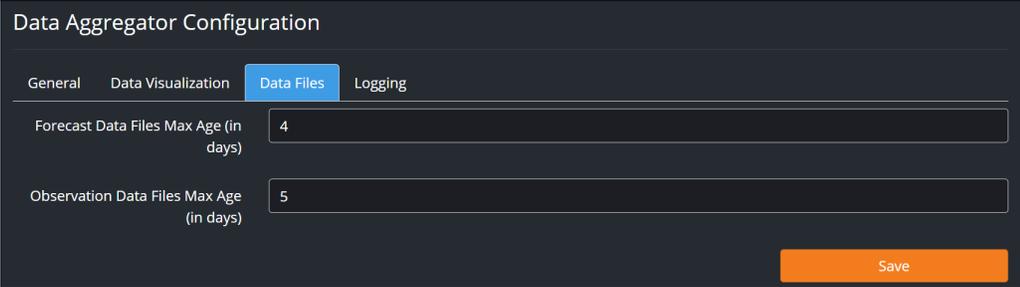
2. Select **Save**.

The **Data Visualization** setting is saved.

Data Files

Use the **Data Files** section to manage how long forecast and current condition data remains available in the **Process Status** list before expiring. When the data expires, the system will delete the data from the downloads directory and it will no longer be available in the **Process Status** list.

★ **Warning:** Setting the **Data Files Max Age** too high may result in server-related performance issues. In practice, a Local Server is the one that is important to retain data for broadcast. Once data is processed at a Local Server, it does not need it again from the Data Aggregator. Therefore, these maximum ages can be low on the Data Aggregator.



The screenshot shows the 'Data Aggregator Configuration' interface with the 'Data Files' tab selected. It contains two input fields: 'Forecast Data Files Max Age (in days)' set to 4 and 'Observation Data Files Max Age (in days)' set to 5. A 'Save' button is located at the bottom right of the configuration area.

Configuration - Data Files

To configure the Data File settings:

1. In the **Forecast Data Files Max Age** field, use the **Up-Down** arrows to enter the maximum number of days you want the **Forecast** data to remain in the **Process Status** list.
2. In the **Observations Data Files Max Age** field, use the **Up-Down** arrows to enter the maximum number of days you want the **Observations** data to remain in the **Process Status** list.
3. When you have configured the settings, select **Save**.

The settings will be saved in the **Data Files** page.

Logging

In the **Logging** section, you can access and configure the settings to track error reporting and related data.

To configure the logging settings:

1. From the **Log Level** drop-down, select the log level you want to use.

Your options are:

- **INFO**
- **ERROR**
- **DEBUG**
- **WARNING**
- **TRACE**

2. In the **Log File** field, enter the path to the **Log File**.

The default path is:

C:\Raiden\DataAggregator\logs\da.log

3. In the **File name pattern** field, enter the pattern you want to define the format of file name extensions.

For example: `_yyyy-MM-dd-HH'.log'` (Default)

4. In the **Log pattern** field, enter the log pattern you want to format your logging information.

For example: `%d{yyyy-MM-ddHH:mm:ss} [%p] -%c{2} :%m%n` (Default)

5. In the **Maximum Number of Days to Keep Files** field, use the **Up-Down** arrows to select the number of days you want to keep files.

★ **Warning:** Keeping files for too many days is not recommended as it may cause server-related performance issues.

6. When you have configured the settings, select **Save**.

Events

In the **Events** section, you can access the log data for all task and error events.

To view executing task information:

The **Executable Tasks** tab is a live event viewer that displays current executing tasks.

1. In the **Events** section, select the **Executing Tasks** tab.

The list of tasks currently being executed is displayed.

★ If the system is not processing data, the list will be empty.

2. Select **OK** to close the window.

To view logging information:

The **Log tab** displays all server tasks (successful or not).

1. In **Events** section, select the **Logs** tab.

The list of completed tasks and error events is displayed.

2. Select **OK** to close the window.

Local Server

The Local Server is where you will retrieve weather data specific to your area of interest from the Data Aggregator. The data is processed based on the areas of interest and preferences you have defined locally. You can select the area of interest, store the data and generate the local media output, either images or video.

The following topics are covered in this section:

[Accessing the Local Server](#)  36

[Areas of Interest](#)  39

[Forecast](#)  49

[Observations](#)  51

[Output Styles](#)  53

[Configuration](#)  57

★ Administrative privileges are required to configure the Local Server. Standard users have read-only access.

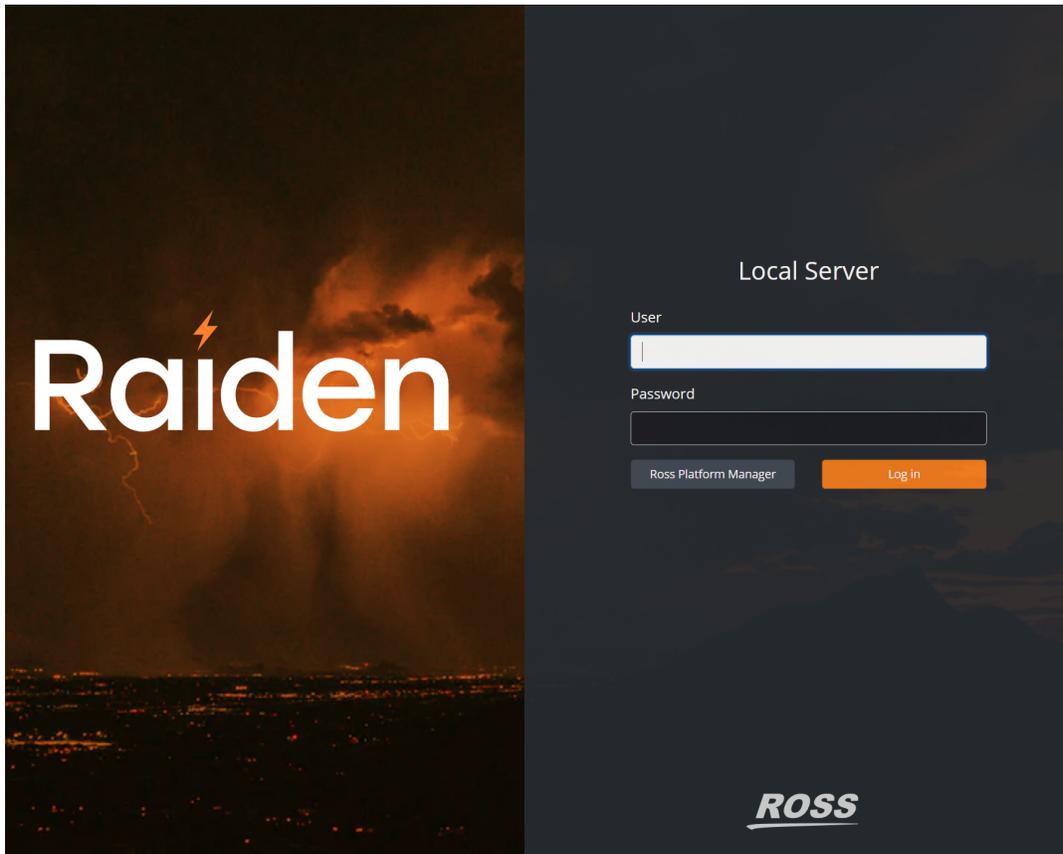
Accessing the Local Server

This section provides instructions for accessing the Local Server.

To access the local server:

1. Open a Web browser.
2. In the **URL** field enter the IP address of your local server followed by the port number through which you will be communicating with the Data Aggregator Server (in the format XX.XX.XXX.XXX:8082).
3. Press **Enter**.

You will be taken to the Local Server **Login** page.



Local Server Login Page

4. Log in with the default **User** name and **Password** provided by Ross Video.
Upon successful login, you will be on the **Areas of Interest** page.

To log out of the Local Server:

- In the top-right corner of the UI, select the arrow beside your username and select **Logout**.

Setting the Display Preferences

This section provides instructions for setting the user-specific display preferences for the Local Server's web user interface. For instructions on setting the default display preferences for your organization see, [Data Visualization](#).

To configure unit display preferences:

1. In the top-right corner, select the arrow beside the **Temperature** icon and select the units of temperature you want to use.

The options are:

- **Celsius degrees** (°C)
- **Fahrenheit degrees** (°F)
- **Kelvin** (K) — Default

2. Then select the **Speed** icon and select the units of speed you want to use.

The options are:

- **Knots** (kt)
- **Miles per hour** (mph)
- **Kilometers per hour** (km/h) — Default
- **Meters per second** (m/s)

3. Select the **Language** icon and select the language you want to use.

The options are:

- **English** — Default
- **Español**
- **Français**

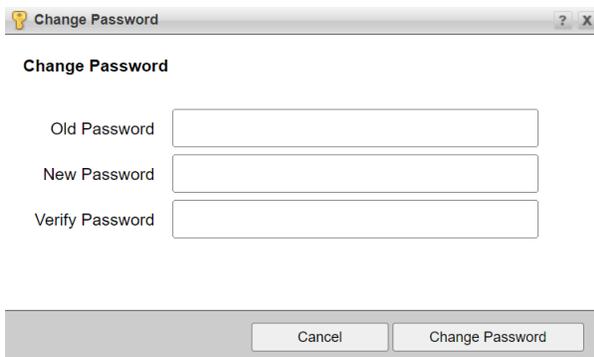
Changing Your Password

If you need to change your password, you can do so through the Ross Platform Manager (RPM). The Ross Platform Manager is a web based application that supports common administrative functions (such as licenses and user access) for Ross products.

★ You will need your current Raiden User name and Password to access the RPM. If you do not know your current User name and Password, you will need to contact your System Administrator to recover your login credentials.

To change your User name and Password:

1. In the **Data Aggregator Server** login page, select the **Ross Platform Manager** button.
2. Sign in to the **RPM** with your Raiden login credentials.
3. In the navigation bar at the top of your screen, select the  **Tools** button.
4. The **Change Password** dialog opens.



Change Password

Change Password

Old Password

New Password

Verify Password

Cancel Change Password

RPM Change Password Dialog

5. In the **Old Password** field, enter your old password.
6. In the **New Password** field, enter a new password.
7. In the **Verify Password** field, re-enter the new password.
8. Select **Change Password**.
The **Password** confirmation dialog will appear.
9. Select **OK**.

Areas of Interest

In the **Areas of Interest** section, you can define a point of interest (such as a city), a region of interest (a larger area), or a station (point of interest based on an official weather station) for which you want to download weather data. Once defined, you can save that point, region, or station and its associated data for later recall. Additionally, you can import [Shapefiles](#) ⁴⁶ to add predefined areas of interest.

The following topics are covered in this section:

[Points](#) ⁴⁰

[Regions](#) ⁴²

[Shapefiles](#) ⁴⁶

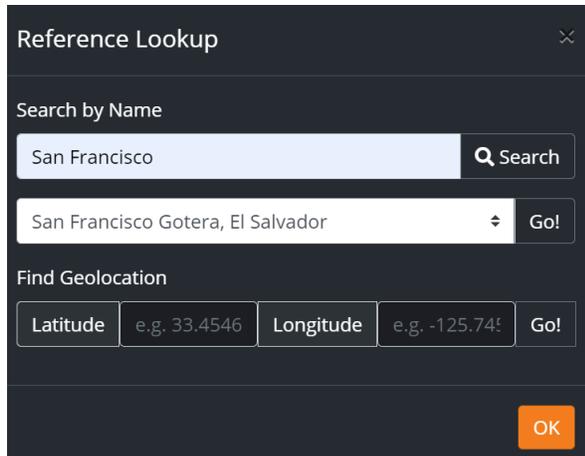
[Stations](#) ⁴⁷

Points

In the **Points** tab, you can define a point of interest (such as a city) in a specific region on the map. Once defined, the point's associated data will be available for later recall.

To add a new Point of interest:

1. the **Areas of Interest** section, on the left side of the page, select the  **Search** button.
The **Reference Lookup** dialog appears.
2. In the **Search by Name** field, enter the name of the city that you want to use as a point of interest.



The image shows a 'Reference Lookup' dialog box with a dark background. At the top, it says 'Reference Lookup' with a close button (X). Below that, there's a 'Search by Name' section with a text input field containing 'San Francisco' and a 'Search' button with a magnifying glass icon. Underneath is a dropdown menu showing 'San Francisco Gotera, El Salvador' with a 'Go!' button. The next section is 'Find Geolocation' with two input fields: 'Latitude' with 'e.g. 33.4546' and 'Longitude' with 'e.g. -125.74!'. There is a 'Go!' button next to the longitude field. At the bottom right, there is an orange 'OK' button.

Area of Interest - Reference Lookup

3. Select **Search**.
The results are displayed in the drop-down below the **Search** field.
4. In the results, select the city for which you want to create a point of interest.
5. Select the **Go!** button.
Alternatively, in the **Find Geolocation** field, you can enter the **Latitude** and **Longitude** of the city and select the **Go!** button.
The map moves to the city you selected.
6. On the left side of the page, select the  **Draw a Marker** button.
7. Select the spot on the map for where you want to place the **Marker**.
The **New Area of Interest** dialog appears.
8. Use the **General** tab to set the name and time zone as follows:
 - a. In the **Name** field, enter the name for the New Area of Interest that you want to appear on broadcast graphics by default.
 - b. From the **Time Zone** drop-down, select a preferred time zone.
9. Use the **Data Selection** tab to set the **Forecast** and **Observations** data sources as follows:
 - a. From the **Data Source** list, select the a data source.
 - b. From the **Weather Variable** drop-down, select the weather variables you want to include for that point of interest.

Additionally, you can use the **Select All** or **Deselect All** buttons to either select all weather variables or clear all previously selected weather variables in the list.

10. Select **Create**.

The area of interest will be added to the bottom **Point** list and a green message is displayed in the lower-right corner indicating that the point of interest was successfully added.

Points	Regions	Stations			
Show Layer					
ID	Name	Data Sources	Time Zone		
<input checked="" type="checkbox"/>	5	Reykjavik	4	Atlantic/Reykjavik	  
<input checked="" type="checkbox"/>	13	Brandon	1	America/Regina	  
<input checked="" type="checkbox"/>	14	Winnipeg	1	America/Winnipeg	  
<input checked="" type="checkbox"/>	16	Vancouver	1	America/Vancouver	  
<input checked="" type="checkbox"/>	17	San Diego	3	America/Los_Angeles	  

Area of Interest - Points

To preview a Point of Interest:

- In the **Points** list, select the  **Map** button next to the **Point** you want to preview.
The **Point** will be displayed on the map.

To modify a Point of interest:

1. In the **Points** list, select the  **Edit** button next to the point you want to modify.
The **Area of Interest** dialog will appear, showing the settings that can be modified.
The following settings can be modified:
 - **General - Name**
 - **Data Selection - Data Source, Weather Variable**
2. When you have finished modifying the settings, select **Modify**.
The modifications will be saved to the **Points** list.

To delete a Point of interest:

1. In the **Points** list, select the  **Delete** button next to the **Point** you want to delete.
2. In the **Area of Interest** dialog, select **Delete**.
The **Point** will be deleted from the **Points** list.

Regions

In the **Regions** tab, you can search for a specific location, configure the location using the shape elements, and save your results as a defined region. **Regions** define specific areas that imagery will be generated in advance for graphics. For example, you may intend to have local, regional, and national views for map-based graphics, and therefore you should create Regions for all three of those sizes to get the maximum resolution imagery option each time.

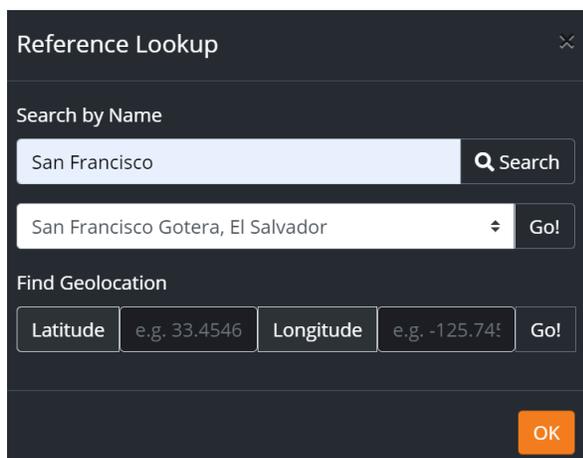
Additionally, you can import **Shapefiles**  to add your own pre-defined **Regions** and download a region's files for creating base layers in your graphics engine.

To add a new Region:

1. In the **Areas of Interest** section, on the left side of the page, select the  **Search** button.

The **Reference Lookup** window appears.

2. In the **Search by Name** field, enter the name of the city that is central to your area of interest.



The image shows a 'Reference Lookup' dialog box with a dark background. It has a title bar with a close button. Below the title bar, there are three main sections: 'Search by Name', 'Find Geolocation', and an 'OK' button at the bottom right. The 'Search by Name' section has a text input field containing 'San Francisco' and a 'Search' button. Below that is a dropdown menu showing 'San Francisco Gotera, El Salvador' and a 'Go!' button. The 'Find Geolocation' section has two input fields: 'Latitude' with the example 'e.g. 33.4546' and 'Longitude' with the example 'e.g. -125.74!', followed by a 'Go!' button.

Area of Interest - Reference Lookup

3. Select **Search**.

The options found for that city are displayed in the results below the **Search** field.

4. From the results drop-down located below the **Search** field, select the name of the city that is central to your area of interest
5. Select the **Go!** button.

Alternatively, in the **Find Geolocation** field, you can enter the **Latitude** and **Longitude** of the city and select **Go!**.

The map moves to the city you selected.

6. On the left side of the page, select either the  **Polygon** button or the  **Rectangle** button to draw either a polygon or a rectangle around your **Region** of interest on the map.

The **New Area of Interest** window appears.

Local Server - New Area of Interest Window

7. Use the **General** tab to name the **Region** and configure the **Isobars** and **Wind Particles** settings as follows:

★ For additional information on the recommended settings for wind particle sizing values, refer to [Appendix C: Wind Particle Sizing](#)¹⁹⁷.

- a. In the **Name** field, enter the name for the **Region**.
 - b. In the **Isobars Stroke Size** field, enter or select the desired stroke size for the isobars, which is the width in pixels (starting from 1 and increasing in whole numbers like 1, 2, 3, etc.).
 - c. In the **Wind Particles Stroke Size** field, enter or select the desired stroke size for the wind particles, which is the width in pixels (starting from 1 and increasing in whole numbers like 1, 2, 3, etc.).
 - d. In the **Wind Particles Velocity Scale** field, enter or select the parameter for the wind particles' velocity, which is a measure of their speed in the rendered output. Larger numbers indicate faster movement. The range is from 0.00001 to 1.0, although typically values will not exceed 0.1.
 - e. In the **Wind Particles Density** field, enter or select the desired density for the wind particles, which is the number of particles visible in the rendered domain. The range is from a minimum of 150 to a maximum of 10,000. For the World domain, it is recommended to use 5,000 or fewer particles to avoid significant storage impact on the Local Server media drive.
8. Use the **Data Selection** tab to set the **Forecast** and **Observations** data sources as follows:
 - a. From the **Data Source** list, select a data source.
 - b. From the **Weather Variable** drop-down, select the weather variables you want.

Additionally, you can use the **Select All** or **Deselect All** buttons to either select all weather variables or clear all previously selected weather variables in the list.
 - c. From the **Smoothing** drop-down, select a smoothing setting.

★ Smoothing is a data selection option available only in the **Forecast** tab. Smoothing is used to create fluid playouts during animations. The higher the smoothing setting, the more storage and processing required in the Local Server. Selecting a lower setting will allow new datasets to be available earlier in each cycle.

9. Use the **Additional Styles** tab to add additional styles for output as follows:
 - a. Select the  button.

- b. In the first column, use the drop-down to select a variable.
- c. In the second column, use the drop-down to select the unit of measure for the variable.

10. Select **Create**.

The Region will be added to the Regions tab at the bottom of the list.

ID	Name	Data Sources	Time Zone
1	World	2	UTC
12	Brandon	0	America/Regina
39	Iceland	6	Atlantic/Reykjavik
51	E Coast US	2	America/New_York
52	Florida	0	America/New_York

Area of Interest - Regions

Alternatively, you can add a pre-defined **Area of Interest** to the **Regions** tab by importing a **Shapefile**.

★ For instructions on how to import a **Shapefile**, see the [Shapefiles](#) section.

To show or hide the Points/Regions/Stations panel:

1. In the **Areas of Interest** section, to the top-right of the screen, select the **Down** arrow above the **Areas of Interest** panel.

The **Points/Regions/Stations** panel list will be hidden.

ID	Name	Data Sources	Time Zone
5	Reykjavik	4	Atlantic/Reykjavik
13	Brandon	1	America/Regina
14	Winnipeg	1	America/Winnipeg
16	Vancouver	1	America/Vancouver
17	San Diego	3	America/Los_Angeles

Area of Interest - Points/Regions/Stations List

2. Select the **UP** arrow, to show the **Areas of Interest** panel.

To modify a Region of Interest:

1. In the **Regions** tab, select the **Edit** button next to the region you want to modify.

The **Area of Interest** dialog will appear, showing the setting that can be modified.

The following settings can be modified:

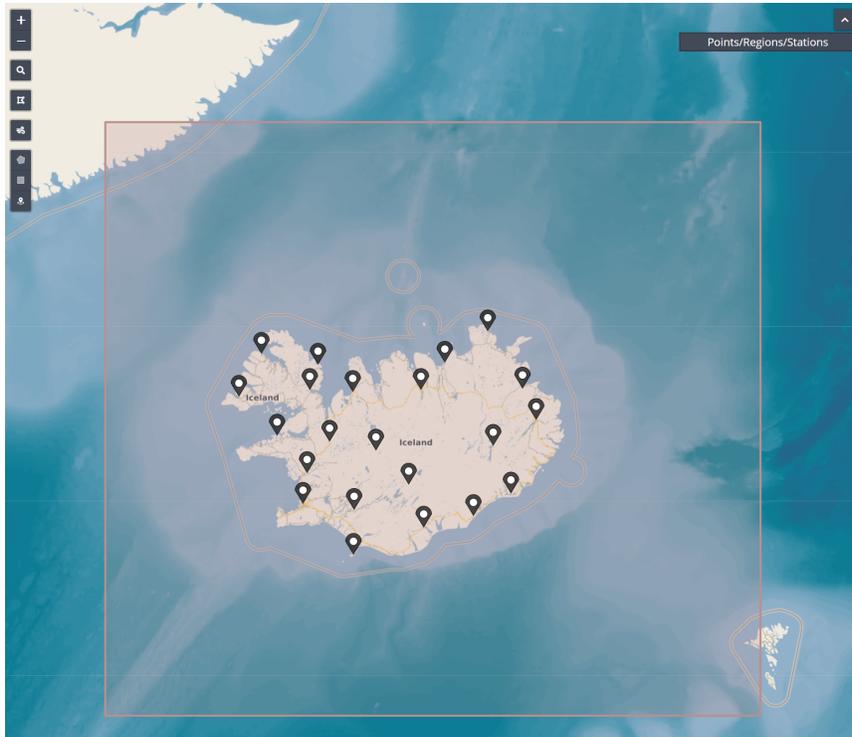
- **General - Name**

- **Data Selection - Data Source, Weather Variables, Smoothing**
- **Additional Styles - Add Additional Style**

2. When you have modified the **Region** settings, select **Modify**.
The modifications will be saved.

To preview a Region of Interest:

1. In the **Regions** panel, select the  **Map** button next to the region you want to preview.
The Region will be displayed on the map.



Areas of Interest - Region Preview

To delete a Region of Interest:

1. In the **Regions** list, select the  **Delete** button next to the region you want to delete.
2. In the **Area of Interest** dialog, select **Delete**.
The **Region** will be deleted from the **Regions** list.

To download the files for a Region of Interest:

1. In the **Regions** tab, select the  **Download** button next to the region for which you want to download the files.
The files will download to your system.
2. Navigate to the location on your system where you want to save the **Region** file and select **Save**.

Shapefiles

A **Shapefile** is a Geographic Information System (GIS) vector format that contains the spatial and attribute components of features displayed on a map. The spatial component provides the vector data (line, polygon, and point) for spatial features and the attribute component provides the descriptive information of the feature (such as the name, type, and status of a road).

A **Shapefile** can be imported as a compressed file into the **Local Server**. The **Shapefile** must include the following four files with specific extensions:

- **Main File** - Feature geometry (.shp)
- **dBase File** - Attribute information (.dbf)
- **Projection File** - Coordinated system and projection information using plain text format (.prj)
- **Index File** - Index of feature geometry (.shx)

Each of these files must be contained in the compressed file and must have the exact same file name.

Example:

Main file: provinces.shp

Index file: provinces.shx

dBase file: provinces.dbf

Projection file: provinces.prj

★ If the four required files are not included in the compressed file, or they do not have the exact same file name, the file upload will fail.

To import a Shapefile:

1. In the **Areas of Interest** section, to left side of the screen, select the  **Import** button.

The **Import Shapefile** dialog appears.

2. Select the **Browse** button next to the **Choose file (.zip)** field.
3. Navigate to the zip file and select **Open**.

The **New Area of Interest** dialog appears.

4. In the **Name** field, enter the name of the **New Area of Interest** and select **Create**.

The new **Area of Interest**, defined by the **Shapefile** data, will be added to the **Regions** tab.

Stations

In the **Stations** tab, you can add a weather station to your **Area of Interest**. Once defined, the station's associated data will be available for later recall.

To add a Station:

1. In the **Area of Interest** section, on the left side of the page, select the  **Weather Stations** button.
The **Add Weather Station** window appears.
2. From the **Station Data Source** drop down, select the data source for which to search for an available weather station.
3. In the **Weather Station** field, enter the name of the local **Weather Station**.
A drop-down with a list containing the available stations with that name will appear.
4. Select the station you want from the results drop-down list.
The map will display the location of the station.
5. Use the **+** or **-** buttons to zoom in and out of the map.
Alternatively, you can use the scroll wheel on your mouse to zoom in and out.
6. Select **Continue**.
The **New Area of Interest** window opens.
7. Use the **General** tab to set the **Name** and **Time Zone** settings as follows:
 - a. In the **Name** field, enter the name of the station that you want to appear on broadcast graphics by default.
 - b. From the **Time Zone** drop-down, select the time zone you want.
8. Use the **Data Selection** tab to set the **Forecast** and **Observations** data sources as follows:
 - a. From the **Data Source** list, select a data source.
 - b. From the **Weather Variable** drop-down, select the preferred weather variables.
9. Select **Create**.

The **Weather Station** will be added to the **Stations** list.

Points	Regions	Stations			
ID	Name	Data Sources	Time Zone		
<input checked="" type="checkbox"/>	4	Santiago	0	America/Santiago	  
<input checked="" type="checkbox"/>	18	Reykjavik	3	Atlantic/Reykjavik	  
<input checked="" type="checkbox"/>	21	Santa Barbara	1	America/Los_Angeles	  
<input checked="" type="checkbox"/>	22	Oxnard	1	America/Los_Angeles	  
<input checked="" type="checkbox"/>	23	San Bernardino	1	America/Los_Angeles	  

Areas of Interest - Stations

To preview a Station:

- In the **Stations** tab, select the  **Map** button next to the station you want to preview on the map.
The station will be displayed on the map.

To modify a Station:

1. In the **Stations** list, select the  **Edit** button next to the station you want to modify.
The **Area of Interest** window will appear.
2. Use the **General** tab to modify the name of the **Station**.
3. The **Area of Interest** dialog will appear, showing the setting that can be modified.
The following settings can be modified:
 - **General - Name**
 - **Data Selection - Data Source, Weather Variables.**
4. When you have finished modifying the **Station** settings, select **Modify**.
The modifications will be saved to the **Stations** tab.

To delete a Station:

1. In the **Stations** tab, select the  **Delete** button next to the **Station** you want to delete.
2. In the **Area of Interest** dialog, select **Delete**.
The **Station** will be deleted from the **Stations** list.

Forecast

In the **Forecast** section, you can preview incoming data for a specific data source, enabling you to validate that all the parameters are successfully generating for your **Area of Interest**. The results are temporary and update every time you preview the **Forecast** data.

Previewing Forecast Data

When previewing **Forecast** data, the server will retrieve and create a list of all available data from the specific data source that you select. Then you can filter the results and preview the available data for that source. If you selected to retrieve data from a region, your filtered results will include preview images. Preview images are not available for point or station data.

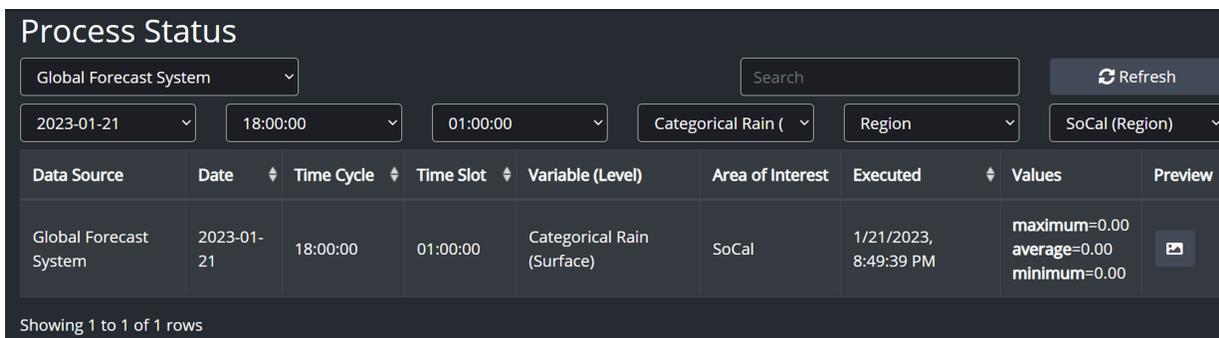
To filter forecast data:

1. From the **Data Sources** drop-down, select whether to display the results for **All Data Sources** or for a specific source only.
2. From the **Dates** drop-down, select whether to display the result for **All Dates** or for a specific date only.
3. From the **Cycles** drop-down, select whether to display the results for **All Cycles** or for a specific cycle only.
4. From the **Slots** drop-down, select whether to display the results from **All Slots** or for a specific slot only.
5. From the **Variables** drop-down, select whether to display the results from **All Variables** or a specific variable.

Alternatively, you can use the **Search** field to find a particular variable.

6. From the **Place Types** drop-down, select whether to display the results from **All Place Types** or a specific place type.
7. From the **Places** drop-down, select whether to display the results from **All Places** or a specific place.

The forecast data you selected will be displayed in the **Process Status** page.



The screenshot shows the 'Process Status' interface. At the top, there is a search bar and a 'Refresh' button. Below these are several filter controls: a dropdown for 'Global Forecast System', a search input, and a 'Refresh' button. Further down are more filters: '2023-01-21', '18:00:00', '01:00:00', 'Categorical Rain (Surface)', 'Region', and 'SoCal (Region)'. The main part of the interface is a table with the following columns: Data Source, Date, Time Cycle, Time Slot, Variable (Level), Area of Interest, Executed, Values, and Preview. The table contains one row of data for 'Global Forecast System' with the following values: Date: 2023-01-21, Time Cycle: 18:00:00, Time Slot: 01:00:00, Variable (Level): Categorical Rain (Surface), Area of Interest: SoCal, Executed: 1/21/2023, 8:49:39 PM, Values: maximum=0.00, average=0.00, minimum=0.00. A 'Preview' button is visible in the last column of the row. At the bottom of the table, it says 'Showing 1 to 1 of 1 rows'.

Data Source	Date	Time Cycle	Time Slot	Variable (Level)	Area of Interest	Executed	Values	Preview
Global Forecast System	2023-01-21	18:00:00	01:00:00	Categorical Rain (Surface)	SoCal	1/21/2023, 8:49:39 PM	maximum=0.00 average=0.00 minimum=0.00	

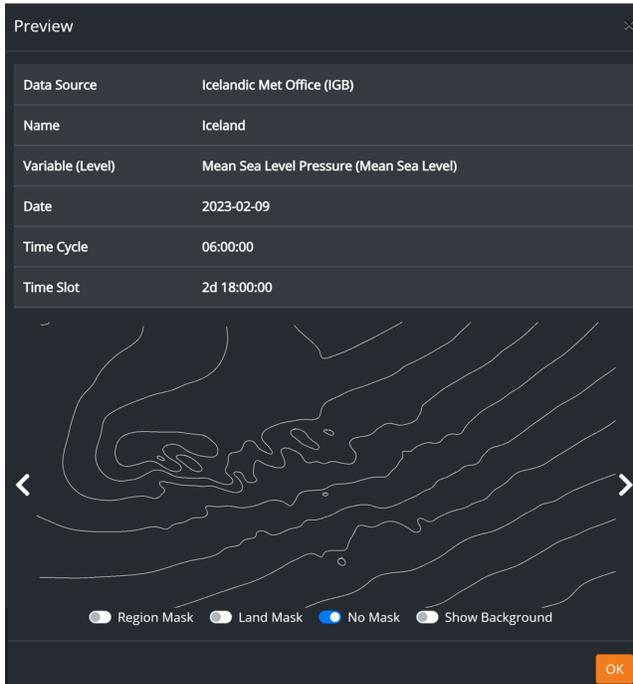
Forecast - Process Status Results

To preview an image:

1. From the **Process Status** list, select the  **Preview Image** button next to the data source you want to preview.

★ Preview images are not available for **Line** or **Station** data.

The **Preview** dialog will appear.



Forecast - Preview

2. Select a toggle button to enable the following layers in the preview image:

- **Region Mask**
- **Land Mask**
- **No Mask**
- **Show Background**

3. Use the < and > buttons to view the variable changing over time.

4. Select **OK** to close the preview.

Observations

In the **Observations** section, you can preview incoming data for a specific data source, enabling you to validate that all the parameters are successfully generating for your area of interest. The results are temporary and update every time you preview the **Observations** data.

Previewing Observations Data

When previewing **Observations** data, the server will retrieve and create a list of all available data from the specific data source that you select. Then you can filter the results and preview the available data for that source. If you select to retrieve data from a region, your filtered results will include preview images. Preview images are not available for point or station data.

To filter Observations data:

1. From the **Data Sources** drop-down, select whether to display the results for **All Data Sources** or for a specific source only.
2. From the **Dates** drop-down, select whether to display the result for **All Dates** or for the current date or the previous day.
3. From the **Variables** drop-down, select whether to display the results for **All Variables** or for a specific variable only.
4. From the **Place Types**, select whether to display the results from **All Place Types** or for a specific type only.
5. From the **Places** drop-down, select whether to display the results from **All Places** or a specific place.
6. In the **Search** field, enter the name of the **Point** or **Region** of interest and press **Enter**.

The data you selected will be displayed in the **Process Status** page.

The screenshot shows the 'Process Status' interface. At the top, there are several filters: 'RTMA Conus Rap' (Data Source), '2023-01-23' (Date), 'Temperature (Gr' (Variable), 'Point' (Place Type), and 'All Places' (Places). A 'Refresh' button is on the right. Below the filters is a table with the following data:

Data Source	Variable (Level)	Area of Interest	Timestamp	Executed	Values	Preview
RTMA Conus Rapid Update (USA)	Temperature (Ground at 2m)	Los Angeles	1/23/2023, 7:00:00 AM	1/23/2023, 7:19:06 AM	8.71 °C	-
RTMA Conus Rapid Update (USA)	Temperature (Ground at 2m)	Ottawa	1/23/2023, 7:00:00 AM	1/23/2023, 7:19:06 AM	-2.55 °C	-
RTMA Conus Rapid Update (USA)	Temperature (Ground at 2m)	Montreal	1/23/2023, 7:00:00 AM	1/23/2023, 7:19:06 AM	-2.69 °C	-
RTMA Conus Rapid Update (USA)	Temperature (Ground at 2m)	Montreal	1/23/2023, 6:45:00 AM	1/23/2023, 7:08:48 AM	-2.74 °C	-
RTMA Conus Rapid Update (USA)	Temperature (Ground at 2m)	Ottawa	1/23/2023, 6:45:00 AM	1/23/2023, 7:08:48 AM	-2.43 °C	-
RTMA Conus Rapid Update (USA)	Temperature (Ground at 2m)	Los Angeles	1/23/2023, 6:45:00 AM	1/23/2023, 7:08:48 AM	7.69 °C	-
RTMA Conus Rapid Update (USA)	Temperature (Ground at 2m)	Montreal	1/23/2023, 6:30:00 AM	1/23/2023, 6:59:06 AM	-2.27 °C	-
RTMA Conus Rapid Update (USA)	Temperature (Ground at 2m)	Ottawa	1/23/2023, 6:30:00 AM	1/23/2023, 6:59:06 AM	-2.08 °C	-
RTMA Conus Rapid Update (USA)	Temperature (Ground at 2m)	Los Angeles	1/23/2023, 6:30:00 AM	1/23/2023, 6:59:06 AM	7.52 °C	-
RTMA Conus Rapid Update (USA)	Temperature (Ground at 2m)	Montreal	1/23/2023, 6:15:00 AM	1/23/2023, 6:38:48 AM	-2.27 °C	-

At the bottom of the table, it says 'Showing 1 to 10 of 75 rows' and '10 rows per page'. There are also navigation arrows and page numbers (1, 2, 3, 4, 5, ..., 8).

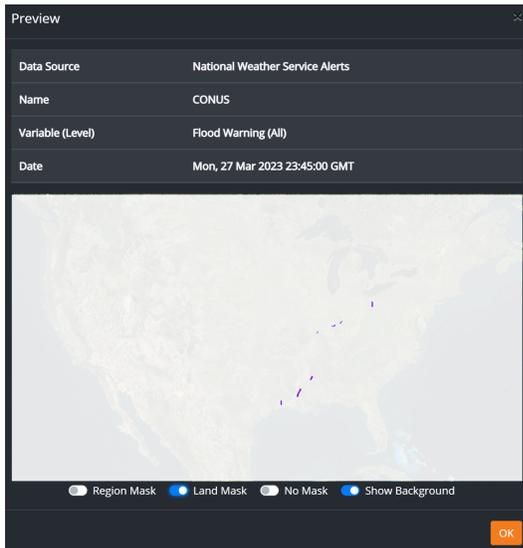
Observations - Process Status Results

To preview a variable image:

1. From the **Process Status** list, select the  **Preview Image** button next to the variable you want to preview.

★ Only data from a **Region** contains preview images.

The **Preview** dialog will appear.



Observations - Preview Image

2. Select a toggle button to enable the following layers in the preview image:
 - **Region Mask**
 - **Land Mask**
 - **No Mask**
 - **Show Background**
3. Select **OK** to close the preview.

Output Styles

In the **Output Styles** section, you can add and customize the color palette of weather variables displayed on a map, enabling you to control the color and style of your weather map layers. Color palettes are available for export to use as a template or to share with other Stations. Users can then easily import a previously exported color palette to modify an existing Style or to use as a starting point for creating additional Styles.

Adding Output Styles to a Weather Variable

The first step is to add **Output Styles** to a weather variable. Once you have added the **Output Styles**, you must choose which style you want to set as the default style for the weather variable.

★ You can set only one **Output Style** as the default style for a weather variable.

To add an Output Style to a Weather Variable:

1. In the top-right corner of the **Output Styles** list, select **+Add**.

Alternatively, you can select the **+** button next to the **Weather Variable** to which you want to add a style.

The **Create Style** dialog appears.

Color	Opacity	Min. Value	to	Color	Opacity	Max. Value	
<input type="color"/>	1	1	to	<input type="color"/>	1	2	<input type="button" value="+"/>

Create Styles Dialog

2. In the **Name** field, enter a name for the new style.

3. From the **Weather Variable** drop-down, select the weather variable you want to customize.

4. Select the **Default** checkbox if you want to set the style as the default for the variable.

★ If you have created multiple styles for a single weather variable, ensure that only one style is selected as the default.

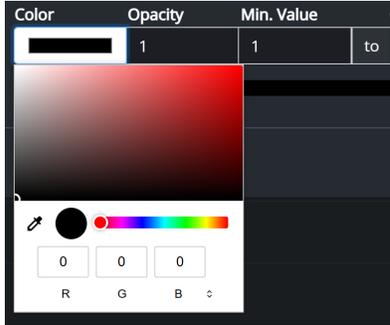
5. In the style settings table, select the **+** button to add additional rows as needed to create a customized color range for your style.

Each row in the table indicates an increment in the range. The left side of the row sets the starting values for an increment and the right side of the row sets the ending values for an increment.

6. In each row set the **Color**, **Opacity**, and **Min./Max. Value** as follows:

a. In the left side of the row, use the color picker to set the starting color for the range.

The Color Selector opens.



Output Styles Color Selector

- b. Drag and drop the Selector to the color you want.

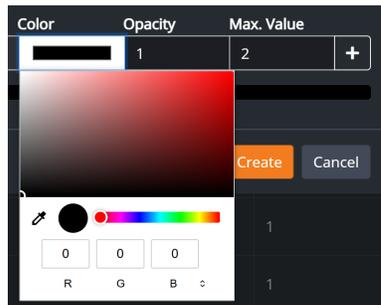
Alternatively, you can use the Eyedropper tool to select a color from another source displayed on your screen or manually enter the RGB values.

- c. In the **Opacity** field, enter or select the value to set the color **Opacity**.
- d. In the **Min. Value** field, enter or select the starting value.

★ The **Min. Value** is the minimum value for the measurement unit of the weather variable.

- e. In the right side of the row, use the color picker to set the ending color for the first increment.

The **Color Selector** opens.



Output Styles Color Selector

- f. Drag and drop the Selector to the color you want.

Alternatively, you can use the Eyedropper tool to select a color from another source displayed on your screen or manually enter the RGB values.

- g. In the **Opacity** field, enter or select the value for the color **Opacity**.
- h. In the **Max. Value** field, enter or select the ending value.

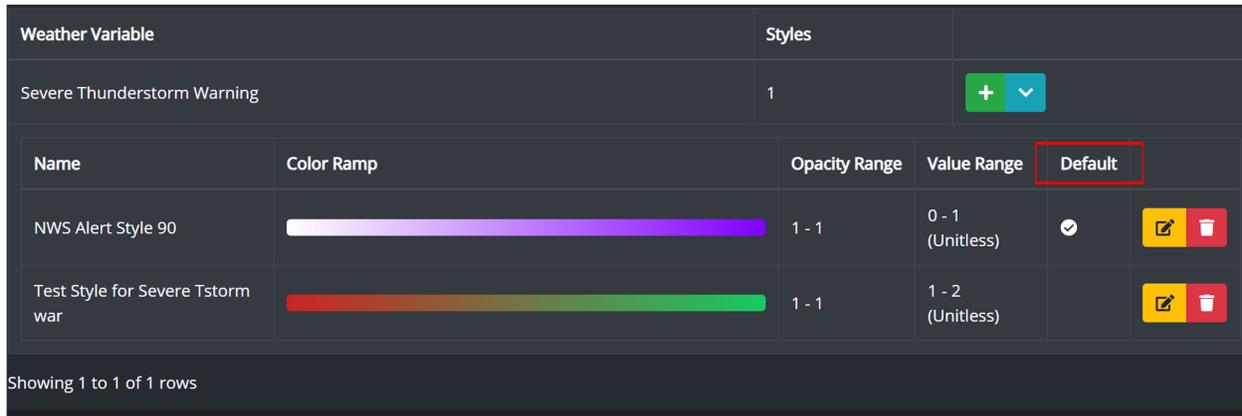
7. Continue setting the **Color**, **Opacity**, and **Min./Max Value** for each row you added to the table.

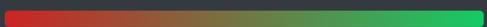
8. When you have finished, select **Create**.

The new **Output Style** will be added to the **Weather Variable**.

To set the default Output Style for a Weather Variable:

1. In the **Output Styles** list, select the **Up** arrow next to the **Weather Variable**.
2. Select the  **Edit** button next to the **Output Style** you want to set as the default style.
3. In the **Modify Style** dialog, select the **Default** checkbox and select **Modify**.



Weather Variable		Styles		
Severe Thunderstorm Warning		1	 	
Name	Color Ramp	Opacity Range	Value Range	Default
NWS Alert Style 90		1 - 1	0 - 1 (Unitless)	<input checked="" type="checkbox"/>  
Test Style for Severe Tstorm war		1 - 1	1 - 2 (Unitless)	<input type="checkbox"/>  

Showing 1 to 1 of 1 rows

Output Styles - Default

4. In the **Default** column, confirm only one **Output Style** is set as the default.

To search for a specific Output Style:

- In the **Output Styles** list, enter the name of the **Output Style** in the **Search** field and press **Enter**.
The search results will be displayed in the **Output Styles** list.

Modifying Output Styles

Once you have created **Output Styles**, you can modify or delete them as needed. You also have the option to export your selected palette for future use and easily import a previously exported color palette. This provides an easy way to ensure consistency of color palettes and styles between the Data Aggregator and the local server.

To modify an Output Style.

1. In the **Output Styles** list, select the **Up** arrow next to the **Weather Variable** you want to modify.
2. Then select the  **Edit** button.

The **Modify Style** dialog will appear, showing the settings that can be modified.

The following can be modified:

- **Name**
- **Weather Variable**
- **Color, Opacity, and Value ranges**
- **Default**

3. When you have made the modifications that you want, select the **Modify** button.

To delete an Output Style.

1. In the **Output Styles** list, select the **Up** arrow next to the **Weather Variable** you want to delete.

2. Then select the  **Delete** button.
3. In the **Delete Style** dialog, select **Delete**.

To export an Output Style:

1. In the **Output Styles** list, select the **Up** arrow next to the **Weather Variable** from which you want to export the style from.
2. Select the  **Export** button.
The **.rsf** file downloads to your system.

To import an Output Style for an existing Style:

1. In the **Output Styles** list, select the **Up** arrow next to the **Weather Variable** to which you want to import a style.
2. Select the  **Edit** button.
The **Modify Style** window appears.
3. Select the  **Import** button.
The **File Explorer** opens.
4. Navigate to the **.rsf** file you want and select **Open**.
The **File Explorer** closes.
5. Select **Modify**.
The imported style is applied to the weather variable.

To import an Output Style for a new Style:

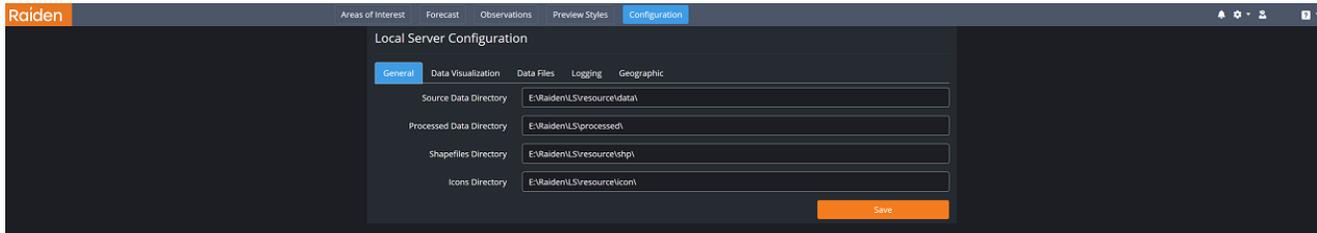
1. While creating a new **Style**, in the **Create Style** window, select the  **Import** button.
The File Explorer opens.
2. Navigate to the **.rsf** file you want and select **Open**.
The File Explorer closes.
3. Select **Create**.
The imported style is applied to the weather variable.

Configuration

In the **Configuration** section, you can view and set the properties related to the **Local Server** configuration.

- The directory locations and server location details are stored in the **config.ls** JSON file, which is located in C:\Raideen\LS.
- Administrative privileges are required to make changes to the **Configuration** section.

Use this panel to access the configuration tabs.



Local Server - Configuration Panel

The **Configuration** panel contains the following tabs:

[General](#) 

[Data Visualization](#) 

[Data Files](#) 

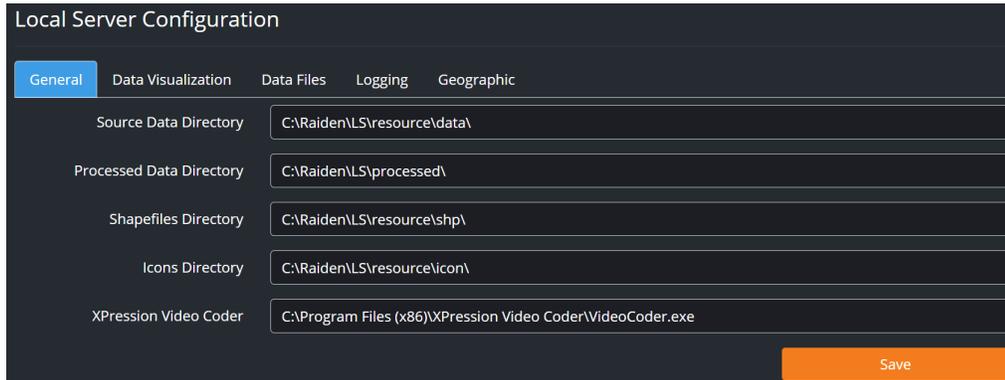
[Logging](#) 

[Geographic](#) 

★ Saving the properties in each tab will override the **config.ls** JSON file and reload the information in the system.

General

In the **General** tab, you can view and configure the **General** directories, as described below.



Field	Value
Source Data Directory	C:\Raiden\LS\resource\data\
Processed Data Directory	C:\Raiden\LS\processed\
Shapefiles Directory	C:\Raiden\LS\resource\shp\
Icons Directory	C:\Raiden\LS\resource\icon\
XPression Video Coder	C:\Program Files (x86)\XPression Video Coder\VideoCoder.exe

Configuration - General

To map your General directories:

1. Fill in the following fields:

- **Source Data Directory**—in this field, enter the path to the location where you want to store your source data (such as time zones).

The default path is:

C:\Raiden\LS\resource\data\

- **Processed Data Directory**—in this field, enter the path to the location where you want to store the downloaded and preprocessed data.

The default path is:

C:\Raiden\LS\processed\

If you need to change the target folder for the **Processed** path, see [Changing the Target Process Path](#).

- **Shapefiles Directory**—in this field, enter the path to the location where you want to store the files used to create **Forecast** and **Observations** previews.

The default path is:

C:\Raiden\LS\resource\shp\

- **Icons Directory**—in this field, enter the path to the location where you want to store the icon files used in the **Forecast** and **Observations** previews.

The default path is:

C:\Raiden\LS\resource\icon\

- **XPression Video Coder**—in this field, enter the path to where the **XPression Video Coder** file is located.

The default path is:

C:\Program Files(x86)\XPression Video Coder\VideoCoder.exe

2. Select **Save** to apply your changes.

The settings will be saved to the **General** tab.

Changing the Target Folder for the Processed Path

If you need to change the target folder for the **Processed** path, you will need to do so in the **config.ls.json** configuration file, in the "processed_path" element:

```
"processed_path": "C:\\\\Raider\\LS\\processed\\"
```

Once you have changed the target folder, you will need to restart the Local Server to apply the change.

The system will write the new generated files, with the exception of the following two folders that are only generated when you add a new data source or new poi:

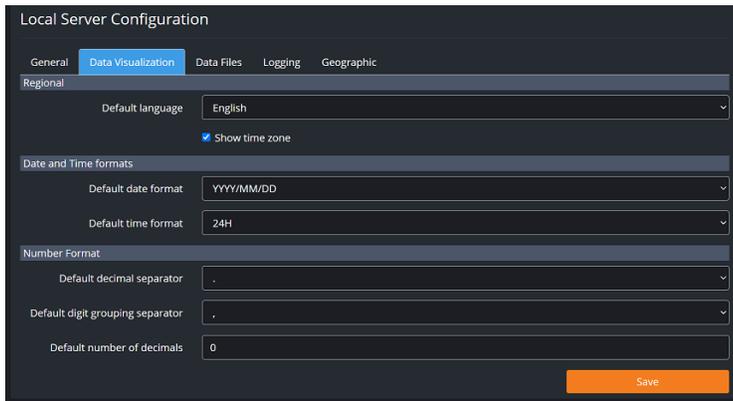
- **processed/grid**
- **processd/poi**

These two folders are not regenerated automatically and must be manually copied and moved into the new target folder.

★ **Warning:** If you do not manually move these two folders into the new target folder, the Local Server will experience performance issues when generating new data layers.

Data Visualization

In the **Data Visualization** section, you can set the default language and define the custom date, time and number formats for your region.



Configuration - Data Visualization

This section describes the following procedures:

To configure the **Regional preferences**: [60](#)

To configure the **Date and Time formats**: [60](#)

To configure the **Number Format preferences**: [61](#)

To configure the Regional preferences:

1. From the **Default Language** dropdown, select the language you want to use.

The options are:

- **English** — Default
- **Español**
- **Français**

2. From the **Time zone** dropdown, select the time zone that you want to use.
3. If you want to enable the **Time Zone** preference, select the **Show Time Zone** checkbox.
4. When you have finished configuring the settings, select **Save**.

To configure the Date and Time format preferences:

1. From the **Default date format** dropdown, select the date format you want to use.

Your options are:

- **YYYY/MM/DD**
- **DD/MM/YYYY**
- **MM/DD/YYYY**
- **YYYY-MM-DD**
- **DD-MM-YYYY**
- **MM-DD-YYYY**

2. From the **Default time format** dropdown, select the time format you want to use.

Your options are:

- **12H**
- **24H**

3. When you have finished configuring the settings, select **Save**.

To configure the Number Format preferences:

1. From the **Default decimal separator**, select the decimal separator that you want to use.

Your options are:

- **Comma (,)**
- **Period (.)**

2. From the **Default digit grouping separator**, select the digit grouping separator that you want to use.

Your options are:

- **Comma (,)**
- **Period (.)**

3. In the **Default number of decimals**, use the **Up-Down** arrows to set the number of decimals you want to use.

4. When you have finished configuring the settings, select **Save**.

The settings will be saved in the **Data Visualization** section.

Data Files

Use the **Data Files** section to manage how long forecast and current condition data remains available in the **Process Status** lists before expiring. When the data expires, the system will delete the data from the downloads directory and it will no longer be available in the **Process Status** lists or the broadcast graphics.

★ **Warning:** Setting the **Data Files Max Age** too high may result in server-related performance issues. After receiving data from the Data Aggregator, the Local Server processes and retains the data for broadcast and no longer needs the data again from the Data Aggregator. Therefore, the maximum age can be configured to a lower setting on the Data Aggregator.



The screenshot shows the 'Local Server Configuration' interface with the 'Data Files' tab selected. It features two input fields for setting the maximum age of data files in days. The first field, 'Forecast Data Files Max Age (in days)', has a value of 1. The second field, 'Observation Data Files Max Age (in days)', also has a value of 1. A 'Save' button is located at the bottom right of the configuration area.

Configuration - Data Files

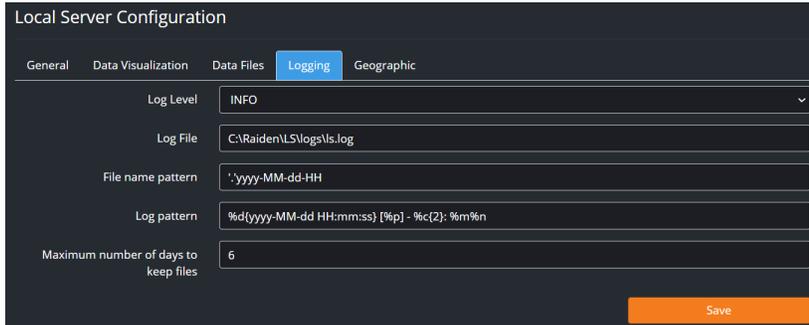
To configure the Data Files settings:

1. In the **Forecast Data Files Max Age** field, use the **Up-Down** arrows to enter the maximum number of days you want the **Forecast** data to remain in the **Process Status** list.
2. In the **Observations Data Files Max Age** field, use the **Up-Down** arrows to enter the maximum number of days you want the **Observations** data to remain in the **Process Status** list.
3. When you have configured the settings, select **Save**.

The settings will be saved in the **Data Files** page.

Logging

In the **Logging** section, you can access and configure the settings to track error reporting and related data.



The screenshot shows the 'Local Server Configuration' window with the 'Logging' tab selected. The settings are as follows:

Field	Value
Log Level	INFO
Log File	C:\Raiden\LS\logs\ls.log
File name pattern	'_yyyy-MM-dd-HH'
Log pattern	%d{yyyy-MM-dd HH:mm:ss} [%p] - %c{2}: %m%n
Maximum number of days to keep files	6

A 'Save' button is located at the bottom right of the configuration window.

Configuration - Logging

To configure the logging settings:

1. From the **Log Level** drop-down, select the log level you want to use.

Your options are:

- **INFO**
- **ERROR**
- **DEBUG**
- **WARNING**
- **TRACE**

2. In the **Log File** field, enter the path to the location on your local computer where log files will be stored.

C:\Raiden\LS\logs\ls.log (Default)

3. In the **File name pattern** field, enter the pattern you want to define the format of file name extensions.

For example: '_yyyy-MM-dd-HH'.log'

4. In the **Log pattern** field, enter the log pattern you want to format your logging information.

For example: %d{yyyy-MM-ddHH:mm:ss} [%p]-%c{2}: %m%n

5. In the **Maximum Number of Days to Keep Files** field, use the **Up-Down** arrows to select the number of days you want to keep files.

6. When you have configured the settings, select **Save**.

The settings will be saved to the **Logging** page.

Geographic

In the **Geographic** section, you can access and configure the base map, digital elevation model, and source tile preferences for the maps displayed in the Local Server.

The Geographic tab contains the following sections:

[Configuring the Base Map preferences](#) ⁶⁴

[Configuring the Labels Map preferences](#) ⁶⁵

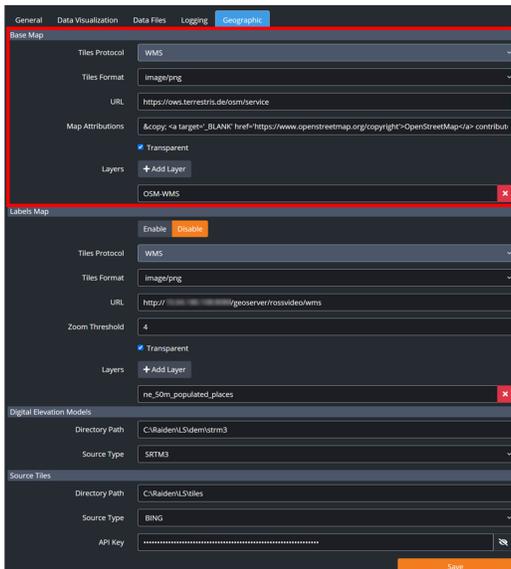
[Configuring the Digital Elevation Models](#) ⁶⁶

[Configuring the Source Tiles](#) ⁶⁷

★ The directory locations and server location details are stored in the **config.ls** JSON file. The **config.ls** JSON file is located in the Raiden project files that were provided with the installation package.

Configuring the Base Map Preferences

In the **Base Map** section, you can configure the base map settings for the map displayed in the **Areas of Interest** section.



Configuration - Base Map

To configure the Base Map preferences:

1. From the **Tiles Protocol** dropdown, select **WMS**.
2. From the **Tiles Format** dropdown, select the image format that you want to use.

The options are:

- **image/png**
- **image/jpeg**
- **image/tiff**

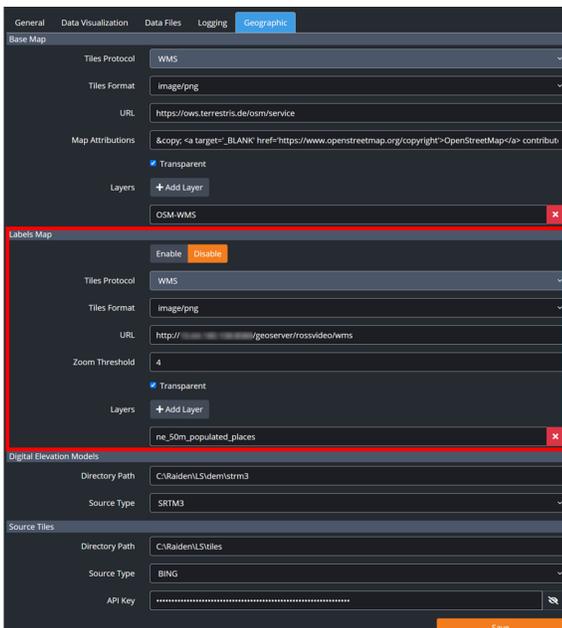
3. In the **URL** field, enter the URL for the Web Map Service (WMS).

4. In the **Map Attributes** field, enter the path to the map service provider's attribution information (supports HTML code).
5. If you want to enable transparent tiles for the WMS protocol, select the **Transparent** checkbox.
6. Select the **+Add Layer** button to add additional WMS protocol layers.
7. In the **Layers** field, enter the layer name from the base URL you selected.
8. When you have finished configuring the settings, select **Save**.

Configuring the Labels Map Preferences

In the **Labels Map** section, you can configure the label map settings if you want to use your own maps server to display map labels. Map labels are the geographic labels (such as country, state, city, etc.) displayed when you zoom in on a map in the Local Server.

★ The **Zoom Threshold** setting determines when the map labels will appear as you zoom in on a map. The **Zoom Threshold** of 4 is recommended.



Configuration - Labels Map

To configure the Labels Map preferences:

1. In the **Labels Map** section, select **Enable** to enable the **Labels Map** in the Local Server.
2. From the **Tiles Protocol** drop-down, select **WMS**.
3. From the **Tiles Format** drop-down, select the image format for the tiles.

Your options are:

- **image/png** (default)
- **image/jpeg**
- **image/tiff**

4. In the **URL** field, enter the URL for the **Web Map Service** (WMS), as follows:

`http://xx.xx.xx.xxx:8080/geoserver/rossvideo/wms`

5. In the **Zoom Threshold** field, enter a value for the zoom threshold.

★ A **Zoom Threshold** of 4 (default) is recommended.

6. Select the **Transparent** checkbox to enable transparent tiles for the WMS protocol.

7. Select the **+ Add Layer** button to add additional WMS protocol layers.

8. In the **Layers** field, enter the layer name for the **Labels Map** URL.

9. When you have finished configuring the settings, select **Save**.

Configuring the Digital Elevation Models Preferences

Once you have configured the **Base Map** and **Label Map** settings, you will need to configure the **Digital Elevation Models** (DEMs) settings. DEMs are files that use either Shuttle Radar Topography Mission 1 (SRTM1) or Shuttle Radar Topography Mission 3 (SRTM3) radar observations to provide digital representations of surface elevations on a map. Your Raiden installation package comes with SRTM 3 data files, which contains over 14,000 DEM files. SRTM1 files are supported but not included.

The screenshot shows the 'Geographic' configuration panel. The 'Digital Elevation Models' section is highlighted with a red box. It contains the following fields:

- Directory Path:** C:\Raiden\LS\dem\strm3
- Source Type:** SRTM3

Other sections visible include:

- Base Map:** Tiles Protocol (WMS), Tiles Format (image/png), URL (https://ows.terrestris.de/osm/service), Map Attributions, Transparent checkbox checked, Layers (+ Add Layer), OSM-WMS layer.
- Labels Map:** Enable/Disable buttons, Tiles Protocol (WMS), Tiles Format (image/png), URL (http://.../geoserver/rossvideo/wms), Zoom Threshold (4), Transparent checkbox checked, Layers (+ Add Layer), ne_50m_populated_places layer.
- Source Tiles:** Directory Path (C:\Raiden\LS\tiles), Source Type (BING), API Key field.

Configuration - Digital Elevation Models

To configure the Digital Elevation Models preferences:

1. In the **Directory Path** field, enter the path to the location where you want to store the DEM files, where the SRTM1 data is located.
2. From the **Source Type** drop-down, select the source type for the DEM you are using.

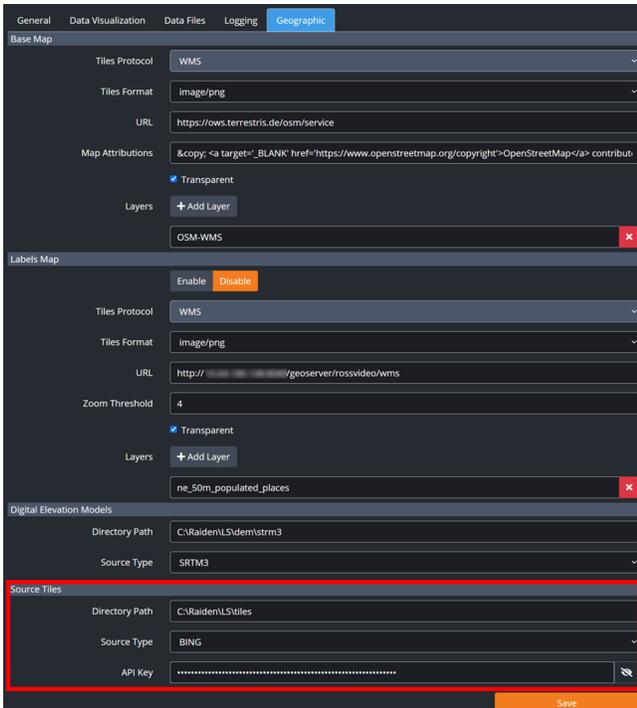
The options are:

- **SRTM1**
- **SRTM3**

3. When you have finished configuring the settings, select **Save**.

Configuring the Source Tiles Preferences

Next, you will need to configure the **Source Tiles** preferences. To complete this section, you will need to select an online map service (such as Bing or Mapbox) which provides the source tiles of geographic data (such as maps or other geographic images).



Configuration - Source Tiles

To configure the Source Tiles preferences:

1. In the **Directory Path** field, enter the path to the location where you want to store the downloaded map tiles used to create the **Regions** base layers.
2. From the **Source Type** drop-down, select the source type you want to use.

The options are:

- **BING**
- **MAPBOX**

3. In the **API Key** field, enter the **API Key** for the map tile source you selected.
4. When you have finished configuring the settings, select **Save**.

The settings will be saved in the **Geographic** section.

Story Creator

The Story Creator is where you will create weather stories based on the data from the Data Aggregator and the Local server.

The Story Creator retrieves data from the Local Server and interacts with your graphics engine to retrieve a list of scenes you can customize by adding graphics, overlays, and weather data.

Several base scenes (such as 3D World scenes and Media scenes) have been provided to help make setting up your project easier. This is the recommended method for creating weather stories as the base scenes are pre-defined with the required metadata and settings. You can still import Raiden generated data into your graphics engine to create a weather project from scratch using DataLinq.

For more information on creating a weather project from scratch using DataLinq, see [Raiden for XPression using DataLinq](#)¹⁷⁰.

Before you begin, make sure that you have the latest version of your graphics engine running with the Raiden plugin enabled and your weather project open.

The following topics are covered in this section:

[Accessing the Story Creator](#)⁶⁹

[Story Browser](#)⁷¹

[Editor](#)⁷⁸

[Graphics Objects](#)¹³¹

[Configuration](#)¹³⁶

Accessing the Story Creator

This section provides instructions for accessing the Story Creator.

To access the Story Creator:

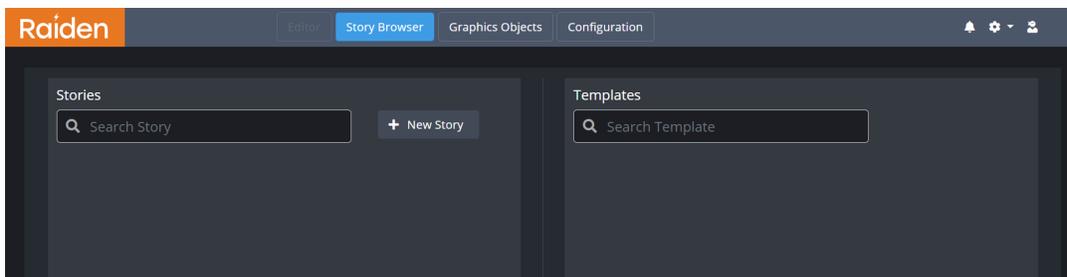
1. Open a Web browser.
2. In the URL field enter the IP address of the **Story Creator** followed by the port number through which you will be communicating with the **Local Server** (in the format XX.XX.XXX.XXX:8085).
3. Press **Enter**.

You will be taken to the **Story Creator Login** page.



Story Creator Login Page

4. Log in with the default **User Name** and **Password** provided by Ross Video.
5. Upon successful login, you will be on the **Raideen Story Browser** page.



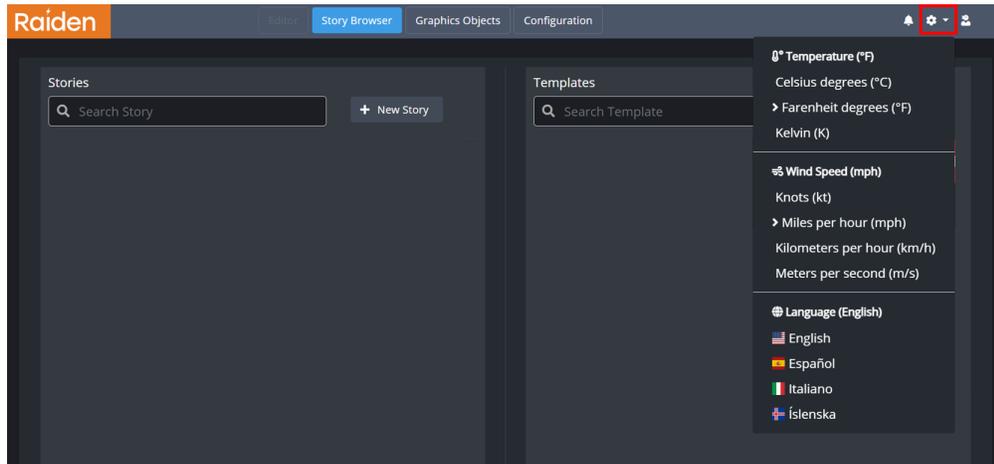
Raideen Story Browser

Setting the Display Preferences

This section provides instructions for setting the user-specific display preferences for the Story Creator's web user interface. For instructions on setting the default display preferences for your organization see, [Data Visualization](#).^[138]

To configure unit display preferences:

1. In the top-right corner, select the **Settings** icon.



Story Creator - Settings Menu

The **Settings** drop-down menu appears.

2. From the drop-down menu, select the units of temperature you want to use.

The options are:

- **Celsius degrees** (°C)
- **Fahrenheit degrees** (°F)
- **Kelvin** (K) — Default

3. Then select the units of wind speed you want to use.

The options are:

- **Knots** (kt)
- **Miles per hour** (mph)
- **Kilometers per hour** (km/h) — Default
- **Meters per second** (m/s)

4. Select the language you want to use.

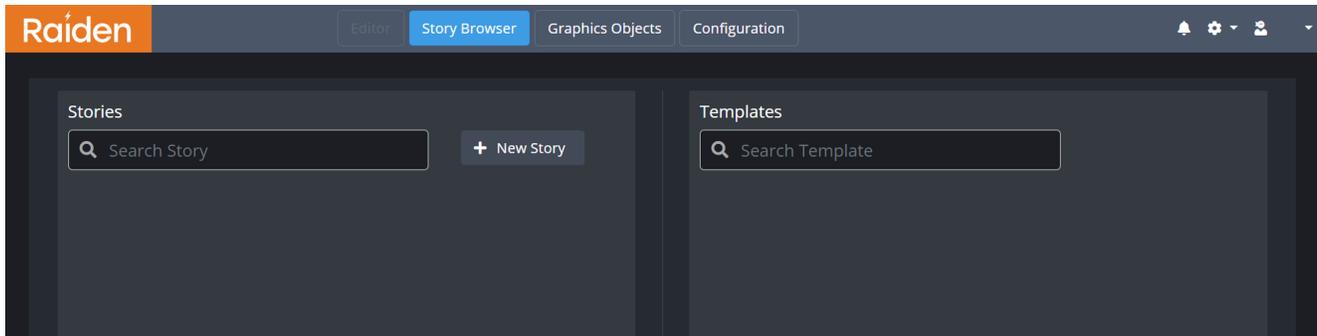
The options are:

- **English** — Default
- **Español**
- **Français**

Story Browser

The **Story Browser** is where you will create new stories and manage previously created stories and templates.

The **Story Browser** has two panels as seen below:



Story Browser

Stories

On the left side of the user interface is the **Stories** panel. Use this panel to access the tools to create stories and manage existing stories.

For information about creating and managing stories, see [Creating Stories](#)⁷².

Templates

On the right side of the user interface is the **Templates** panel. Use this panel to access the tools to create stories from a template.

For information about creating templates, see [Creating Templates](#)⁷⁶.

Creating Stories

The first step is to create a story from scratch within the **Story Browser**.

Once you've created your story you can then customize each scene in the **Editor**^[78], save it for future use and then edit it, when necessary.

For information on customizing scenes in the **Editor**, see **Customizing Scenes**^[79].

The following procedures are described in this section:

To create a story from scratch:^[72]

To create a story from a template:^[73]

To copy a story:^[74]

To delete a story:^[74]

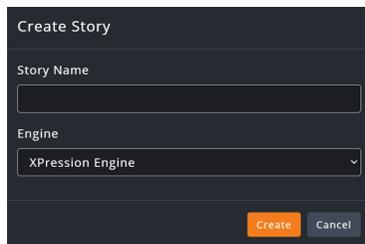
To search for an existing story:^[74]

To edit an existing story:^[75]

To create a Story from scratch:

1. In the **Stories** panel, select the **+ New Story** button.

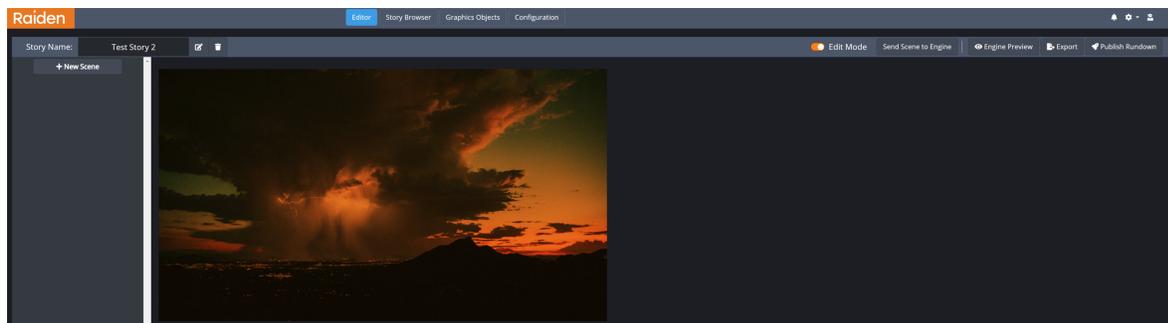
The **Create Story** dialog opens.



Create Story Dialog

2. In the **Story Name** field, enter a name for your story.
3. From the **Engine** drop-down, select the graphics engine you are using.
4. Select **Create**.

The **Editor** opens.



Story Creator - Editor

5. In the left panel, select the **+ New Scene** button to add scenes to your story.

The scene menu opens.

6. Select one of the following tabs to view and add scenes to your story:

- **Base scenes only** - contains scenes that are pre-defined with metadata and ready to use in Story Creator.
- **Shared scenes only** - contains scenes that are shared between stories. For more information on shared scenes, see [Sharing Scenes](#) ^[126].
- **All scenes** - contains all available scenes.

If you need to find a specific scene in the scene menu, you can use the **Search** field to search for a scene.

★ Scenes outlined in yellow are not pre-defined with metadata.

7. Select the scene you want to add to your story.

The scene is created and added to the left panel.

To delete the scene, right-click on the scene and select **Delete Story Item** from the shortcut menu.

8. Select the **+ New Scene** button to continue to add additional scenes to your story.

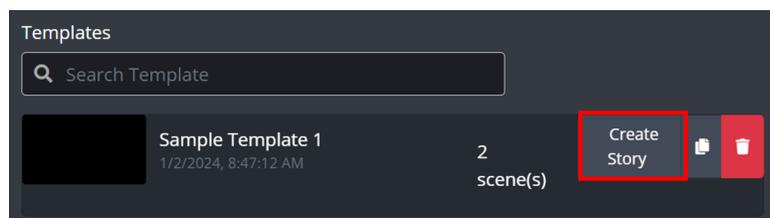
To rearrange a scene, click-and-drag the scene to a new position.

9. When you have finished adding scenes, you can start customizing each scene (see [Customizing Scenes](#) ^[79]) or you can select the **Story Browser** tab to return to **Story Browser**.

The story is saved and added to the list of stories in the **Story Browser**.

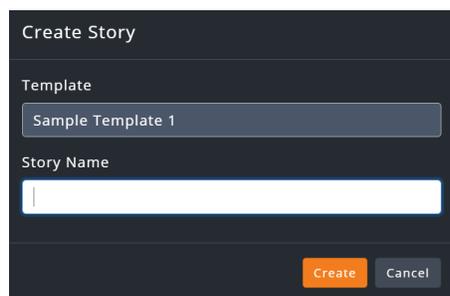
To create a story from a template:

1. In the **Templates** panel, select the **Create Story** button for the template you want to use to create a story.



Templates Panel - Create Story

The **Create Story** window opens.



Create Story Window

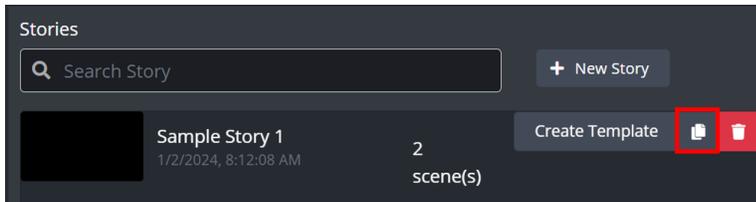
2. In the **Story Name** field, enter a name for the story.

3. Select **Create**.

The story will be saved to the list of stories in the **Stories** panel.

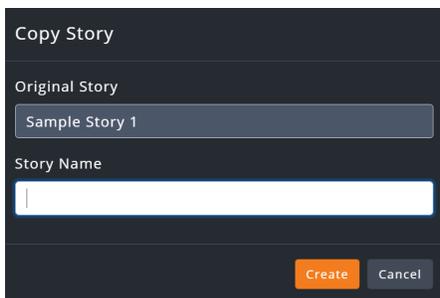
To copy a story:

1. In the **Stories** panel, select the **Copy Story** button for the story you want to copy.



Stories Panel - Copy Story

The **Copy Story** window opens.



Copy Story Window

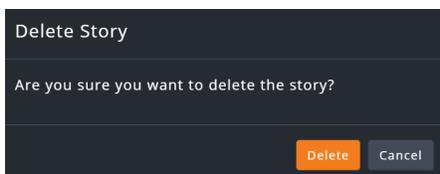
2. In the **Story Name** field, enter a name for the story.
3. Select **Create**.

The story is copied and added to the list of stories in the **Stories** panel.

To delete a story:

1. In **Stories** panel, select the  **Delete** button for the story you want to delete.

The **Delete Story** dialog appears.



Delete Story Dialog

2. Select **Delete**.

The story is deleted from the list of stories.

To search for an existing Story:

- In the **Stories** panel, enter the name of the story or template in the **Search Story** field.

The story will appear in the **Stories** panel.

To edit an existing story:

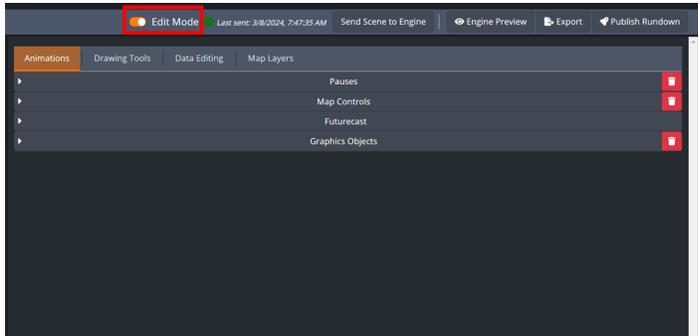
★ If you created a story, you can edit it at any time. To edit a story created by another user, you must first enable editing for their story. By default, stories created by other users are accessible in read-only mode.

1. In the **Story Browser**, select the story you want to edit.

The **Editor** opens.

2. Select the **Edit Mode** toggle switch.

The story reloads and the **Edit Mode** toggle button is now orange.



Edit Mode Enabled

The story can now be edited.

Creating Templates

With your basic story created, you can create a template from that story to use as a base to quickly create future stories.

The following procedures are described in this section:

To create a Template from a story: [76](#)

To copy a Template: [76](#)

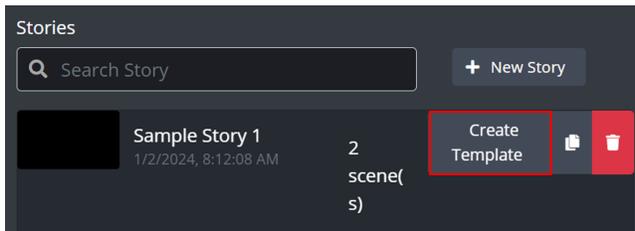
To delete a Template: [77](#)

To search for an existing Template: [77](#)

To edit an existing Template: [77](#)

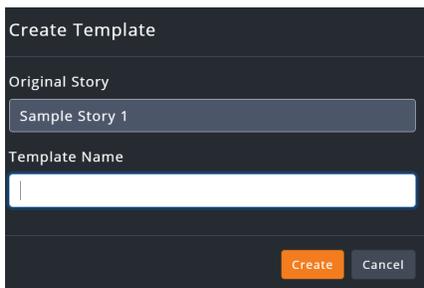
To create a Template from a story:

1. In the **Stories** panel, select the **Create Template** button next to the story you want to save as a template.



Story Browser - Create Template

The **Create Template** window opens.



Create Template Window

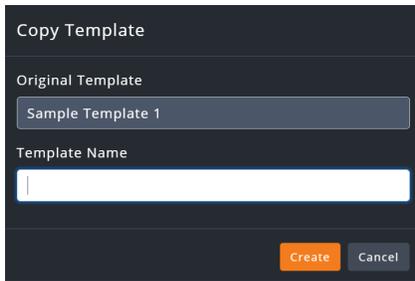
2. In the **Template Name** field, enter a name for the template.
3. Select **Create**.

The template is saved to the list of templates in the **Templates** panel.

To copy a Template:

1. In the **Templates** panel, select the  **Copy** button next to the template you want to copy.

The **Copy Template** dialog opens.



Copy Template Dialog

2. In the **Template Name** field, enter a name for the template.
3. Select **Create**.

A copy of the template is saved to the list of templates.

To delete a Template:

1. In the **Templates** panel, select the  **Delete** button next to the template you want to delete.
The **Delete Template** dialog opens.
2. Select **Delete**.

To search for an existing Template:

- In the **Templates** panel, enter the name of the template in the **Search Template** field.
The template will appear in the **Templates** panel.

To edit an existing Template:

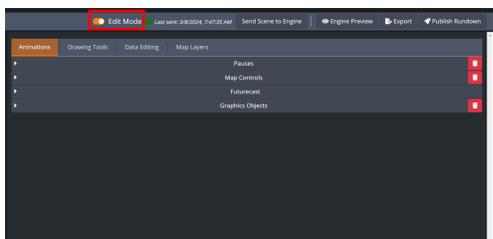
If you are the creator of a template, you can edit your template at any time.

If you want to edit a template created by a different user, you will need to enable their template for editing. Templates are automatically accessible in read-only mode if you are not the creator of the template.

To edit another user's template, you will need to enable editing as follows:

1. In the **Story Browser**, select the template you want to edit.
The **Editor** opens.
2. Select the **Edit Mode** toggle switch.

The template reloads and the **Edit Mode** toggle button is now orange.

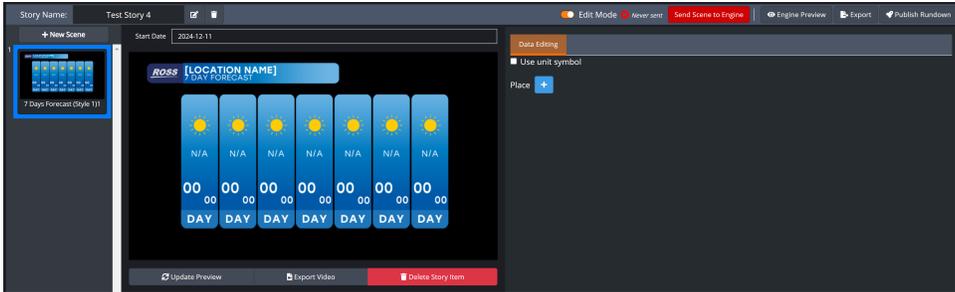


Edit Mode Enabled

The template can now be edited.

Editor

The **Editor** is a core component of the Story Creator, enabling you to manage and customize scenes for your weather stories. It serves as the workspace where scenes are added, organized, and tailored to fit specific storytelling needs.

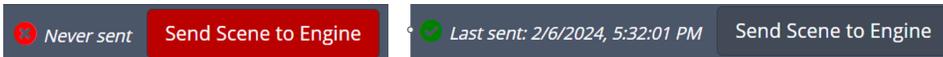


Story Creator - Editor

In the **Editor**, you can retrieve scene information, duplicate or share scenes across multiple stories, and finalize scenes for playback or export. Additionally, the Editor interacts with your graphics engine and Local Server to provide tools for detailed customization of scene elements, ensuring your weather stories are both engaging and precise.

Once a scene has been customized, it can be duplicated, previewed, published for use on broadcast, and exported as a video file for future use.

★ When working in the **Editor**, if you haven't yet sent your configurations to the graphics engine, the **Send Scene to Engine** button glows red with a **Never Sent** notification. After sending the configurations to the graphics engine, the **Send Scene to Engine** button stops glowing and displays a **Last Sent** notification.



Before and After Sending Scene to Engine

Scene Types and Customizations

With your basic story created, you can now customize each scene in your story.

Each scene type has a different set-up. Go to the section corresponding to your selected scene for further scene-specific instructions:

[Media Scene](#) 

[3D World Scene - Forecast](#) 

[3D World Scene - Observation](#) 

[Daily Forecast Scene](#) 

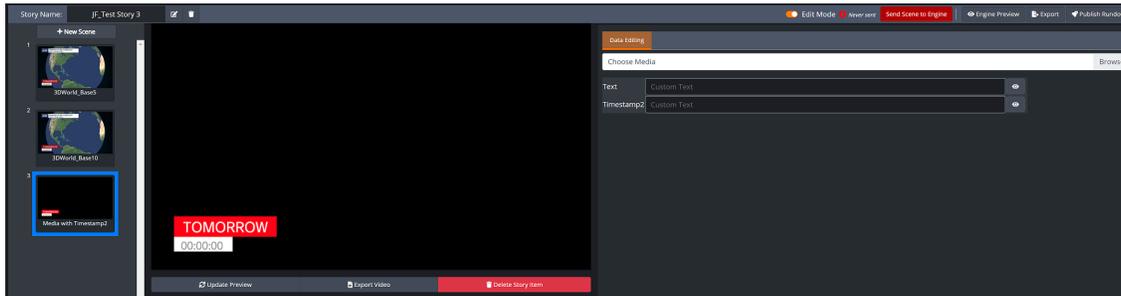
[Current Conditions Scene](#) 

[Headlines Scene](#) 

[Next Hours Scene](#) 

Media Scene

The **Editor** contains one tab for customizing the **Media** scene as seen below:



Scene Configuration Panel - Media Scene

In the **Data Editing** tab, you can incorporate media files, such as still images and videos, into your scene to include intros, outros, or advertisements in your story. Additionally, you have the flexibility to overlay text and add timestamps to your media files, with the option to show or hide the text and timestamp individually.

★ The following video file is supported:

- AVI files (XPVC codec for XPression) are supported. You can use XPression Video Coder to convert other video types to the supported type.

To add a media file to the scene:

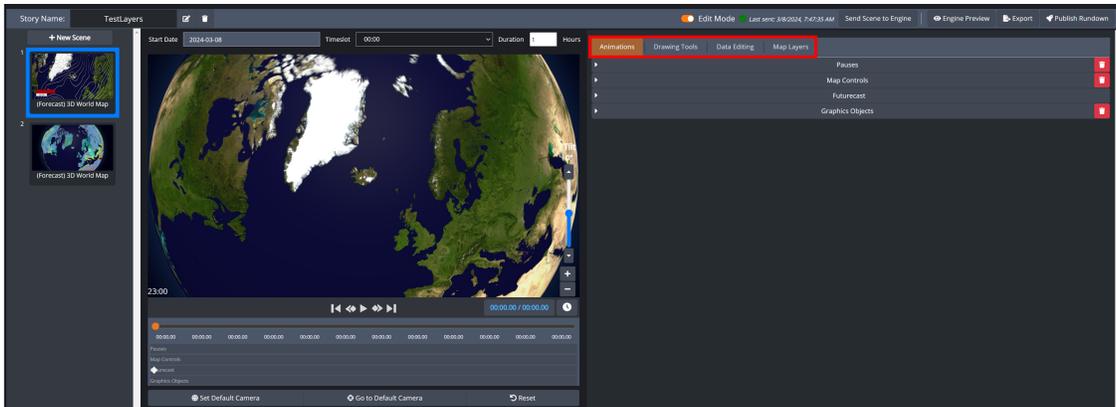
1. In the **Data Editing** tab, select the **Browse** button.
The **File Explorer** window appears.
2. In the **File Explorer**, navigate to the media file you want to use and select the file.
3. Select **Open**.
The **File Explorer** closes.
4. In the **Text** field, enter the text you want to display in the scene.
5. In the **Timestamp2** field, enter the time you want displayed in the scene.
6. Use the **Show/Hide** button to show/hide the text and timestamp in the scene.
7. Select the **Send Scene to Engine** button.

The media file, text, and timestamp will be assigned to the weather project running in your graphics engine and shown in the preview panel.

Forecast 3D World Scene

The **Forecast 3D World Scene** is used when creating modeled forecasts.

You can customize and edit the **Forecast 3D World Scene** using the **Data Editing**, **Map Layers**, **Animations**, and **Drawing Tools** tabs, as shown below:



Forecast 3D World Scene

Definitions

Data Editing—use this tab to add places of interests, timestamps, custom texts, and edit the scene's data (such as the values that visualize the weather variables for the region and the data source).

For information about configuring the data editing settings, see [Data Editing](#)⁸².

Map Layers—use this tab to access the tools for adding map layers for current and forecasted weather variables.

For information about configuring the map layer settings, see [Map Layers](#)⁸⁸.

Animations—use this tab to add visual effects to your weather story.

For information about adding and managing animations, see [Animations](#)⁹¹.

Drawing Tools—use this tab to add graphics objects to your scene.

For information about using the drawing tools, see [Drawing Tools](#)⁹⁰.

Workflow

The **Data Editing** settings should be configured first, followed by configuring the **Map Layer** settings prior to working with the **Animations** and **Drawing Tools**.

At anytime after configuring the **Data Editing** and **Map Layer** settings, you can return to your scene and work with the **Animations** and **Drawing Tools**, without having to reconfigure the **Data Editing** and **Map Layers**.



3D World Scene - Workflow

Data Editing

In the **Data Editing** tab, you can add places of interests and edit the scene's data. The options available to edit will change depending on the scene's metadata.

The following topics are covered in this section:

[Configuring the Parameters for Receiving Data](#) ⁸²

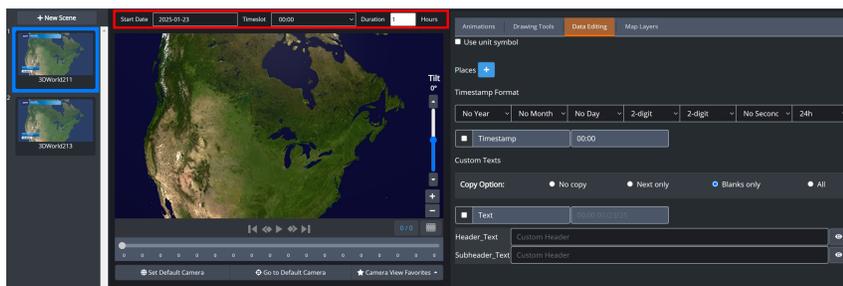
[Adding and Configuring Places of Interest](#) ⁸³

[Setting the Timestamp Format](#) ⁸⁵

[Adding Custom Texts](#) ⁸⁷

Configuring the Parameters for Receiving Data

The first step is to set the start date and duration for when you want to start receiving data and select the number of timeslots per cycle of data. The **Start Date**, **Timeslot**, and **Duration** settings are located above the scene preview board, as seen below:

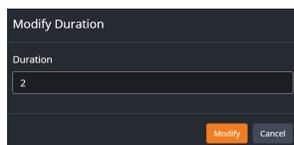


Data Editing Tab - Start Date, Timeslot, and Duration Settings

To configure the Start Date, Time, and Duration settings:

1. From the **Start Date** calendar, select the date you want to start retrieving data.
2. From the **Timeslot** drop-down, select the time you want to start retrieving data.
3. In the **Duration** field, enter or select the number of timeslots you want displayed for each place of interest.

The **Modify Duration** window appears.



Modify Duration Window

4. In the **Duration** field, enter the duration in hours.
5. Select **Modify**.
6. Next, you will need to add and configure places of interest settings. Proceed to the [Adding and Configuring Places](#) ⁸³ section.

Adding and Configuring Places of Interest

After configuring the parameters for receiving data, the next step is to add and configure the places of interest.

A key part of this process is the **Source** and **Cycle** table, which simplifies managing data cycle settings. By centralizing these settings for all locations tied to the same source(s), the table eliminates the need for individual configuration, reducing repetitive tasks and ensuring consistency. If needed, you can override these centralized settings and make location-specific configurations, providing additional flexibility. This approach saves time and minimizes the risk of errors, particularly when working with multiple locations and data sources.

This section explains how to add points of interest, set data source and cycle settings, and adjust weather variables associated with each place.



Data Editing Tab - Places Section

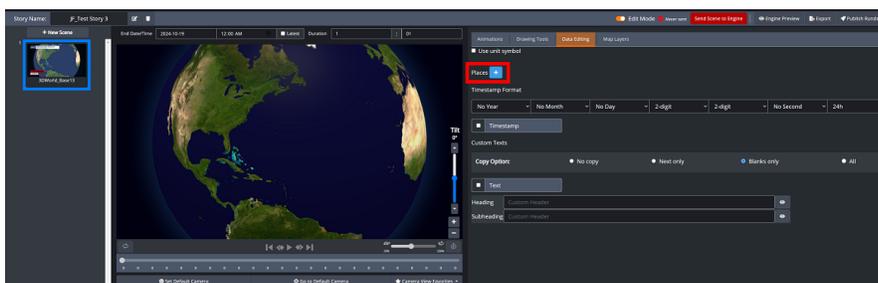
This section contains the following procedures:

To add and configure a Place of Interest: [83](#)

To delete a Place: [85](#)

To add and configure a Place of Interest:

1. Select the  **Places** button.



Data Editing - Add Places

The **Add Place to Map** window opens.

2. In the **Place** field, enter the name of the place you want to add.

A list of places containing that name will appear.

If the place of interest you entered does not appear in the results, ensure that it has been configured in the Local Server.

★ **Note:** **Points** are user-defined locations extracting data from models. **Stations** are official datasets associated with a physical observation station from a local meteorological agency.

- From the results, select the place you want.
- From the **Template** drop-down, select the XPression template you want to use.

The options are:

- **T_Wind** — Select this option to use the **Wind** template.
 - **T_TempCond** — Select this option to use the **Temperature and Weather Condition** template.
 - **TempCondLoc** — Select this option to use the Location with **Temperature and Weather Condition** template.
 - **TempCondWind** — Select this option to use the **Temperature, Wind, and Weather Condition** template.
 - **TempCondLoc1** — Select this option to use the **Location with Temperature and Weather Condition** template.
- Select **Add and Close** to return to the **Editor**.

Alternatively, you can select **Add**, to add additional places and then select **Close** to return to the **Editor**.

The place and its configuration options are displayed in the **Data Editing** tab.

Source	Cycle
Global Forecast System	2025-01-22 - 12:00:00

Places +

1	Ottawa	Global Forecast System
Temperature	9	9 (1)
Weather Code	None	(0)

Timestamp Format

No Year No Month No Day 2-digit 2-digit No Second 24h

Timestamp 00:00

Custom Texts

Copy Option: No copy Next only Blanks only All

Text 00:00 01/23/25

Header_Text Custom Header

Subheader_Text Custom Header

Data Editing - Place of Interest Settings

- In the **Source** and **Cycle** table, from the **Cycle** drop-down, select the data cycle you want applied to all locations that use the source listed in the **Source** column.

Source: Displays the forecast sources (e.g., Euro, GFS, etc.) used in your locations (read-only).

Cycle: Provides a drop-down menu to select the cycle time for the data source specified in the table, with the latest cycle pre-selected by default.

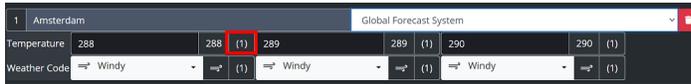
- Configure the location-specific settings for each place of interest if location-specific overrides are needed, as follows:

Below each place of interest are the weather variables and their default values, grouped by timeslot.

- Select the field next to the weather variable you want to change and enter a new value.

★ The weather variables available to edit depend on the selected template.

Additionally, you can recover the default value by double-clicking the column to the right of the value, which will reappear in the value field.



1	Amsterdam	Global Forecast System						
Temperature	288	288 (1)	289	289 (1)	290	290 (1)		
Weather Code	Windy	Windy (1)	Windy	Windy (1)	Windy	Windy (1)		

Data Editing Tab - Default Value

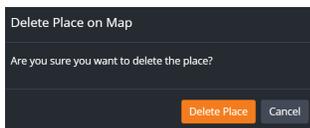
8. Next, configure the **Timestamp Format** settings.

For detailed instructions, refer to the the [Setting the Timestamp Format](#) ⁸⁵ section.

To delete a Place:

1. Select the  **Delete** button for the place you want to delete.

The **Delete Place on Map** dialog opens.



Delete Place on Map Dialog

2. Select the  button.

The place is deleted from the scene.

Setting the Timestamp Format

This section provides instructions for configuring the format for the date and time displayed in a scene.

To set the Timestamp Format:

1. In the **Timestamp Format** section, configure the format for the time as follows:

- In the first column, use the drop-down to select whether to display no year, numeric, or 2-digit format for the year.
- In the second column, use the drop-down to select whether to display no month, numeric, 2-digit, long, short, or narrow format for the month.
- In the third column, use the drop-down to select whether to display no day, numeric, or 2-digit format for the day.
- In the fourth column, use the drop-down to select whether to display no hour, numeric, or 2-digit format for the hour.
- In the fifth column, use the drop-down to select whether to display no minute, numeric, or 2-digit format for the minute.
- In the sixth column, use the drop-down to select whether to display no second, numeric, or 2-digit format for the second.
- In the seventh column, use the drop-down to select either the 24 hour or 12 hour format for the time.

2. Select the Timestamp checkbox to enable the timestamp.

3. Next, you will need to configure the **Custom Texts** settings. Proceed to the [Adding Custom Texts](#)⁸⁷ section.

Adding Custom Texts

This section provides instructions for adding **Custom Texts** to a scene.

To add Custom Texts to a scene:

1. From the **Copy Options**, select the **Copy Option** you want to auto-fill text entered from the first field to subsequent fields.

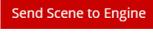
The options are:

No Copy — Does not copy text to subsequent fields.

Next Only — Copies text to the next field only.

Blanks Only — Copies text into blank fields only.

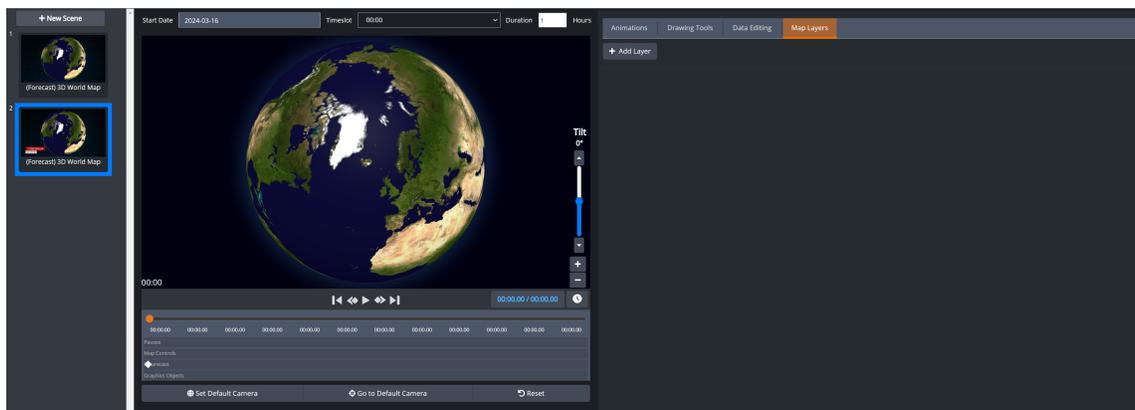
All — Copies text from the first field to all subsequent fields.

2. Select the **Text** checkbox to enable text and enter text into the available timeslots.
3. In the **Heading** field, enter the text you want for a heading.
4. In the **Subheading** field, enter the text you want for a subheading.
5. When you have finished adding text to the scene, select the  button.
The **Data Editing** settings are saved to your project.
6. Next, you will need to add **Data Layers** and **World Geographic Layers** to the scene. Proceed to the [Map Layers](#) section.

Map Layers

The **Map Layers** tab provides the essential tools for enhancing your scene with various data overlays. The available layers vary depending on whether you are working within the **Forecast 3D World** scene or **Observations 3D World** scene. In the **Observations 3D World** scene, you have access to **Observations**, **Satellite**, and **World Geographic** layers. In the **Forecast 3D World** scene, layers include **Forecast** and **World Geographic** options.

Each time a new layer is selected, it will appear as a row in the **Map Layers** tool. This row allows you to configure the layer's properties, such as the data source, data cycle, and other relevant settings, giving you full control over the visualization of the map layers.



Map Layers Tab

To add a Map Layer (Forecast 3D World Scene):

1. In the **Map Layers** tool, select the **Add Layer** button.
2. From the drop-down, select layers you want and click out of the drop-down list.

★ The layers displayed in the list correspond to those that have been activated in the Local Server.

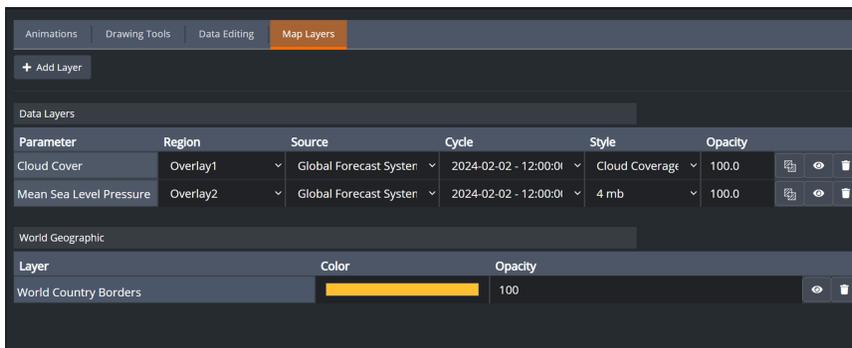
The **layer** selections appear in the **Map Layer** tab.



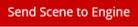
Map Layers Tab - Data Layers and Geographic Layers

3. In the **Data Layers** section, configure the properties for each layer as follows:
 - a. From the **Region** drop-down, select the overlay domain you want.
 - b. From the **Source** drop-down, select the data source you want to retrieve data from.
 - c. From the **Cycle** drop-down, select the data cycle you want.

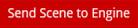
- d. From the **Style** drop-down, select the style you want to use.
 - e. In the **Opacity** field, enter or select the opacity you want for the style.
 - f. Use the  **Land Mask** button to hide the view of the ocean on the map.
 - g. Use the  **Layer Preview** button to enable/disable the layer preview on the map.
4. In the **World Geographic** section, configure the properties for each layer as follows:
- a. Select the **Color** field, and use the color picker to select the color you want for the style.
 - b. Drag and drop the color selector to the color you want.
 Alternatively, you can use the **Eyedropper** tool to select a color from another source displayed on your screen or manually enter the **RGB** values.
 - c. In the **Opacity** field, enter or select the opacity you want to use.
 - d. Use the  **Layer Preview** button to enable/disable the layer preview on the map.



Map Layers Tab - Data and World Geographic Layers

5. Select the  button to save the settings to the scene.

To delete a Map Layer:

1. Select the  **Delete** button for the **Map Layer** you want to delete.
 The **Map Layer** is deleted.
2. Select the  button to save the modification to the scene.

Drawing Tools

Use the **Drawing Tools** tab to add graphics objects to your scene. A few **Graphics Objects** have been provided to help make creating your scene easier. However, you can use your own **Graphics Objects** if they have been uploaded to the **Graphics Objects** section in Story Creator.

For instructions on how to upload your own graphics to the Story Creator, see [Graphics Objects](#)^[131].

To add a Graphics Object to a scene:

- In the **Drawing Tools** tab, click-and-drag the **Graphics Object** you want onto the globe.

Once you have added graphics objects to your scene, you can position or delete the object using the **Graphics Objects** tool in the **Animations** Tab. For information about positioning and deleting graphics objects, see [Graphics Objects](#)^[132] in the [Animation](#)^[131] section.

Animations

Use the **Animations** tab to add visual effects to your weather story.

The **Animations** tab contains four animation tools:

[Pauses](#) ⁹¹

[Map Controls](#) ⁹²

[Futurecast](#) ⁹⁵

[Graphic Objects](#) ⁹⁶

If you haven't already done so, you will need to configure the **Data Editing** and **Map Layers** settings prior to working with the animation tools.

For instructions on configuring **Data Editing** settings, see [Data Editing](#) ⁸², and for instructions on configuring the **Map Layers** settings, see [Map Layers](#) ⁸⁸.

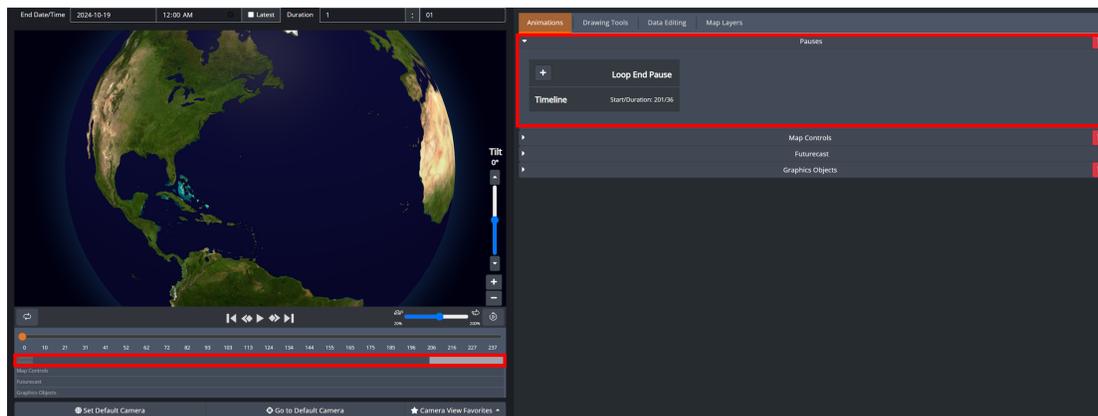
Pauses

The **Pauses** tool allows you to add pause points to the map animation. Adding a pause point to the timeline pauses the animation at the current timecode until you advance the scene.

To add a Pause:

1. In the **Pauses** track, right-click and select **+Add Keyframe**.

Alternatively, you can use the **Pauses** tool and select the **+Add** button.



Animations - Pauses

2. A **Pause** keyframe appears in the **Pauses** tool and a blue diamond appears in the **Pauses** track, indicating the position of the keyframe on the timeline.
3. In the **Pauses** track, slide the blue diamond to the position on the timeline you want.
The color of the diamond changes from blue to white, indicating the position has been saved.
4. Repeat Steps 1 - 3 to add additional **Pause** keyframes.
5. When you are done adding **Pauses**, you can preview the scene using the timeline playback controls to run the animation. For more information about previewing the key frame animations, see [To preview keyframe animations](#) ⁹⁸.

The **Pauses** are automatically saved.

To delete a pause:

1. In the **Pauses** track, right-click on the diamond for the **Pause** you want to delete and select **Delete Keyframe**.

Alternatively, you can use the **Pauses** tool and select the  **Delete** button.

The **Delete Keyframe** dialog appears.

2. Select **Delete**.

The **Pause** keyframe is deleted from the timeline.

To edit a Keyframe from the timeline:

1. In the **Pauses** track, right-click on the diamond for the **Pause** keyframe you want to edit and select **Edit Keyframe**.

The **Edit Keyframe** window appears.

2. Use the **Keyframe** field to adjust the timeline position of the keyframe.

3. When you have finished modifying the position of the keyframe, select **Edit**.

The **Edit Keyframe** window closes and the modifications are saved.

Map Controls

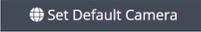
The **Map Controls** tool allows you to add pan and zoom transitions to a 3D World scene.

When working with the **Map Controls** tool, you select the positions you want on the globe and add keyframes to determine the order in which they are panned and zoomed in/out to.

To add Map Controls:

1. In the scene preview board, use the following controls to set the position of the globe to the location you want:

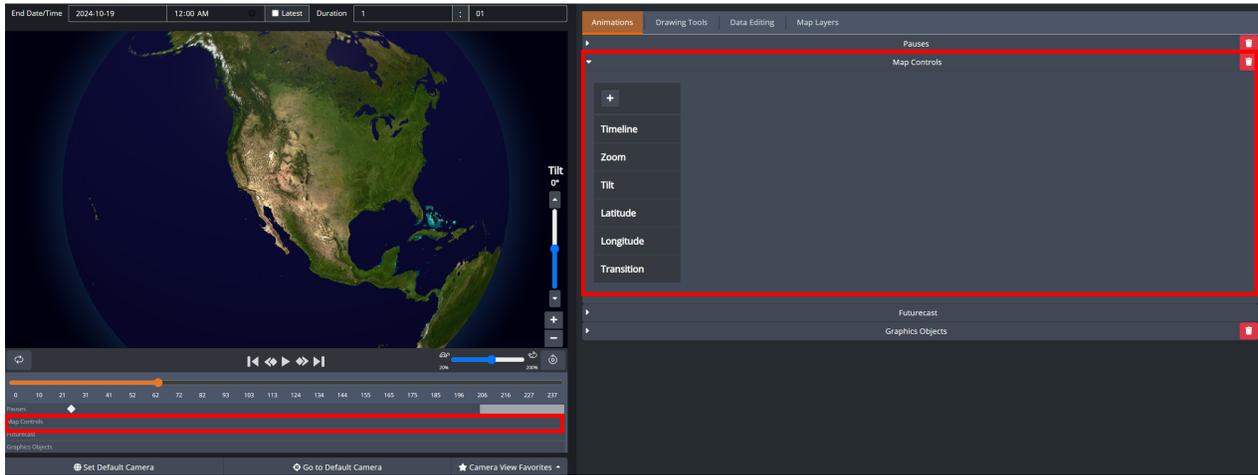
- Hold the left mouse button down and drag to rotate the globe.
- Use the **Tilt** slider to move the globe up and down.
- Use the scroll wheel on your mouse to zoom in or out.

2. Select the  button.

Additionally, if you move the globe to a different position, you can select the **Go to Default Camera** button to return to the default camera position.

3. In the **Map Controls** track, right-click and select **+ Add Keyframe**.

Alternatively, In the **Map Controls** tool, you can select the  **Add** button to add a keyframe to the timeline.



Animations - Map Controls

The keyframe controls appear in the **Map Controls** tool and a blue diamond appears in the **Map Control** track, indicating the position of the keyframe along the timeline.

Additionally, if you need to make adjustments to the position of the keyframe, you can use the keyframe controls to adjust the position.

The keyframe control options are:

- **Zoom**
- **Tilt**
- **Latitude**
- **Longitude**

4. In the keyframe controls, use the **Transition** drop-down to select the transition style between keyframes.

The options are:

- **Ease In/Out** — To transition slowly between keyframes.
- **Linear** — To transition with a constant speed between keyframes.

5. In the **Map Controls** track, click-and-drag the blue diamond to adjust its position along the timeline.

The color of the diamond changes to white, indicating the modifications have been saved to the keyframe.

6. Position the globe to the next position you want, and repeat **steps 3–5** to add and configure additional keyframes.

Additionally, you can re-arrange the position the diamonds on the track to change the order in which the keyframes are panned and zoomed in/out to on the globe.

7. When you have finished adding and configuring the keyframes, you can preview the scene using the timeline playback controls to run the animation. For information about previewing the keyframe animations, see [To preview keyframe animations](#).

The keyframes are automatically saved.

To delete a Map Control keyframe:

1. In the **Map Controls** track, right-click on the diamond for the keyframe you want to delete and select **Delete Keyframe**.

Alternatively, in the **Map Control** tool, select the **Delete** button for the keyframe you want to delete.

The **Delete Keyframe** dialog appears.

2. Select **Delete**.

The keyframe is deleted from the timeline.

To edit a Keyframe from the timeline:

1. Right-click on the diamond for the keyframe you want to edit and select **Edit Keyframe**.

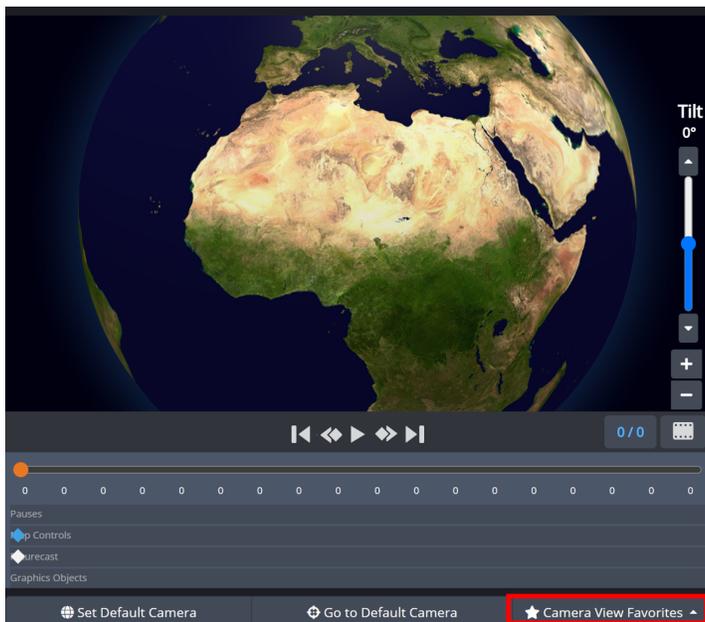
The **Edit Keyframe** window appears.

2. Use the **Keyframe** fields to adjust the timeline position of the keyframe.
3. When you have finished modifying the position of the keyframe, select **Edit**.

The **Edit Keyframe** window closes and the modifications are saved.

Camera View Favorites

The **Camera View Favorites** feature allows users to save and reuse predefined camera views for animations. By saving commonly used camera views, this feature enhances the efficiency of working with animations, particularly when setting up keyframe positions for dynamic map transitions. Administrators can create station-wide favorites to ensure consistency across teams, while individual users can create personal favorites for their own use.



Camera View Favorites

To add a new camera view to your favorites:

1. Position, tilt, and zoom the map to set the desired view, then select the **Camera View Favorites** button located at the bottom of the timeline.

2. In the menu, select the **+Add New** button.

The **Add New** window opens.

3. In the **Name** field, enter a name for the camera view.

4. Select the **Available to Everyone** checkbox if you want to make the camera view available to all users (Administrative users only).

When this option is enabled, a people icon appears next to the camera view in the list, indicating that it is station-wide.

5. Select **Save & Apply** to save the camera view and apply it to the current keyframe position.

The **Add New** window closes and the new camera view is saved.

Alternatively, you can select **Save** to save the camera view without applying it to the current keyframe position and return to the list of **Camera View Favorites**.

To modify an existing Camera View Favorite:

1. Select the **Camera View Favorites** button to open the menu.
2. Locate the camera view you want to modify and select the  **Modify** button next to it.
The **Modify Favorite** window opens.
3. Edit the following settings as needed:
 - **Name:** Update the name of the camera view.
 - **Available to Everyone:** Enable or disable this setting to control whether the camera view is station-wide or personal (Administrative users only).
4. Select **Save** to apply the changes and return to the list of favorites.

To delete a Camera View Favorite:

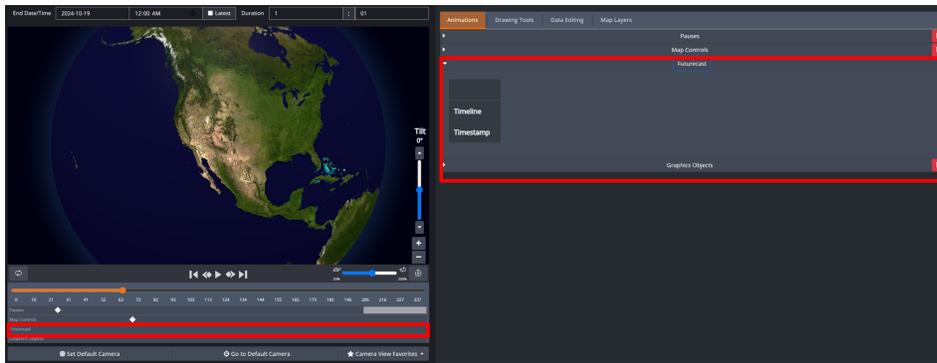
1. Select the **Camera View Favorites** button to open the menu.
2. Find the camera view you want to delete and select the  **Delete** button next to it.
The **Delete Favorite** dialog opens.
3. Select **Delete** to confirm the action.
The **Camera View Favorite** is removed from the list.

Futurecast

The **Futurecast** tool allows you to position **Futurecast** keyframes to show a specific weather variable transitioning over different points in time.

To position a Futurecast keyframe:

1. In the **Animations** tool, select **Futurecast**.



Animations Tab - Futurecast

2. Select the **Search** button for the **Futurecast** keyframe you want to position along the timeline.
The color of the diamond changes from white to blue, indicating it can be repositioned along the timeline.
3. In the **Futurecast** track on the timeline, slide the blue diamond along the track to the position you want.
The color of the diamond changes to white, indicating the modifications have been saved to the project.
4. Repeat **steps 2-3** to position any additional **Futurecast** keyframes along the timeline.
The keyframes are automatically saved.

To edit a Futurecast Keyframe from the timeline:

1. Right-click on the diamond for the keyframe you want to edit and select **Edit Keyframe**.
The **Edit Keyframe** window appears.
2. Use the **Keyframe** field to adjust the timeline position of the keyframe.
3. When you have finished modifying the position of the keyframe, select **Edit**.
The **Edit Keyframe** window closes and the modifications are saved.

Graphics Objects

The **Graphics Objects** tool allows you to set the position, scale, and opacity of **Graphics Objects** in a scene.

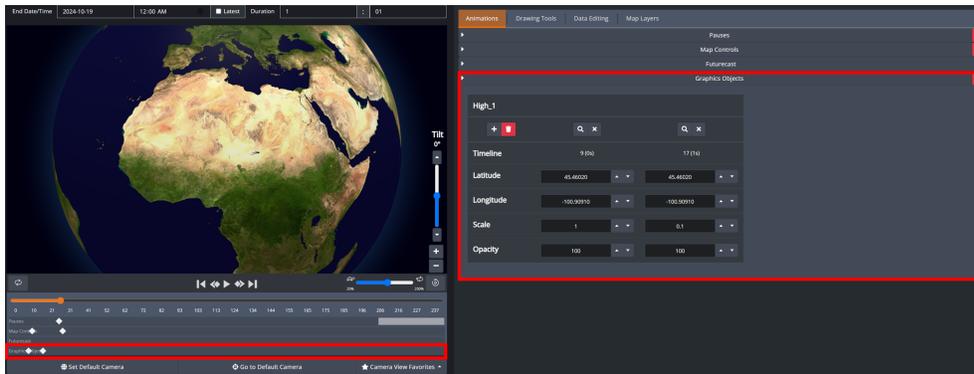
To set the position, scale, and opacity of a Graphics Object:

On the map, you will create a keyframe path that the **Graphics Objects** will move along when the scene is played out.

Each new keyframe you add corresponds to a different position on the map.

1. In the **Graphics Objects** tool, select the **Search** button for the **Graphics Object** you want to configure.

The keyframe appears as a blue diamond in the **Graphics Objects** track.



Animations - Graphics Objects

If you haven't already added **Graphics Objects** to your scene, you can do so in the **Drawing Tools** tab. For more information on how to add **Graphics Objects** to a scene, see [Drawing Tools](#)⁹⁷.

- On the map, drag the animated object to the position you want.
Additionally, you can use the **Latitude** and **Longitude** fields to adjust the position on the globe.
- In the **Scale** field enter or select the scale you want for the animated object.
- In the **Opacity** field enter or select the opacity you want for the animated object.
- In the **Graphics Objects** track, select the blue diamond and drag it to the position on the timeline you want.

The color of the diamond changes from blue to white, indicating the modifications have been saved to the animated object keyframe.

- In the **Graphics Object** track, right-click and select **+Add Keyframe** to add an additional keyframe.

Alternatively, you can select the **+ Add** button in the **Graphics Object** tool to add an additional keyframe.

A new blue diamond appears on the **Graphics Objects** track and a second keyframe appears in the **Graphics Object** tool.

If you need to delete the keyframe, right-click on the diamond in the track and select **Delete Keyframe**.

Alternatively, in the **Graphics Objects** tool, you can select the **Delete** button for the keyframe you want to delete.

- Repeat **Steps 2-5** to configure the position of the animated object to the next location you want on the map.

Additionally, you can re-arrange the position of the diamonds on the track to change the order of the **Graphics Object's** movements on the map.

★ If you want to set a **Graphics Objects** to a fixed position, do not configure any additional keyframes for that **Graphics Object**.

- When you have finished adding and configuring the **Graphics Objects**, you can use the timeline controls to preview the animations. For information about previewing the animations, see [To preview animations](#)⁹⁸.

The modifications are automatically saved to the scene.

To delete a Graphics Object from a scene:

- In the **Graphics Objects** tool, select the **Delete** button for the graphics object you want to delete.

The **Delete Track Element** dialog opens.

2. Select **Delete**.

The **Graphics Object** is deleted from the scene.

To preview Animations:

- Use the timeline playback controls to run the animation as follows:

Use the  **Play** button to play the animation.

Use the  **Pause** button to pause the animation.

Use the  **Back** button to return to the start of the timeline.

Use the  **Forward** button to skip forward to the end of the timeline.

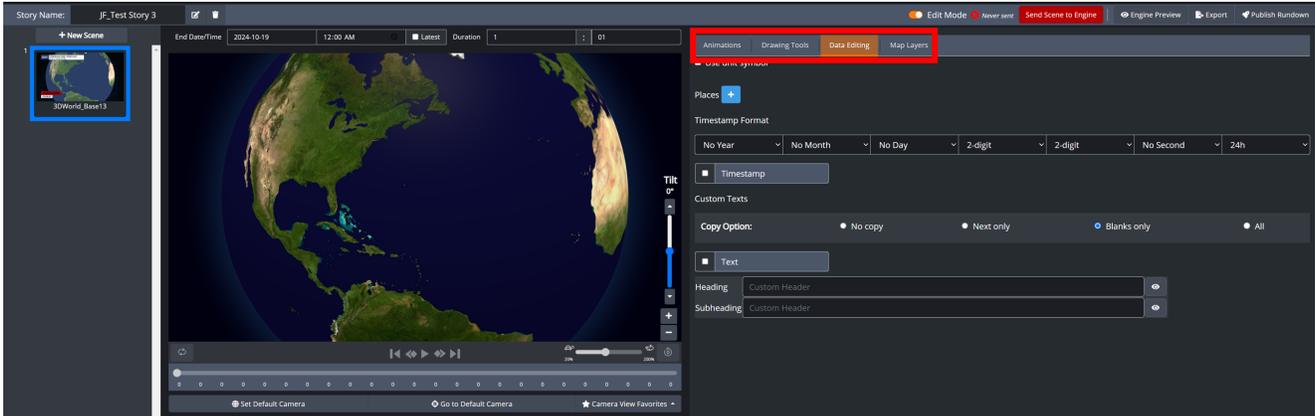
Use the  **Previous Keyframe** button to skip to the previous keyframe.

Use the  **Next Keyframe** button to skip to the next keyframe.

Observations 3D World Scene

The **Observations 3D World Scene** is intended for users creating animations using current or historical weather imagery.

You can customize and edit the **Observations 3D World Scene** using the **Data Editing**, **Map Layers**, **Animations**, and **Drawing Tools** tabs, as shown below:



Observations 3D World Scene

Definitions

Data Editing—use this tab to add places of interests, timestamps, custom texts, and edit the scene's data (such as the values that visualize the weather variables for the region and the data source).

For information about configuring the data editing settings, see [Data Editing](#) ⁸².

Map Layers—use this tab to access the tools for adding map layers for current and forecasted weather variables.

For information about configuring the map layer settings, see [Map Layers](#) ⁸⁸.

Animations—use this tab to add visual effects to your weather story.

For information about adding and managing animations, see [Animations](#) ⁹¹.

Drawing Tools—use this tab to add graphics objects to your scene.

For information about using the drawing tools, see [Drawing Tools](#) ⁹⁰.

Workflow

The **Data Editing** settings should be configured first, followed by configuring the **Map Layer** settings prior to working with the **Animations** and **Drawing Tools**.

At anytime after configuring the **Data Editing** and **Map Layer** settings, you can return to your scene and work with the **Animations** and **Drawing Tools**, without having to reconfigure the **Data Editing** and **Map Layers**.



3D World Scene - Workflow

Data Editing

In the **Data Editing** tab, you can add places of interests and edit the scene's data. The options available to edit will change depending on the scene's metadata.

The following topics are covered in this section:

[Configuring the Parameters for Receiving Data](#) ¹⁰⁰

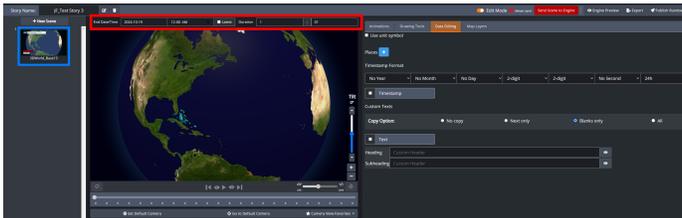
[Adding and Configuring Places of Interest](#) ¹⁰¹

[Setting the Timestamp Format](#) ¹⁰³

[Adding Custom Texts](#) ¹⁰³

Configuring the Parameters for Receiving Data (Observations 3D World)

The first step is to set the end date, time and duration for receiving data. The **End Date** and **Time**, and **Duration** settings are located above the scene preview board, as seen below:



Data Editing Tab - End Date/Time and Duration Settings

To configure the End Date, Time, and Duration settings:

1. From the **End Date** calendar, select the end date for retrieving data.
2. From the **Time** drop-down, select the **Clock** icon and set the end time for retrieving data.

Alternatively, you can use the **Latest** checkbox to display the most recent data for each of the weather parameters selected in the **Data Editing** and **Map Layers**. Once enabled, you will no longer be able to specify a range in the **End Date** or **Time** fields. When you publish the rundown, it processes all observational scenes in the story that have the **Latest** checkbox selected. It retrieves the newest available data at the moment you press the **Publish Rundown** button, updates those scenes in the story and XPression, and then completes the publishing process.

3. In the **Duration** fields, enter or select the time in hours and minutes for the data duration.

Additionally, you can set the value to 0hr 0min with **Latest** checked, which will load the most recent image from the server.

4. Next, add and configure the places of interest settings. Proceed to the [Adding and Configuring Places](#) ¹⁰¹ section.

Adding and Configuring Places of Interest

This is where you add and configure the settings for the places of interests and their associated weather variables.

Each row in this section allows you to select the data source you want for the corresponding place of interest.

Below each row are the weather variables and their default values, grouped by timeslot. The default values can be edited to display the value you prefer in the scene. Once you edit a value, you can recover the default value if needed.



Data Editing Tab - Places Section

This section contains the following procedures:

To add and configure a Place of Interest: [101](#)

To delete a Place: [102](#)

To add and configure a Place of Interest:

1. Select the **+ Places** button.

The **Add Place to Map** window opens.

2. In the **Place** field, enter the name of the place you want to add.

A list of places containing that name will appear.

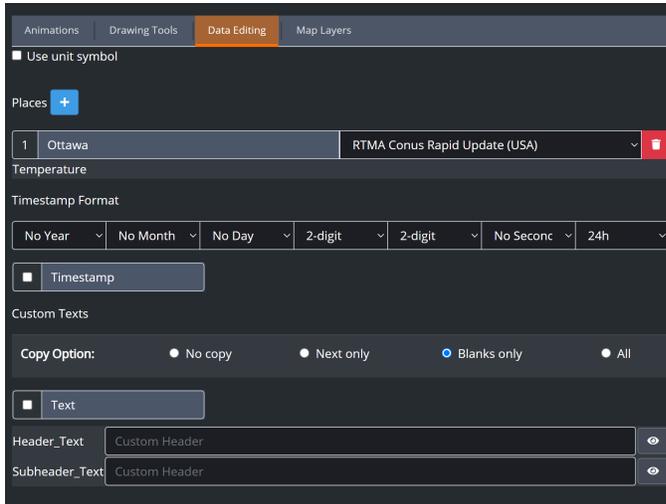
If the place of interest you entered does not appear in the results, ensure that it has been configured in the Local Server.

★ **Note: Points** are user-defined locations extracting data from models. **Stations** are official datasets associated with a physical observation station from a local meteorological agency.

3. From the results, select the place you want.
4. From the **Template** drop-down, select the XPression template you want to use.
5. Select **Add and Close** to return to the **Editor**.

Alternatively, you can select **Add**, to add additional places and then select **Close** to return to the **Editor**.

The place and its configuration options are displayed in the **Data Editing** tab.



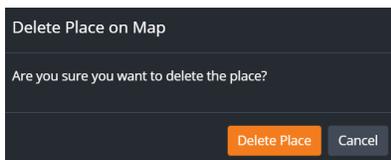
Data Editing - Place and Configuration Options

6. Configure the **Places** settings for each place of interest as follows:
 - Confirm the place of interest is correct and select the data source you want to retrieve data from.
7. Next, configure the **Timestamp Format** settings. Proceed to the [Setting the Timestamp Format](#)¹⁰³ section.

To delete a Place:

1. Select the  **Delete** button for the place you want to delete.

The **Delete Place on Map** dialog opens.



Delete Place on Map Dialog

2. Select the  button.

The place is deleted from the scene.

Setting the Timestamp Format

This section provides instructions for configuring the format for the date and time displayed in a scene.

To set the Timestamp Format:

1. In the **Timestamp Format** section, configure the format for the time as follows:
 - a. In the first column, use the drop-down to select whether to display no year, numeric, or 2-digit format for the year.
 - b. In the second column, use the drop-down to select whether to display no month, numeric, 2-digit, long, short, or narrow format for the month.
 - c. In the third column, use the drop-down to select whether to display no day, numeric, or 2-digit format for the day.
 - d. In the fourth column, use the drop-down to select whether to display no hour, numeric, or 2-digit format for the hour.
 - e. In the fifth column, use the drop-down to select whether to display no minute, numeric, or 2-digit format for the minute.
 - f. In the sixth column, use the drop-down to select whether to display no second, numeric, or 2-digit format for the second.
 - g. In the seventh column, use the drop-down to select either the 24 hour or 12 hour format for the time.
2. Select the **Timestamp** checkbox to enable the **Timestamp**.
3. Next, configure the **Custom Texts** settings. Proceed to the [Adding Custom Texts](#)¹⁰³¹ section.

Adding Custom Texts

This section provides instructions for adding **Custom Texts** to a scene.

To add Custom Texts to a scene:

1. From the **Copy Options**, select the desired option to auto-fill text entered from the first field to subsequent fields.

The options are:

No Copy — Does not copy text to subsequent fields.

Next Only — Copies text to the next field only.

Blanks Only — Copies text into blank fields only.

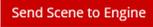
All — Copies text from the first field to all subsequent fields.

2. Select the **Text** checkbox to enable text.

The fields to the right of the **Text** checkbox allow you to add text labels with the Date and Time timestamps, such as "Today", "Monday", etc. When left blank, these fields include the reference date and time.

Additionally, you can hover over a field to view the reference date and time.

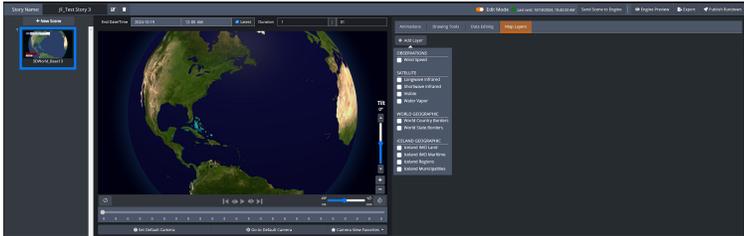
3. Enter the desired text in the fields to the right of the **Text** checkbox, then press the **Tab key** to autofill the subsequent cells.

4. In the **Heading** field, enter the text you want for a heading.
5. In the **Subheading** field, enter the text you want for a subheading.
6. When you have finished adding text to the scene, select the  button.
The **Data Editing** settings are saved to your project.
7. Next, you will need to add **Data Layers** and **World Geographic Layers** to the scene. Proceed to the [Map Layers](#) section.

Map Layers

The **Map Layers** tab provides the essential tools for enhancing your scene with various data overlays. In the **Observations 3D World** scene, you have access to **Observations**, **Satellite**, and **World Geographic** layers.

Each time a new layer is selected, it will appear as a row in the **Map Layers** tool. This row allows you to configure the layer's properties, such as the data source, data cycle, and other relevant settings, giving you full control over the visualization of the map layers.



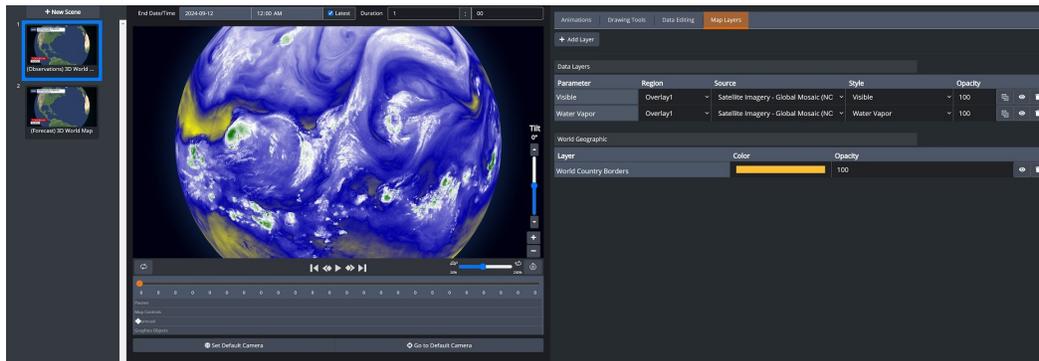
Map Layers Tab

To add a Map Layer (Observations 3D World Scene):

1. In the **Map Layers** tool, select the **Add Layer** button.
2. From the drop-down, select layers you want and click out of the drop-down list.

★ The layers displayed in the list correspond to those that have been activated in the Local Server.

The layer selections appear in the **Map Layer** tab.

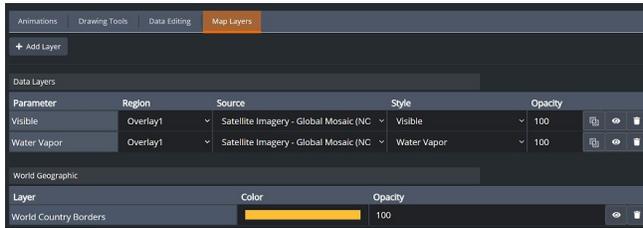


Map Layers Tab - Data Layers and Geographic Layers

3. In the **Data Layers** section, configure the properties for each layer as follows:
 - a. From the **Region** drop-down, select the overlay domain you want.
 - b. From the **Source** drop-down, select the data source you want to retrieve data from.
 - c. From the **Style** drop-down, select the style you want to use.
 - d. In the **Opacity** field, enter or select the opacity you want for the style.
 - e. Use the **Land Mask** button to hide the view of the ocean on the map.
 - f. Use the **Layer Preview** button to enable/disable the layer preview on the map.
4. In the **World Geographic** section, configure the properties for each layer as follows:
 - a. Select the **Color** field, and use the color picker to select the color you want for the style.
 - b. Drag and drop the color selector to the color you want.

Alternatively, you can use the **Eyedropper** tool to select a color from another source displayed on your screen or manually enter the **RGB** values.

- c. In the **Opacity** field, enter or select the opacity you want to use.
- d. Use the  **Layer Preview** button to enable/disable the layer preview on the map.



Map Layers Tab - Data and World Geographic Layers

5. Select the  button to save the settings to the scene.

To delete a Map Layer:

1. Select the  **Delete** button for the **Map Layer** you want to delete.
The **Map Layer** is deleted.
2. Select the  button to save the modification to the scene.

Drawing Tools

Use the **Drawing Tools** tab to add graphics objects to your scene. A few **Graphics Objects** have been provided to help make creating your scene easier. However, you can use your own **Graphics Objects** if they have been uploaded to the **Graphics Objects** section in Story Creator.

For instructions on how to upload your own graphics to the Story Creator, see [Graphics Objects](#)^[131].

To add a Graphics Object to a scene:

- In the **Drawing Tools** tab, click-and-drag the **Graphics Object** you want onto the globe.

Once you have added graphics objects to your scene, you can position or delete the object using the **Graphics Objects** tool in the **Animations** Tab. For information about positioning and deleting graphics objects, see [Graphics Objects](#)^[132] in the [Animation](#)^[131] section.

Animations

Use the **Animations** tab to add visual effects to your weather story.

The **Animations** tab contains several animation tools:

[Loop](#) ¹⁰⁸

[Speed Controls](#) ¹⁰⁹

[Pauses](#) ¹¹⁰

[Map Controls](#) ¹¹¹

[Futurecast](#) ¹¹⁴

[Graphic Objects](#) ¹¹⁵

If you haven't already done so, you will need to configure the **Data Editing** and **Map Layers** settings prior to working with the animation tools.

For instructions on configuring **Data Editing** settings, see [Data Editing](#) ⁸², and for instructions on configuring the **Map Layers** settings, see [Map Layers](#) ⁸⁸.

Loop

The Loop feature offers two playback options:

Loop toggled on (default) - Loop is enabled, allowing the animation to automatically restart from the beginning until the meteorologist advances to the next scene. A brief, one-second pause is built in at the end of each loop, giving viewers a moment to absorb the "latest" frame before the animation starts over.

Loop toggled off - Loop is disabled, and the animation plays through just once without repeating.



Loop Toggle

To enable/disable the Loop feature:

- Select the  **Loop** button to toggle on/off the **Loop** feature.

Speed Controls

The speed control features allows users to adjust the pace of an animation. When building an observation animation from scratch, users need to enter the desired data duration in hours/minutes. The system then automatically calculates the animation's timing, but users can override this using the **Default Duration** feature. This feature allows for adjustments to the clip's default timing by modifying the number of frames or switching to a clock format to display time in minutes and seconds.

For further customization, users can also adjust the animation speed using the **Tortoise-Hare** slider, speeding it up or slowing it down as needed. A slider, featuring a **Tortoise** icon on one end and a **Hare** icon on the other, is used to control the speed. Sliding the control towards the **Hare** increases the speed, while moving it towards the **Tortoise** slows the animation down, offering a simple and intuitive way to adjust the playback speed.

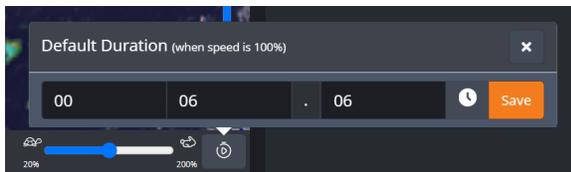


Speed Controls

To use the Default Duration feature:

1. Select the  **Default Duration** button.

The **Default Duration** window appears.



Default Duration Window

2. In the fields, enter or select the minutes, seconds, and milliseconds for the duration.

Alternatively, you can select the **Clock** icon to switch to the frames-per-second setting and specify the duration in frames.

3. Select **Save**.

The **Default Duration** settings are saved.

To use the Tortoise-Hare slider:

- Click and drag the slider towards the **Hare** to increase the speed, or towards the **Tortoise** to decrease the speed of the animation.

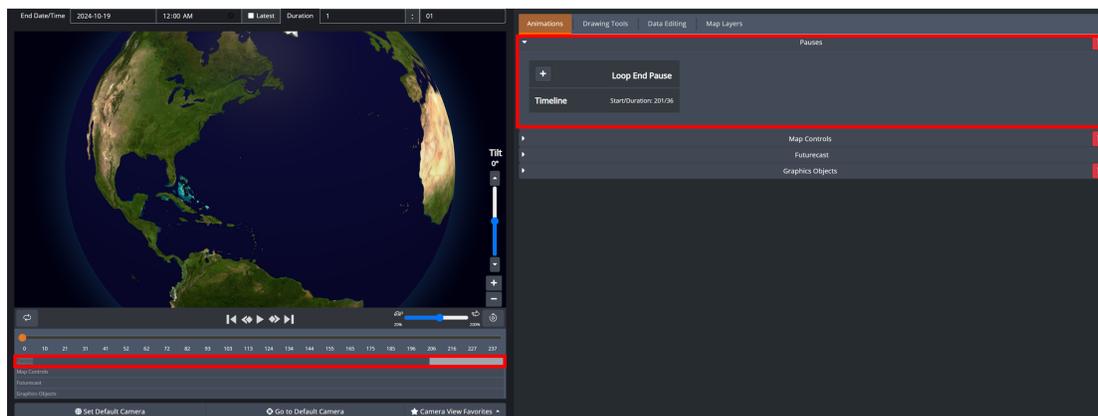
Pauses

The **Pauses** tool allows you to add pause points to the map animation. Adding a pause point to the timeline pauses the animation at the current timecode until you advance the scene.

Additionally, pause points can be used to halt the **Loop** feature at a specific moment during a live broadcast, allowing the user to explain specific details or events in the presentation more thoroughly.

To add a Pause:

1. In the **Pauses** tool, select the **+Add** button.



Animations - Pauses Tool

A **Pause** keyframe appears in the **Pauses** tool and a blue diamond appears in the **Pauses** track, indicating the position of the keyframe on the timeline.

2. In the **Pauses** track, slide the blue diamond to the position on the timeline you want.
The color of the diamond changes from blue to white, indicating the position has been saved.
3. Repeat Steps 1 - 3 to add additional **Pause** keyframes.
4. When you are done adding **Pauses**, you can preview the scene using the timeline playback controls to run the animation. For more information about previewing the key frame animations, see [To preview keyframe animations](#)^[116].

The **Pauses** are automatically saved.

To delete a pause:

1. In the **Pauses** track, right-click on the diamond for the **Pause** you want to delete and select **Delete Keyframe**.

Alternatively, you can use the **Pauses** tool and select the  **Delete** button.

The **Delete Keyframe** dialog appears.

2. Select **Delete**.

The **Pause** keyframe is deleted from the timeline.

To edit a Keyframe from the timeline:

1. In the **Pauses** track, right-click on the diamond for the **Pause** keyframe you want to edit and select **Edit Keyframe**.

The **Edit Keyframe** window appears.

2. Use the **Keyframe** field to adjust the timeline position of the keyframe.
3. When you have finished modifying the position of the keyframe, select **Edit**.

The **Edit Keyframe** window closes and the modifications are saved.

Map Controls

The **Map Controls** tool allows you to add pan and zoom transitions to a 3D World scene.

When working with the **Map Controls** tool, you select the positions you want on the globe and add keyframes to determine the order in which they are panned and zoomed in/out to.

To add Map Controls:

1. In the scene preview board, use the following controls to set the position of the globe to the location you want:
 - Hold the left mouse button down and drag to rotate the globe.
 - Use the **Tilt** slider to move the globe up and down.
 - Use the scroll wheel on your mouse to zoom in or out.

2. Select the  button.

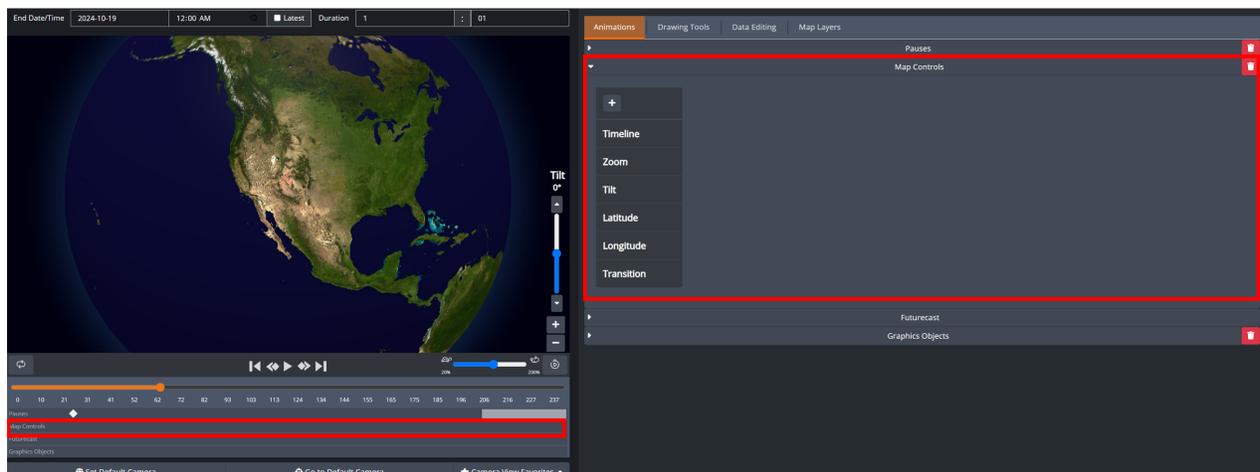
A keyframe appears in the **Map Controls** tool and a blue diamond appears in the **Map Controls** track on the timeline.

3. In the **Map Controls** track, slide the blue diamond to the position on the timeline you want.

The color of the diamond changes from blue to white, indicating the position has been saved.

4. In the **Map Controls** track, right-click and select **+ Add Keyframe**.

Alternatively, In the **Map Controls** tool, you can select the  **Add** button to add a keyframe to the timeline.



Animations - Map Controls

The keyframe controls appear in the **Map Controls** tool and a blue diamond appears in the **Map Control** track, indicating the position of the keyframe along the timeline.

Additionally, if you need to make adjustments to the position of the keyframe, you can use the keyframe controls to adjust the position.

The keyframe control options are:

- **Zoom**
- **Tilt**
- **Latitude**
- **Longitude**

5. In the keyframe controls, use the Transition drop-down to select the transition style between keyframes.

The options are:

- **Ease In/Out** — To transition slowly between keyframes.
- **Linear** — To transition with a constant speed between keyframes.

6. In the **Map Controls** track, click-and-drag the blue diamond to adjust its position along the timeline.

The color of the diamond changes to white, indicating the modifications have been saved to the keyframe.

7. Position the globe to the next position you want, and repeat **steps 3–5** to add and configure additional keyframes.

Additionally, you can re-arrange the position the diamonds on the track to change the order in which the keyframes are panned and zoomed in/out to on the globe.

8. When you have finished adding and configuring the keyframes, you can preview the scene using the timeline playback controls to run the animation. For information about previewing the keyframe animations, see [To preview keyframe animations](#)^[116].

The keyframes are automatically saved.

To delete a Map Control keyframe:

1. In the **Map Controls** track, right-click on the diamond for the keyframe you want to delete and select **Delete Keyframe**.

Alternatively, in the **Map Control** tool, select the  **Delete** button for the keyframe you want to delete.

The **Delete Keyframe** dialog appears.

2. Select **Delete**.

The keyframe is deleted from the timeline.

To edit a Keyframe from the timeline:

1. Right-click on the diamond for the keyframe you want to edit and select **Edit Keyframe**.

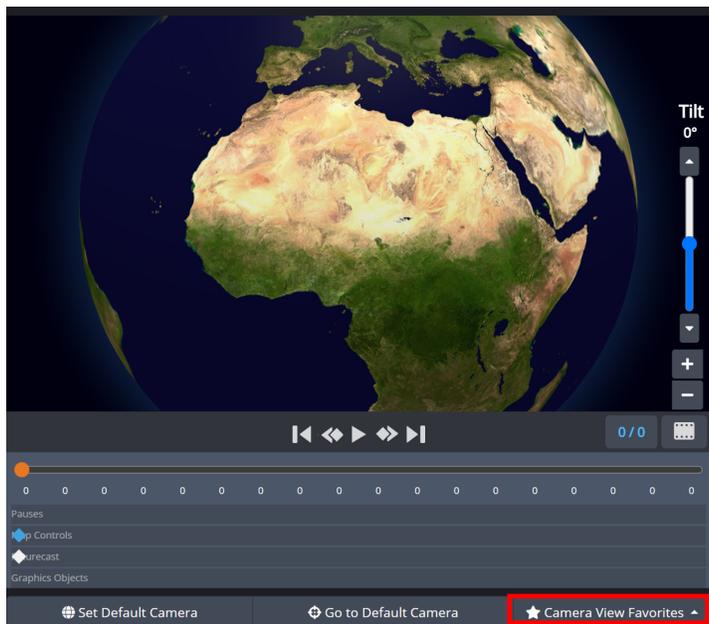
The **Edit Keyframe** window appears.

2. Use the **Keyframe** fields to adjust the timeline position of the keyframe.
3. When you have finished modifying the position of the keyframe, select **Edit**.

The **Edit Keyframe** window closes and the modifications are saved.

Camera View Favorites

The **Camera View Favorites** feature allows users to save and reuse predefined camera views for animations. By saving commonly used camera views, this feature enhances the efficiency of working with animations, particularly when setting up keyframe positions for dynamic map transitions. Administrators can create station-wide favorites to ensure consistency across teams, while individual users can create personal favorites for their own use.



Camera View Favorites

To add a new camera view to your favorites:

1. Position, tilt, and zoom the map to set the desired view, then select the **Camera View Favorites** button located at the bottom of the timeline.
2. In the menu, select the **+ Add New** button.

The **Add New** window opens.

3. In the **Name** field, enter a name for the camera view.
4. Select the **Available to Everyone** checkbox if you want to make the camera view available to all users (Administrative users only).

When this option is enabled, a people icon appears next to the camera view in the list, indicating that it is station-wide.

5. Select **Save & Apply** to save the camera view and apply it to the current keyframe position.

The **Add New** window closes and the new camera view is saved.

Alternatively, you can select **Save** to save the camera view without applying it to the current keyframe position and return to the list of **Camera View Favorites**.

To modify an existing Camera View Favorite:

1. Select the **Camera View Favorites** button to open the menu.
2. Locate the camera view you want to modify and select the  **Modify** button next to it.

The **Modify Favorite** window opens.

3. Edit the following settings as needed:

- **Name:** Update the name of the camera view.
- **Available to Everyone:** Enable or disable this setting to control whether the camera view is station-wide or personal (Administrative users only).

4. Select **Save** to apply the changes and return to the list of favorites.

To delete a Camera View Favorite:

1. Select the **Camera View Favorites** button to open the menu.

2. Find the camera view you want to delete and select the  **Delete** button next to it.

The **Delete Favorite** dialog opens.

3. Select **Delete** to confirm the action.

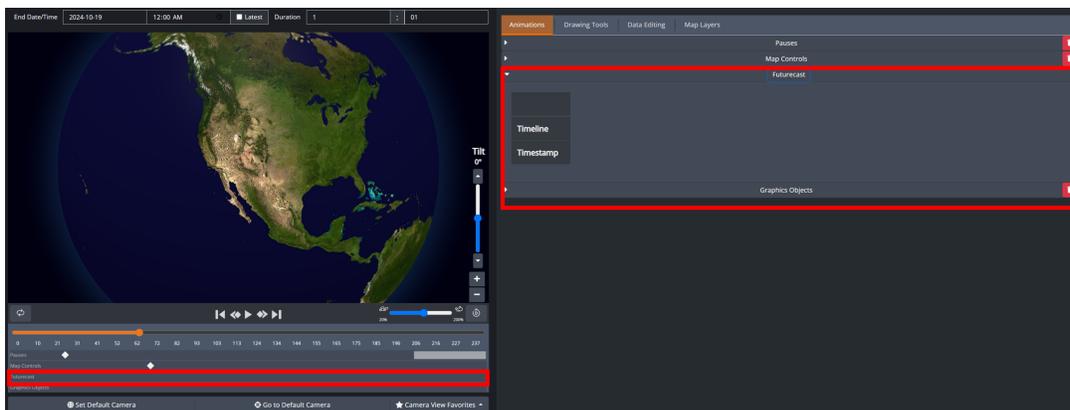
The **Camera View Favorite** is removed from the list.

Futurecast

The **Futurecast** tool allows you to position **Futurecast** keyframes to show a specific weather variable transitioning over different points in time.

To position a Futurecast keyframe:

1. In the **Animations** tool, select **Futurecast**.



Animations Tab - Futurecast

2. Select the  **Search** button for the **Futurecast** keyframe you want to position along the timeline.

The color of the diamond changes from white to blue, indicating it can be repositioned along the timeline.

3. In the **Futurecast** track on the timeline, slide the blue diamond along the track to the position you want.

The color of the diamond changes to white, indicating the modifications have been saved to the project.

4. Repeat **steps 2-3** to position any additional **Futurecast** keyframes along the timeline.

The keyframes are automatically saved.

To edit a Futurecast Keyframe from the timeline:

1. Right-click on the diamond for the keyframe you want to edit and select **Edit Keyframe**.
The **Edit Keyframe** window appears.
2. Use the **Keyframe** field to adjust the timeline position of the keyframe.
3. When you have finished modifying the position of the keyframe, select **Edit**.
The **Edit Keyframe** window closes and the modifications are saved.

Graphics Objects

The **Graphics Objects** tool allows you to set the position, scale, and opacity of **Graphics Objects** in a scene.

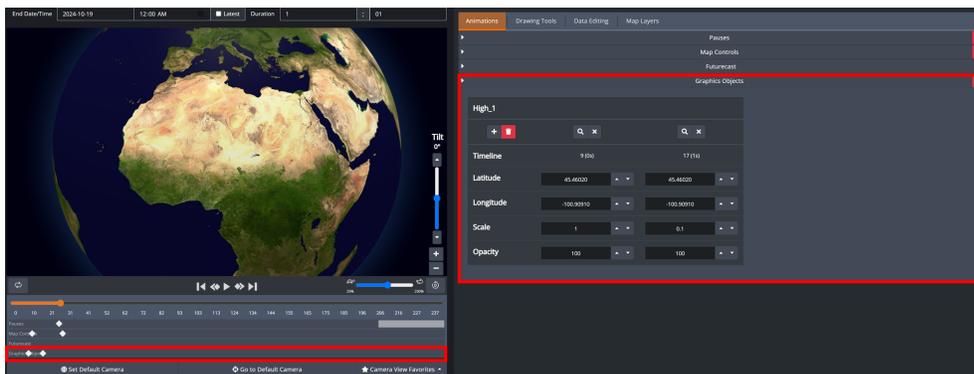
To set the position, scale, and opacity of a Graphics Object:

On the map, you will create a keyframe path that the **Graphics Objects** will move along when the scene is played out.

Each new keyframe you add corresponds to a different position on the map.

1. In the **Graphics Objects** tool, select the  **Search** button for the **Graphics Object** you want to configure.

The keyframe appears as a blue diamond in the **Graphics Objects** track.



Animations - Graphics Objects

If you haven't already added **Graphics Objects** to your scene, you can do so in the **Drawing Tools** tab. For more information on how to add **Graphics Objects** to a scene, see [Drawing Tools](#).

2. On the map, drag the animated object to the position you want.
Additionally, you can use the **Latitude** and **Longitude** fields to adjust the position on the globe.
3. In the **Scale** field enter or select the scale you want for the animated object.
4. In the **Opacity** field enter or select the opacity you want for the animated object.
5. In the **Graphics Objects** track, select the blue diamond and drag it to the position on the timeline you want.

The color of the diamond changes from blue to white, indicating the modifications have been saved to the animated object keyframe.

6. In the **Graphics Object** track, right-click and select **+Add Keyframe** to add an additional keyframe.
Alternatively, you can select the **+ Add** button in the **Graphics Object** tool to add an additional keyframe.

A new blue diamond appears on the **Graphics Objects** track and a second keyframe appears in the **Graphics Object** tool.

If you need to delete the keyframe, right-click on the diamond in the track and select **Delete Keyframe**.

Alternatively, in the **Graphics Objects** tool, you can select the  **Delete** button for the keyframe you want to delete.

7. Repeat **Steps 2-5** to configure the position of the animated object to the next location you want on the map.

Additionally, you can re-arrange the position of the diamonds on the track to change the order of the **Graphics Object's** movements on the map.

★ If you want to set a **Graphics Objects** to a fixed position, do not configure any additional keyframes for that **Graphics Object**.

8. When you have finished adding and configuring the **Graphics Objects**, you can use the timeline controls to preview the animations. For information about previewing the animations, see [To preview animations](#)¹¹⁶.

The modifications are automatically saved to the scene.

To delete a Graphics Object from a scene:

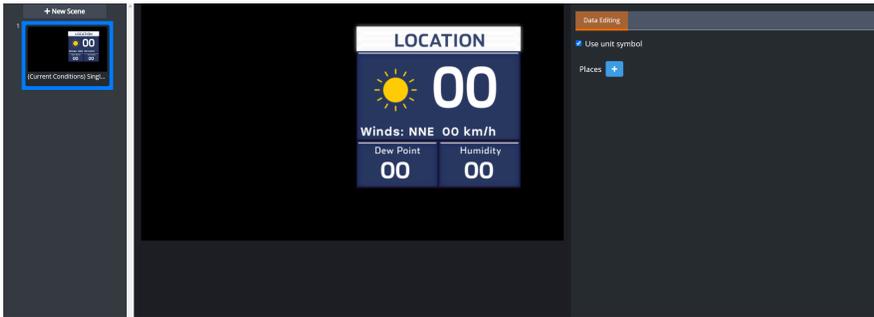
1. In the **Graphics Objects** tool, select the  **Delete** button for the graphics object you want to delete.
The **Delete Track Element** dialog opens.
2. Select **Delete**.
The **Graphics Object** is deleted from the scene.

To preview Animations:

- Use the timeline playback controls to run the animation as follows:
 - Use the  **Play** button to play the animation.
 - Use the  **Pause** button to pause the animation.
 - Use the  **Back** button to return to the start of the timeline.
 - Use the  **Forward** button to skip forward to the end of the timeline.
 - Use the  **Previous Keyframe** button to skip to the previous keyframe.
 - Use the  **Next Keyframe** button to skip to the next keyframe.

Current Conditions Scene

The **Editor** contains one tab for customizing the **Current Conditions** scene as seen below:



Scene Configuration Panel - Current Conditions Scene

In the **Data Editing** tab, you can add places of interests and edit the scene's data.

To configure a Current Conditions Scene:

1. Select the **Use unit symbol** check-box if you want to enable the unit symbol in the scene.
2. Select the **+ Places** button.
The **Add Place** window opens.
3. In the **Place** field, enter the name of the place you want to add.
A list of places containing that name will appear.
If the place of interest you entered is not appearing in the results, ensure that it has been configured in the Local Server.
4. From the results, select the place you want.
5. Select **Add and Close** to return to the **Editor**.
The place and its configuration options are displayed in the **Data Editing** tab.
6. Configure the **Places** settings as follows:
 - a. In the first field, confirm the place of interest is correct.
 - b. In the second field, use the drop-down to select the data source you want to retrieve data from.
7. Below the first row are the weather variables and their default values.
You can override the default value as follows:
 - Select the field next to the weather variable you want to change and enter a new value.
8. When you have finished configuring the settings, select the **Send Scene to Engine** button.
The **Data Editing** configurations are saved to your project.

To change the Place of Interest:

1. In the **Data Editing** tab, select the **+ Places** button.
The **Add Place** window opens.
2. In the **Place** field, enter the name of the place you want to add.

A list of places containing that name will appear.

If the place of interest you entered is not appearing in the results, ensure that it has been configured in the Local Server.

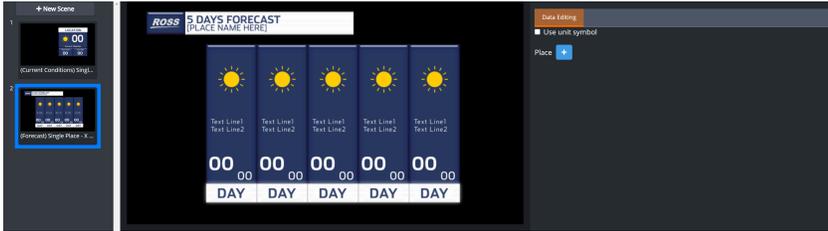
3. From the results, select the place you want.

4. Select **Add and Close** to return to the **Editor**.

The place and its configuration options are displayed in the **Data Editing** tab.

Daily Forecast Scene

The **Editor** contains one tab for customizing a **Daily Forecast** scene as seen below:



Scene Configuration Panel - Daily Forecast Scene

In the **Data Editing** tab, you can add places of interests and edit the scene's data.

To configure a Daily Forecast scene:

1. In the **Data Editing** tab, use the **Use unit symbol** check-box if you want to enable the unit symbol in the scene.
2. Select the **+ Places** button.
The **Add Place** window opens.
3. In the **Place** field, enter the name of the place you want to add.
A list of places containing that name will appear.
If the place of interest you entered is not appearing in the results, ensure that it has been configured in the Local Server.
4. From the results, select the place you want.
5. Select **Add and Close** to return to the **Editor**.

The place and its configuration options are displayed in the **Data Editing** tab.

6. Configure the **Places** settings as follows:
 - a. In the first field, confirm the place of interest is correct.
 - b. In the second field, use the drop-down to select the data source you want to retrieve data from.
 - c. In the third field, use the drop-down to select the the data cycle you want.
7. Below the first row are the weather variables and their default values, grouped by day.

You can override the default value as follows:

- Select the field next to the weather variable you want to change and enter a new value.

Additionally, if want to recover the default value, double-click the column to the right of the value you want to recover. The default value will appear in the value field.

1 Amsterdam		Global Forecast System			
Temperature	288	288 (1)	289	289 (1)	290 (1)
Weather Code	Windy	Windy	Windy	Windy	Windy

Default Value Recovery

8. When you have finished configuring the settings, select the **Send Scene to Engine** button.

The **Data Editing** configurations are saved to your project.

To change the Place of Interest:

1. In the **Data Editing** tab, select the  **Places** button.

The **Add Place** window opens.

2. In the **Place** field, enter the name of the place you want to add.

A list of places containing that name will appear.

If the place of interest you entered is not appearing in the results, ensure that it has been configured in the Local Server.

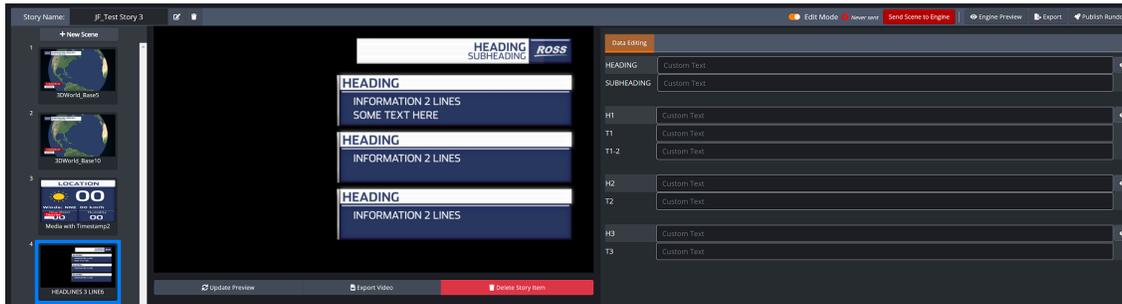
3. From the results, select the place you want.

4. Select **Add and Close** to return to the **Editor**.

The place and its configuration options are displayed in the **Data Editing** tab.

Headlines Scene

The **Editor** contains one tab for customizing the **Headlines** scene as seen below:



Headlines Scene

The **Headlines** scene is designed to convey key concepts quickly and clearly during story presentations using simple text headlines, allowing users to emphasize important information in an easily digestible format.

Users can choose between two **Headlines** scene layout options: **Headlines 3 Line** or **Headlines 4 Line**, depending on the amount of content needed to present. Each headline box consists of two components:

Heading (Heading, Subheading, H1, H2, etc.) – typically used to display a date, time, or contextual reference.

Body Text (T1, T2, etc.) – where the main headline statement is entered.

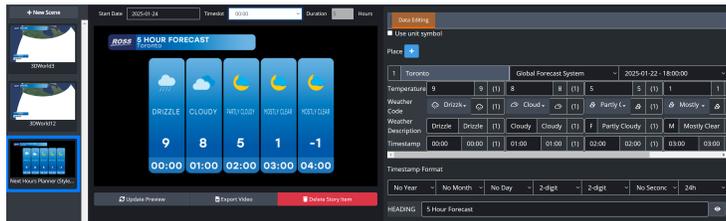
To configure a Headlines Scene:

1. In the **HEADING** and **SUBHEADING** fields, enter the text you want.
2. In the **H1** field, enter the text you want for the Heading 1.
3. In the **T1** field, enter the text you want for the body text.
4. Repeat steps 2 and 3 if you want additional **Heading/Body** text boxes.
5. Use the  **Show/Hide** button to toggle the visibility of the header and body text boxes in the scene.
6. Select the  button.

The Headings and Body text will be assigned to the weather project running in your graphics engine and shown in the preview panel.

Next Hours Scene

The **Editor** contains one tab for customizing the **Next Hours** scene as seen below:



Next Hours Scene

Use the **Next Hours** scene to display an hourly forecast, which can be designed into various formats and layouts including hourly and multi-hourly (e.g. 3-hour steps) graphic presentations. Each valid forecast hour is displayed, and allows users to edit all parameters of interest and timestamps. Users can also customize the heading and toggle its visibility on or off within the scene.

To configure the Next Hours scene:

1. Configure the parameters for when you want to start receiving data as follows:
 - a. From the **Start Date** calendar, select the date you want to start retrieving data.
 - b. From the **Timeslot** drop-down, select the time you want to start retrieving data.



Start Date and Timeslot

★ **Note:** The default duration is fixed to five hours in this example based on its XPression scene design and cannot be modified in Story Creator. Alternate hourly durations are possible by creating additional base scene designs in XPression.

2. In the **Data Editing** tab, select the **Use unit symbol** checkbox if you want the unit symbol to be displayed in the scene.
3. Select the **+** **Place** button.

The **Add Place** window opens.

4. In the **Place** field, enter the place name, and select it from the results.

If the place you entered does not appear in the results, ensure that it has been configured in the Local Server.

★ **Note:** **Points** are user-defined locations extracting data from models. **Stations** are official datasets associated with a physical observation station from a local meteorological agency.

5. Select **Add and Close** to return to the **Editor**.

The place and its configuration options are displayed in the **Data Editing** tab.

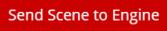
6. Configure the **Place** settings as follows:

- a. Confirm the place of interest is correct and select the data source you want to retrieve data from.
 - b. From the second drop-down, select the data cycle you want.
7. Below the place of interest are the weather variables and their default values, grouped by timeslot.
- Select the field next to the weather variable you want to change and enter a new value.

Additionally, you can recover the default value by double-clicking the column to the right of the value and the default value will reappear.

Temperature	10	10	(1)
-------------	----	----	-----

Default Value

8. Configure the **Timestamp Format** settings for the year, month, day, hour, minute, second, and 24-hour or 12-hour format for the time.
9. In the **HEADING** field, enter a heading and use the  **Show/Hide** button to show/hide the heading in the scene.
10. Select the  button.

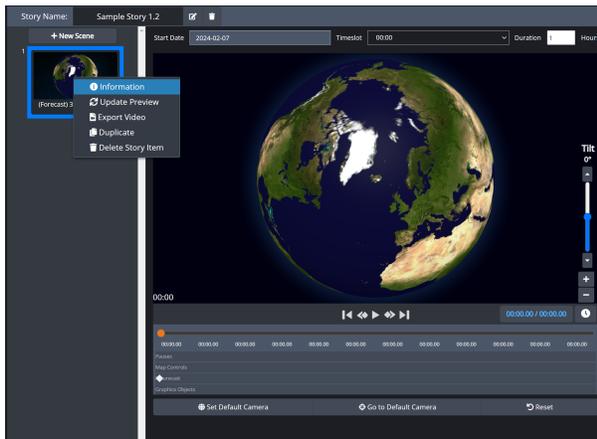
The settings are saved to your project and shown in the preview panel.

View Scene Information

When you select a scene, Story Creator interacts with your graphics engine to retrieve the scene's information and makes it available for you to view.

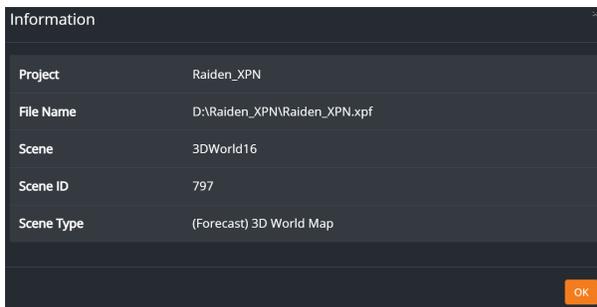
To view scene information:

1. In the **Stories** panel, select a story.
The story opens in the **Editor**.
2. In the left panel, right-click a scene.
The options menu appears.



Options Menu - Scene Information

3. From the options menu, select **Information**.
The **Information** window appears.



Scene Information Window

4. Select **OK** to close the window.

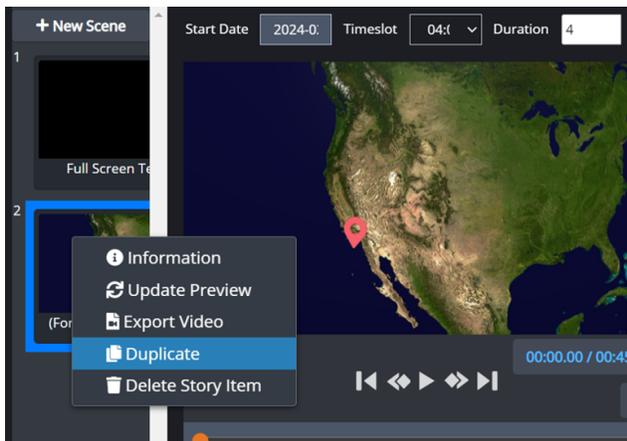
Duplicating Scenes

If you want to create an exact copy of an existing scene, you can duplicate the scene. You do not have to recreate the modifications from the original scene as the duplicate will contain the exact modifications you made to the original scene.

To duplicate a scene:

1. In the **Editor**, right-click on the scene you want to copy.
2. From the options menu, select **Duplicate**.

The scene is duplicated and is added to the left panel.



Duplicate Scene

3. Make any alterations to the scene such as date and timeslot, map layers, animations, etc.
4. Select the **Send Scene to Engine** button.

The duplicated scene is saved to the project.

Sharing Scenes

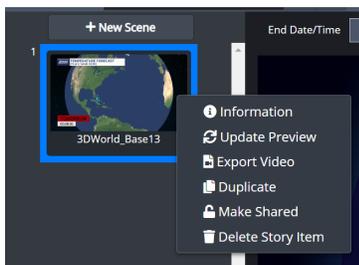
A **Shared Scene** is a common scene that can be added to multiple stories, allowing users to configure or edit it once, with updates automatically reflected in all other stories where the scene is used. This eliminates the need to manually update the same scene across different stories. When a shared scene is edited in one user's editor, the changes are instantly applied to every other story that includes that scene.

Additionally, a shared scene only needs to be sent to the engine once, covering all the stories that utilize it. Even if a story's rundown has already been published, the shared scene will seamlessly update across all relevant stories.

To share a scene:

1. In the **Editor**, right-click on the scene you want to share.

An options menu appears.



Make Shared Option

2. From the options menu, select **Make Shared**.

The scene is now shareable, and a **Link** icon appears on the scene thumbnail to indicate its shareable status.



Shared Scene

To remove the shared option on a scene:

1. In the **Editor**, right-click on the scene you want to remove the shared option from.

An options menu appears.

2. From the options menu, select **Make Unshared**.

The shared option is removed, and the shared icon no longer appears on the scene thumbnail.

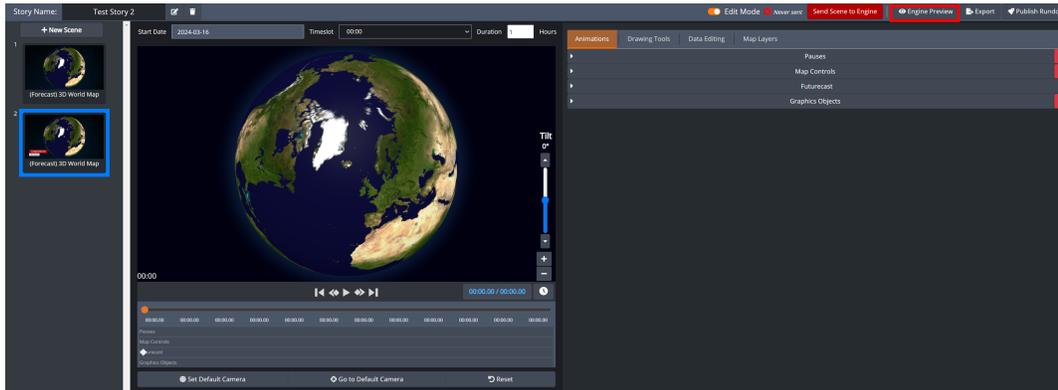
Any Stories that previously included this now unshared scene will still retain it, and any changes made to the scene will continue to apply across those stories. However, the scene will no longer appear in the **+ New Scene > Shared Scenes Only** category, meaning you can no longer add it as a shared scene to any new stories.

To view/add shared scenes:

1. In the left panel, select the  button to view or add a shared scene to your story.
The scene menu opens.
2. Select the **Shared scenes only** tab.
The available shared scenes are displayed in the scene menu.
3. Select a scene to add it to your story.
The scene has been added to your story and now appears in the left panel.

Previewing Scenes

Use the **Engine Preview** button to preview scenes in your story.



Editor - Engine Preview

To preview a scene:

1. In the **Editor**, select the **Engine Preview** button.

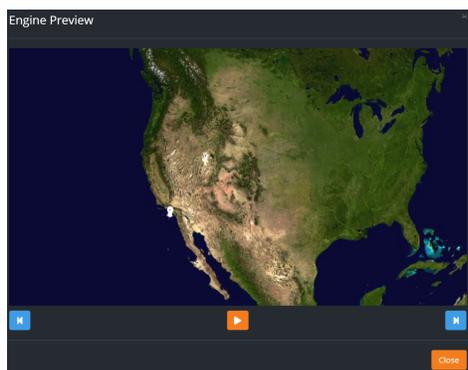
The **NDI Source** dialog appears.



NDI Source Dialog

2. From the **NDI Source** drop-down, select the output source you are using.
3. Select **Connect**.

The **Engine Preview** window opens.



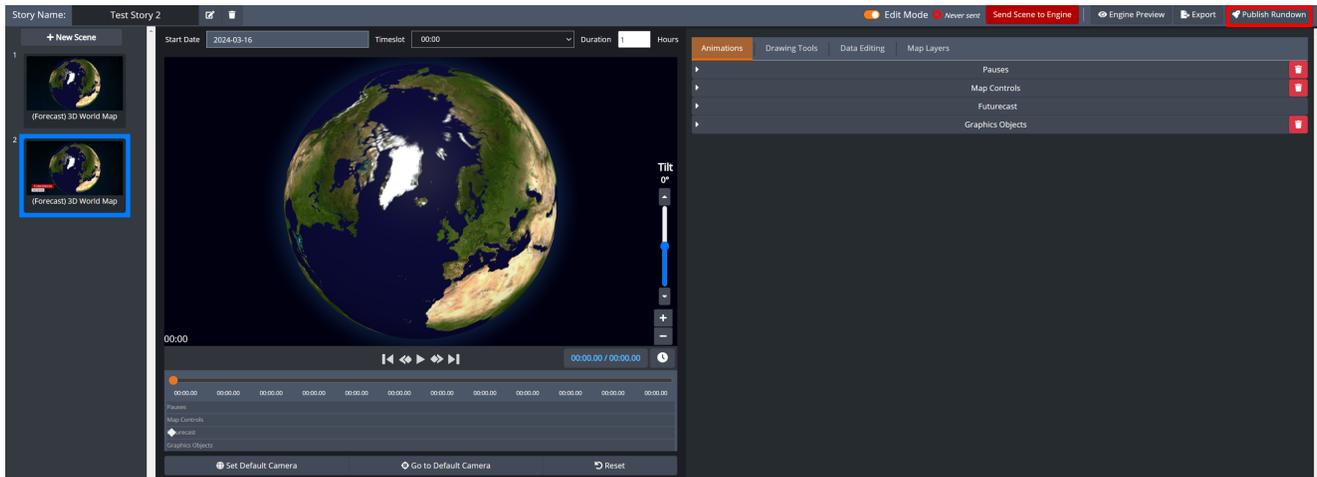
Engine Preview Window

4. Select the **Play** button to play the preview.
5. Use the **Forward** and **Backward** buttons to move through the scenes in your story.
6. Select **Close** to close the **Engine Preview** window.

Publish Rundown

When you have finished creating your story in the Story Creator, the final step is to **Publish Rundown**. **Publish Rundown** creates the entire sequence of your story in your graphics engine and makes it ready for playout.

★ For Observation 3D World scenes, when the rundown is published, all observational scenes in the story with the **Latest** checkbox selected are automatically re-processed. The system retrieves the newest available data at the time the **Publish Rundown** button is pressed, updates those scenes in both the story and XPression, and completes the publishing process.



Editor - Publish Rundown

To Publish Rundown:

- In the **Editor**, Select the **Publish Rundown** button.
The story will be published in your graphics engine.

Exporting Videos

Once you have customized the scenes in your story, you have the option of exporting the scenes as a video file for future use (such as posting a video to a social media platform).

★ **Important:** Scenes must be sent to the engine before they are exported as videos.

To export a single scene in a story:

1. In the **Editor**, right-click on the scene you want to export and select **Export Video** from the options menu.

The **Export Video** window opens.



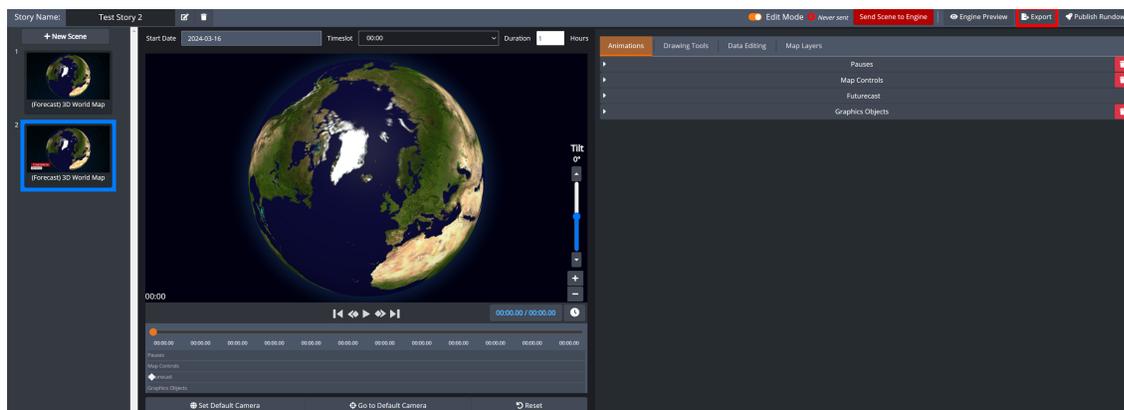
Story Creator - Export Video Window

2. In the field next to the thumbnail, enter a title for the video.
3. Select **Export**.

The video is saved to the **XPression Encoder** file on your XPression machine.

To export all scenes in a story:

1. In the **Editor**, select **Export**.



Editor - Export

The **Export Videos** window opens.

2. In the fields next to each thumbnail, enter a title for each scene.
3. Select **Export**.
4. The video has been saved to the **XPression Encoder** file on your Xpression machine.

Graphics Objects

In the **Graphics Objects** section, you can upload, modify, or delete graphic objects (such as icons and videos) that can be displayed on top of scenes within a story.

A few **Graphics Objects** have been provided to help make creating stories easier. If you have your own graphics objects and videos that you want to use, you can upload those to the **Graphics Objects** section.

The following topics are discussed in this section:

[Icons](#)  132

[Videos](#)  134

Icons

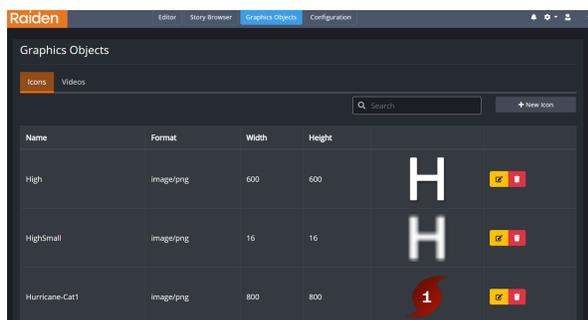
This section provides the instructions for adding, modifying, and deleting an **Icon**.

★ The following image file formats are supported:

- PNG
- JPG
- PSD
- TIFF

To add a new Icon:

1. In the **Graphics Objects** section, select the **Icons** tab.



Graphics Objects Section - Icon Tab

2. Select the **+ New Icon** button.

The **New Icon** dialog will appear.



New Icon Dialog

3. In the **Name** field, enter the name for the icon.

4. Select **Browse**.

The **File Explorer** opens.

5. Navigate to the image you want to upload and select **Open**.

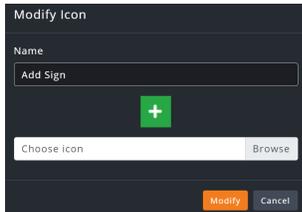
6. Select **Create**.

The image is added to the **Icons** list.

To modify an Icon:

1. In the **Graphics Objects** section, select the **Icons** tab.
2. Select the  **Modify** button next to the icon you want to modify.

The **Modify Icon** window appears.



Modify Icon Window

The following modifications can be made:

- Enter a new name
 - Upload a new icon
3. When you have modified the **Icon**, select the **Modify** button.

The modifications are saved.

To delete an Icon:

1. In the **Icons** tab, select the  **Delete** button next to the icon you want to delete.

The **Confirmation** dialog will appear.

2. Select the **Delete** button.

The icon will be deleted from the **Icons** list.

To search for an Icon:

- In the **Search** field, enter the name of the **Icon** and press **Enter**.

The **Icon** will be displayed in the **Icons** list.

Videos

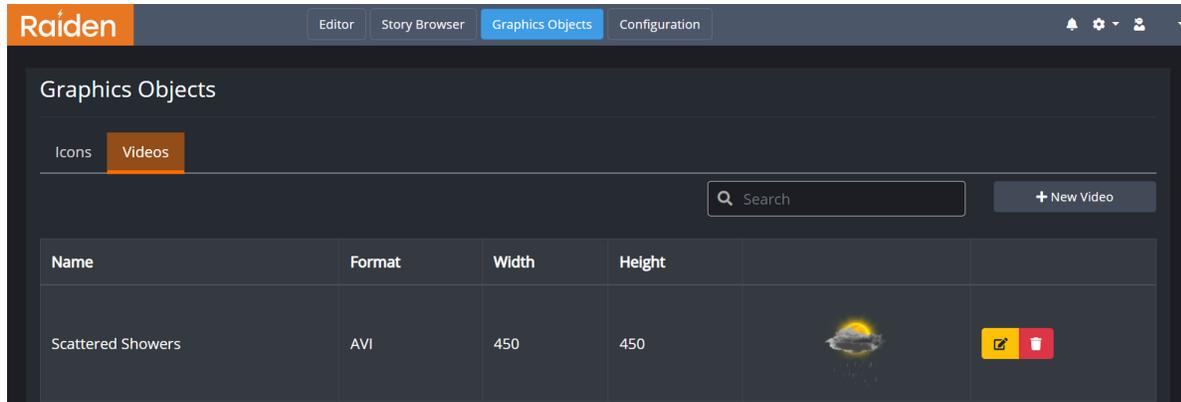
This section provides the instructions for adding, modifying, and deleting a **Video**.

★ The following video file formats are supported:

- AVI files (XPVC codec for XPression)

To add a video:

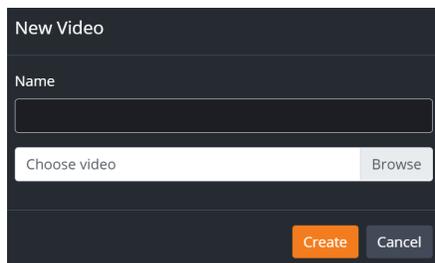
1. In the **Graphics Objects** section, select the **Videos** tab.



Graphics Objects Section - Videos Tab

2. Select the **+ New Video** button

The **New Video** window will appear.



New Video Window

3. In the **Name** field, enter the name for the video.

4. Select **Browse**.

The **File Explorer** opens.

5. Navigate to the video you want to upload and select **Open**.

6. Select **Create**.

The video is added to the **Videos** list.

To modify a video:

1. In the **Graphics Objects** section, select the **Videos** tab.

2. Select the **Modify** button next to the video you want to modify.

The following modifications can be made:

- Enter a new name
 - Upload a new video
3. When you have modified the video, select the **Modify** button.
- The modifications are saved.

To delete a video:

1. In the **Videos** tab, select the  **Delete** button next to the video you want to delete.
The **Confirmation** window will appear.
2. Select the **Delete** button.
The video will be deleted from the **Icons** tab.

To search for a video:

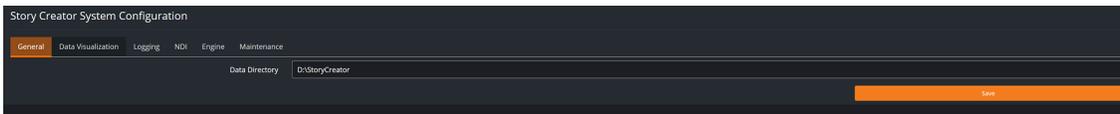
- In the **Search** field, enter the name of the video and press **Enter**.
The video will be displayed in the **Icon** list.

Configuration

In the **Configuration** section, you can view and set the properties related to the **Story Creator** configuration.

- The directory locations and server location details are stored in the **config.sc** JSON file, which is located in `D:\StoryCreator`.
- Saving the properties in each tab will override the **config.sc** JSON file and reload the information in the system.
- Administrative privileges are required to make changes to the **Configuration** section.

Use this panel to access the **Configuration** tabs.



Story Creator - Configuration

The **Configuration** panel contains the following tabs:

[General](#) ¹³⁷

[Data Visualization](#) ¹³⁸

[Logging](#) ¹³⁹

[NDI](#) ¹⁴⁰

[Engine](#) ¹⁴¹

[Maintenance](#) ¹⁴³

General

Use the **General** tab to access and configure the **Data Directory** settings, which is where graphics objects and thumbnails are stored.



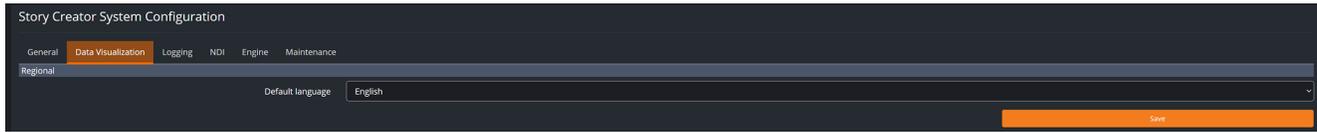
General Configuration - Directories

To configure the Data Directory:

1. In the **Data Directory** field, enter the path to the location where you want to store **Graphics Objects**.
The default directory is D:\StoryCreator
2. Select the **Save** button.

Data Visualization

In the **Data Visualization** section, you can configure the **Default Language** preference for your region.



Configuration - Data Visualization

To configure the Default Language preference:

1. From the **Default language** drop-down, select the language you want to use.

The options are:

- **English** — Default
- **Español**
- **Français**

2. From the **Time zone** drop-down, select the time zone that you want to use.
3. If you want to enable the **Time zone** preference, select the **Show time zone** checkbox.
4. When you have finished configuring the settings, select **Save**.

Logging

In the **Logging** section, you can access and configure the settings to track error reporting and related data.

Setting	Value
Log Level	INFO
Log File	D:\StoryCreator\logs\sc.log
File name pattern	.\yyyy-MM-dd-HH
Log pattern	%d{yyyy-MM-dd HH:mm:ss} [%p] - %c{2}: %m%n
Maximum number of days to keep files	5

Configuration - Logging

To configure the logging settings:

1. From the **Log Level** dropdown, select the log level you want to use.

Your options are:

- **INFO**
- **ERROR**
- **DEBUG**
- **WARNING**
- **TRACE**

2. In the **Log File** field, enter the path for the **Log File**.

The default location is D:\StoryCreator\logs\sc.log

3. In the **File Name Pattern** field, enter the pattern you want to define the format of file name extensions.

For example: `.\yyyy-MM-dd-HH'.log'` results in a file name extension `._2024-02-15-13.log`

4. In the **Log pattern** field, enter the log pattern you want to format your logging information.

For example: `%d{yyyy-MM-ddHH:mm:ss} [%p] - %c{2} : %m%n`

5. In the **Maximum Number of Days to Keep Files** field, enter or select the number of days you want to keep files.
6. When you have configured the settings, select **Save**.

NDI

Use the **Network Device Interface (NDI)** tab to configure the **NDI Source** settings. The **NDI** enables the Story Creator to preview video rendered in your graphics engine (such as XPression or Voyager).

Story Creator System Configuration

General Data Visualization Logging **NDI** Engine

+ Add NDI Source

NDI Source [x]

Enable Disable

Engine XPression

Name Output

Frame Rate 29.97

Search Timeout (milliseconds) 5000

Retry

Retry Timeout 10000

Save

Configuration - NDI

To add an NDI Source:

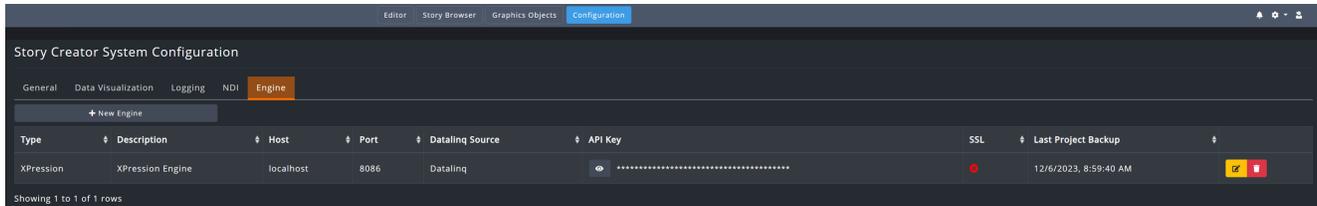
1. In the **NDI** tab, select the **+Add NDI Source** button to add a new **NDI Source**.
A new **NDI Source** section will appear.
2. Select **Enable** to enable **NDI Source**.
3. From the **Engine** drop-down, select the engine you are using (Voyager or XPression).
4. In the **Name** field, enter the name of the output engine.
5. In the **Frame Rate** field, enter or select the frame rate you want displayed.
The default frame rate of 29.97 is recommended.
6. In the **Search Timeout (milliseconds)** field, enter or select the amount of time (in milliseconds) the **NDI** waits for a response from the selected engine to create a network connection.
7. Select the **Retry** box to automatically retry creating a network connection to the selected engine after an initial timeout.
8. In the **Retry Timeout** field, enter or select the time interval (in milliseconds) between attempts to connect to the selected engine.
9. Select **Save**.

To delete an NDI Source:

- In the **NDI** tab, select the **Delete** button, next to the **NDI Source** you want to delete.
The **NDI Source** will be deleted from the **NDI Tab**.

Engine

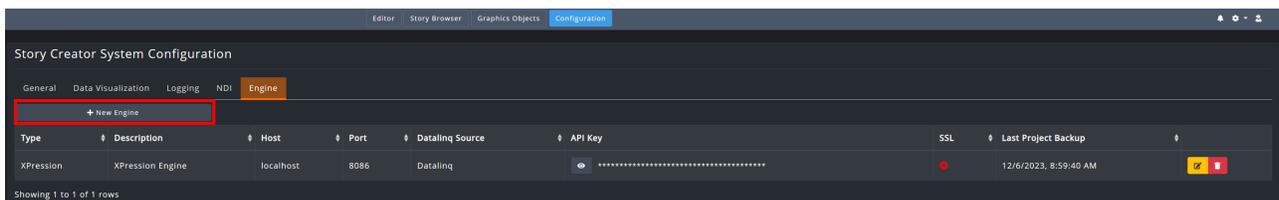
Use the **Engines** tab to configure the **Engine** settings. In the **Engines** tab, you can add multiple engines for Story Creator to interact with (such as XPression and Voyager). Once Story Creator has been configured to communicate with a graphics engine, it can then retrieve a list of scenes, data, and thumbnails from the weather project running in the graphics engine.



Configuration - Engine

To add a new story engine:

1. In the **Story Engines** section, select **+New Engine**.



Engine Tab- Add New Engine

The **New Engine** dialog appears.

A screenshot of the 'New Engine' dialog box. It has a dark theme and contains the following fields: 'Type' (a dropdown menu with 'XPression' selected), 'Description' (a text input field), 'Host' (a text input field), 'Port' (a text input field), 'Datalinq Source' (a text input field), 'API Key' (a text input field with a toggle icon), and an 'SSL' checkbox. At the bottom right, there are 'Create' and 'Cancel' buttons.

Engines Section - New Engine Dialog

2. From the **Type** drop-down, select the graphics engine you would like to connect to.

Your options are:

- **XPression** (default)
- **Voyager** (this will be supported with future versions)

3. In the **Description** field, enter the name of your graphics engine.

4. In the **Host** field, enter the name of the endpoint for the plugins.
 - For an XPression engine, enter the URL address of the XPression plugin.
 - For a Voyager engine, enter the location of the Voyager machine.
5. In the **Port** field, enter the port number of your engine, which can be extracted from the plugin.
6. In the **DataLinq Source** field, enter the name of your Raiden DataLinq server source.
7. In the **API Key** field, enter the API key from your Raiden DataLinq server source.
8. Use the **SSL checkbox** to configure the SSL setting.
 - Select the checkbox to enable the SSL protocol.
 - Clear the checkbox to disable SSL protocol.

★ SSL is not supported with the current release.
9. Select the **Create** button and the settings will be saved.

To modify a story engine:

1. Select the  **Edit** button to the right of the engine you want to modify.
2. The **Modify Engine** dialog appears, showing the settings that can be modified.
3. The following settings can be modified:
 - **Type**
 - **Description**
 - **Host**
 - **Port**
 - **DataLinq Source**
 - **API Key**
 - **SSL Check box**
4. Select **Modify** to save the modifications.

To delete a story engine:

1. Select the  **Delete** button to the right of the engine you want to delete.

The **Confirmation** dialog will appear.
2. Select the  **Delete** button to delete the engine.

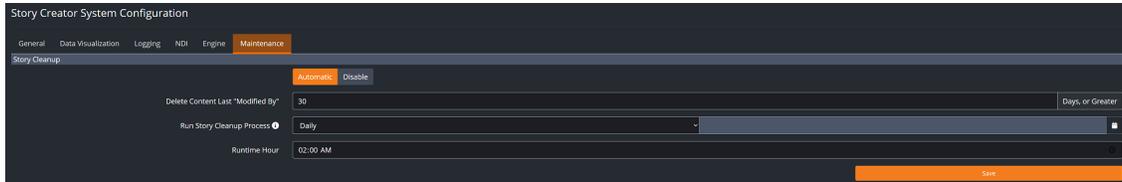
The engine is deleted.

★ Warning: Once the story engine is deleted, all stories and templates associated with the engine will become inaccessible via the Story Editor.

Maintenance

The **Maintenance tab** allows you to configure the Story Creator cleanup process, which is set to run automatically by default. This process is designed to keep your graphics project and Story Creator efficient by removing content that hasn't been used or modified in a long time. You can specify the number of days in the **Maintenance tab** to define how long content must remain unused before it is deleted. Stories, scenes, and their corresponding materials will be deleted, with the exception of **Story Templates** and **Shared Scenes** in use by active stories. Even with the **Automatic** option enabled, stories can still be deleted manually at any time.

If you prefer to manage and delete stories manually in the Story Creator browser, you can disable the automatic cleanup process.



Maintenance Tab

To configure the Story Creator cleanup process:

1. In the **Delete Content Last "Modified By"** field, enter or select the number of days that content must remain unused before it is deleted.
2. From the **Run Story Cleanup Process** drop-down, select whether you want the cleanup process to occur **Monthly** or **Daily** as follows:
 - a. To schedule the cleanup process to run monthly, select **Monthly** from the drop-down menu, then select the **Calendar** icon to choose the specific day(s) of the month for the cleanup to occur.
 - b. To schedule the cleanup process for specific days, select **Daily** from the drop-down menu, then select the **Calendar** icon to select the specific day(s) of the week for the cleanup process to run.
3. Select the **Runtime Hour** field.
The field turns white and a **Clock** icon appears.
4. Select the **Clock** icon to expand the time settings and set the Runtime hour.
5. Select **Save**.

The cleanup settings are saved and set to run automatically by default.

To disable the cleanup process:

- In the **Maintenance** tab, select the **Disable** button.
The cleanup process is disabled.

Raiden and XPression – Setup

When creating a Raiden project in XPression, you will need to consider whether you will create a project using Story Creator or DataLinq to apply XPression metadata. XPression metadata allows Raiden generated data and graphics to be applied to scenes and objects within your XPression project.

With Story Creator, several base scenes have been provided to make setting up your weather project in XPression easier. The base scenes have XPression metadata applied and are ready to use in Story Creator. You can also copy the provided base scenes, modify them, and save them for future use in XPression.

With DataLinq, you can apply Raiden data and graphics directly to your custom XPression project without using Story Creator.

Raiden supports the following workflows:

- [Raiden for XPression using Story Creator](#) ¹⁶⁵
- [Raiden for XPression using DataLinq](#) ¹⁷⁰

The following topics are covered in this section:

[Requirements](#) ¹⁴⁵

[XPression Setup](#) ¹⁴⁶

[Preparing an XPression project for <%PRODUCT_NAME%>](#) ¹⁵¹

Requirements

Ensure that your system meets the following requirements:

XPression software requirements:

- XPression Studio (or BlueBox) 11.5 build 5823 64bit
- XPression DataLinq 11.5 build 5823 or higher

XPression hardware requirements:

- Minimum 32GB RAM

XPression Setup

Before you begin building your weather project in XPression, you will need to configure certain XPression preferences and hardware settings.

Once you have configured the following settings, you will then need to [prepare your XPression project for use with Raiden](#) ¹⁵¹.

- [Configuring XPression Preferences](#) ¹⁴⁶
- [Configuring Hardware Settings](#) ¹⁴⁸

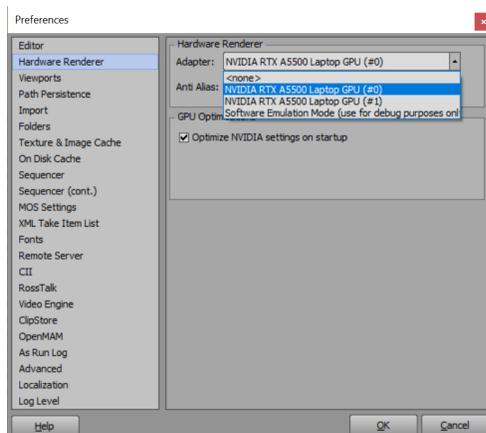
Configuring XPression Preferences

Configure the **Hardware Renderer**, **Texture & Image Cache**, and **Video Engine** preferences.

To configure the Hardware Renderer preferences:

1. In XPression, go to **Edit**, and select **Preferences**.

The **Preferences** window opens.



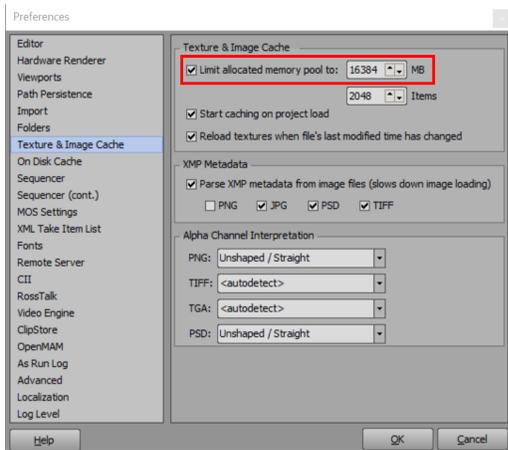
XPression Preferences - Hardware Renderer

2. From the list, select **Hardware Renderer**.
3. In the **Hardware Renderer** section, use the **Adapter** drop-down and select the NVIDIA adapter that corresponds to the adapter in your XPression machine.
4. Select **OK**.

The **Preferences** window closes and the **Hardware Renderer Adapter** is set to the selected NVIDIA adapter.

To configure the Texture and Image Cache preferences:

1. In XPression, go to **Edit**, and select **Preferences**.
The **Preferences** window opens.
2. From the list, select **Texture & Image Cache**.
3. In the **Texture & Image Cache** section, select the **Limit allocated memory pool to** checkbox, and adjust the amount to **16384 MB**.



XPression Preferences - Texture and Image Cache Setting

4. Select **OK**.

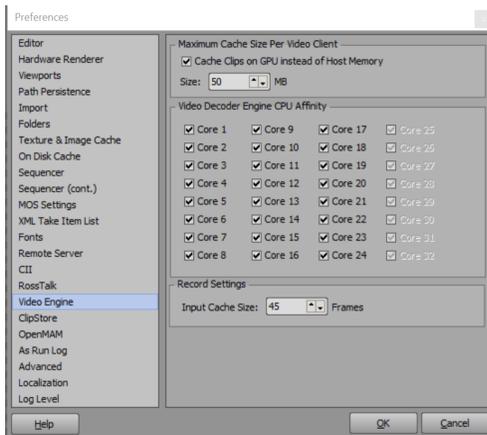
The **Preferences** window closes and the allocated memory pool is set to **16384 MB**.

To configure the Video Engine preferences:

1. In XPression, go to **Edit**, and select **Preferences**.

The **Preferences** window opens.

2. From the list, select **Video Engine**.



XPression Preferences - Video Engine

3. In the **Maximum Cache Size Per Video Client** section, select the **Cache Clips on GPU instead of Host Memory** checkbox.

4. Select **OK**.

The **Preferences** window closes and the **Maximum Cache Size** is set to **Cache Clips on GPU instead of Host Memory**.

Configuring Hardware Settings

Next, configure the **Input/Output** and **GPI/Tally Boards** settings.

To configure the Input/Output settings:

1. In XPression, go to **Edit**, and select **Hardware Setup**.

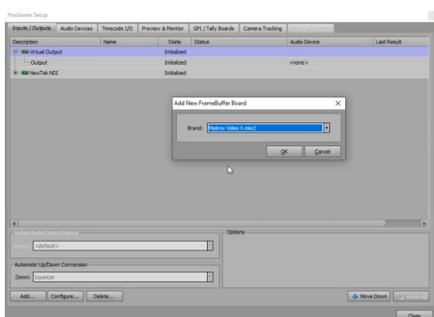
The **Hardware Setup** window opens.

2. Select the **Inputs/Outputs** tab, and add your production output as follows:

- a. Select **Add**.

The **Add New FrameBuffer Board** window opens.

- b. From the **Brand** drop-down, select the brand of your I/O card (such as Matrox).



Virtual Output - Add New FrameBuffer Board

- c. Select **OK** and the **Add New FrameBuffer Board** closes.

3. Next, add and configure the **NDI NewTek Output** as follows:

- a. Select **Add**.

The **Add New FrameBuffer Board** window opens.

- b. From the **Brand** drop-down, Select **NewTek Network Device Interface**.

- c. Select **OK**.

The **Newtek Device Interface - FrameBuffer Setup** window opens.



Newtek Device Interface - FrameBuffer Setup Window

- d. In the **Output Name** field, enter **XPN Output**.

★ The **Output Name** needs to match the NDI source name in the **config.da** JSON file.

```

"ndi": [
  {
    "enabled": false,
    "source": "Unreal Engine Output",
    "timeout": 5000,
    "frame_rate": 29.97,
    "retry": true,
    "retry_timeout": 10000,
    "engine": "VXR"
  },
  {
    "enabled": true,
    "source": "XPRN Output",
    "timeout": 5000,
    "frame_rate": 29.97,
    "retry": true,
    "retry_timeout": 10000,
    "engine": "XPRN"
  }
]

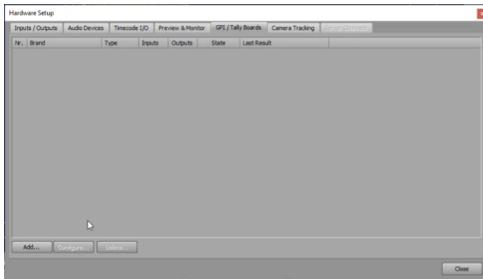
```

config.da JSON file - NDI Source Name

- e. Select **OK** and the **Newtek Device Interface - Framebuffer Setup** window closes.
4. Select the **NDI Output**, and in the **Output Options** section, select the **Exclude from Tessera checkbox**.
5. Select **Close**.
The **Hardware Setup** window closes and the **Input/Output** settings are saved.
6. Next, configure the **GPI/Tally** settings.

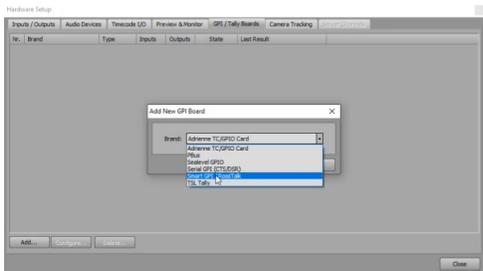
To configure the GPI/Tally settings:

1. In XPression go to **Edit**, and select **Hardware Setup**.
The **Hardware Setup** window opens.
2. Select the **GPI/Tally Boards** tab.



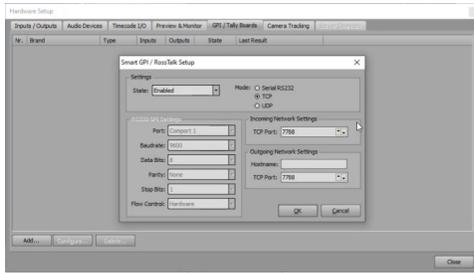
Hardware Setup - GPI/Tally Board Tab

3. Select **Add**.
The **Add New GPI Board** dialog opens.
4. From the **Brand** drop-down, select **Smart GPI/RossTalk**.



Hardware Setup - Add New GPI Board

5. Select **OK**.
The **Smart GPI/RossTalk Setup** window opens.



Smart GPI/RosTalk Setup

6. In the **Settings** section, configure the settings as follows:
 - a. From the **State** drop-down, select **Enabled**.
 - b. From the **Mode** options, select **TCP**.
7. In the **Incoming Network Settings** section, set the **TCP Port** to the communication port that receives the GPI signals for your system. A default port is automatically entered here (**7788**), but can be changed if it is already in use.
8. In the **Outgoing Network Settings**, set the **TCP Port** to **7788**.
9. Select **OK** and the **Smart GPI/RosTalk Setup** window closes.
10. Select **Close**.

The **Hardware Setup** window closes and the **GPI/Tally Boards** settings are saved.

Preparing an XPression Project for Raiden

Once you have XPression set up, the next step is preparing an XPression project to work with Raiden using your own custom region meshes. This process involves three parts: downloading your custom meshes from the Local Server, importing these meshes into your XPression project, and configuring the material video and texture shaders to display them correctly.

For users working with a Tessera system, additional guidance is provided to configure source and destination mappings. This section is independent of the earlier steps and applies only to Tessera setups.

The following topics are discussed in the chapter:

[Downloading Custom Region Meshes](#) ¹⁵¹

[Importing Custom Region Meshes into XPression](#) ¹⁵²

[Configuring Material Video and Texture Shaders](#) ¹⁵¹

[Tessera System Setup for](#) ¹⁶² [Raiden](#)

Downloading Custom Region Meshes

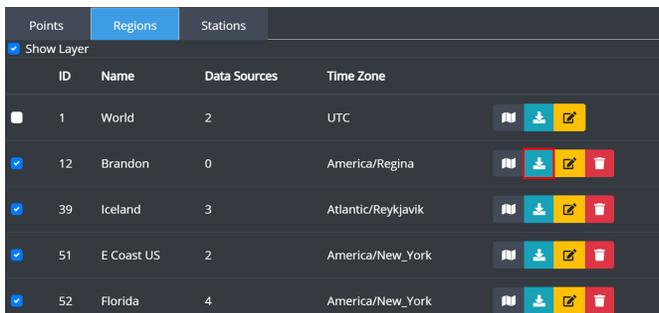
To use your own custom region meshes in an XPression project, you must first download them from the Local Server. These meshes provide the framework for adding region-specific overlays and effects.

Each downloaded ZIP file includes not only the .obj file for the region but also a high-resolution landmask file ([ID OF THE REGION]_high_landmask.png). Both files are required for setting up the Material Video and Texture Shaders and should be saved in their designated folders to ensure smooth configuration. This section explains how to locate, download, and prepare these files so they are ready for use in the next steps.

To download a custom region mesh from the Local Server:

1. In the Local Server, go to the **Areas of Interest** section and select the **Regions** tab.
2. Select the  **Download** button for the **Region** you want to import.
3. The "poi_[ID OF THE REGION].zip" file is downloaded to your system.

This file contains the static content for the specific **Region** you chose.



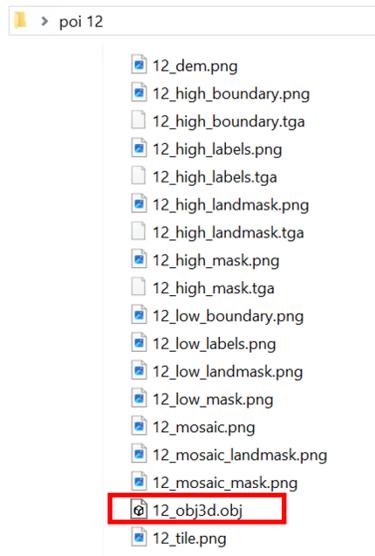
Points	Regions	Stations		
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
ID	Name	Data Sources	Time Zone	
1	World	2	UTC	
12	Brandon	0	America/Regina	
39	Iceland	3	Atlantic/Reykjavik	
51	E Coast US	2	America/New_York	
52	Florida	4	America/New_York	

Local Server - Region Download

4. Navigate to the location on your system where your downloads are stored.
5. Extract the .zip file and locate the .obj file for the **Region** you downloaded.

For example:

A 3D Mesh **.obj** file called “[ID OF THE REGION]_obj3d.obj”.



Example .obj File

6. Save the **.obj** file in the Raiden XPression project folder, subfolder **Models**.
7. Extract the high-resolution landmask file ([ID OF THE REGION]_high_landmask.png) from the .zip file and save it in the **Image** subfolder within the XPression project folder on the local drive.
8. Next, you will need to import the custom region mesh into your XPression project. Proceed to the [To import a Custom Region Mesh into your XPression project](#) procedure.

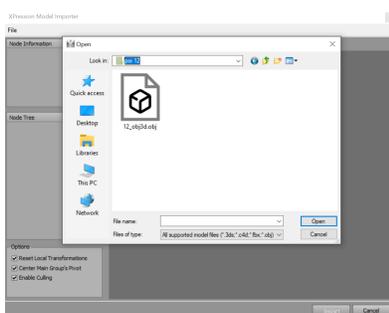
Importing Custom Region Mesh into your XPression project

Once your custom region meshes are downloaded, the next step is to import them into your XPression project. This process involves adding the **.obj** files as objects, organizing them into the appropriate group, and applying necessary transformations.

★ **Note:** Only two overlays are required for this setup.

To import Custom Region Mesh into your XPression project:

1. In your XPression project, go to the **Object Library**, expand **Mesh Objects**, and select **3D Model**.
2. From the **File Explorer**, select the **.obj** file that you downloaded from the Local Server, and select **Open**.



File Explorer - .obj File

The **File Explorer** window closes and the **XPression Model Importer** window opens.

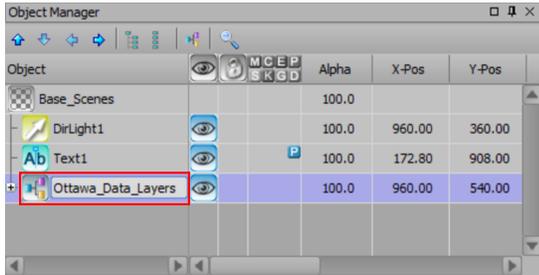
3. In the **XPression Model Importer**, select **Import**.

The **.obj** file is imported as an **Object** into the project and appears in the **Object Manager**, at the end of the **Objects** tree.

4. Rename the **Object** to a name with no spaces or special characters.

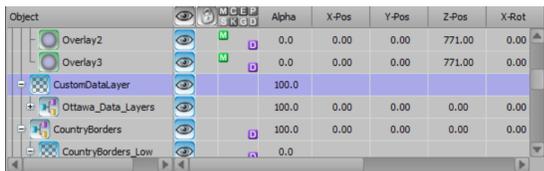
For example:

"Ottawa_Data_Layers"



Object Manager - Renamed Object

5. Select the **Object**, and drag-and-drop it into the **CustomDataLayer** group.



CustomDataLayer Group - Ottawa_Data_Layers

6. In the **Object Inspector**, select the **Transform** tab and set the **Object's** position as follows:

a. Set **Pivot** to:

- X: 0
- Y: 0
- Z: 0

b. Set **Position** to:

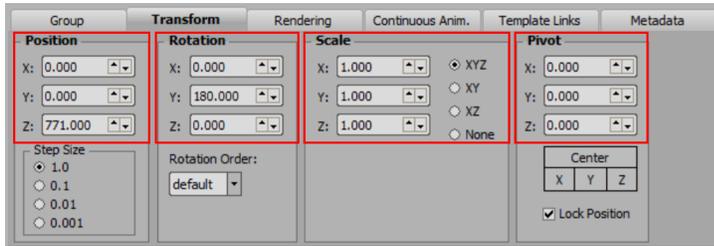
- X: 0
- Y: 0
- Z: 771

c. Set **Rotation** to:

- X: 0
- Y: 180
- Z: 0

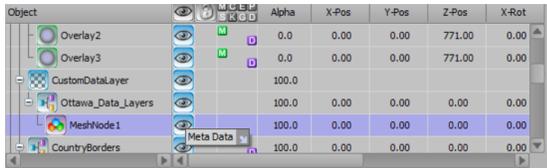
d. Set **Scale** to:

- X: 495
- Y: 495
- Z: 495



Object Manager - Object Transform Settings

7. In the **Object Manager**, expand the **Object** to reveal **MeshNode1** and rename it.

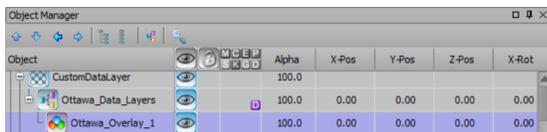


MeshNode1

It is recommended to rename **MeshNode1** to a name that corresponds to the **Object**.

For example, **Ottawa_Data_Layers** could have the following corresponding **MeshNode1** name:

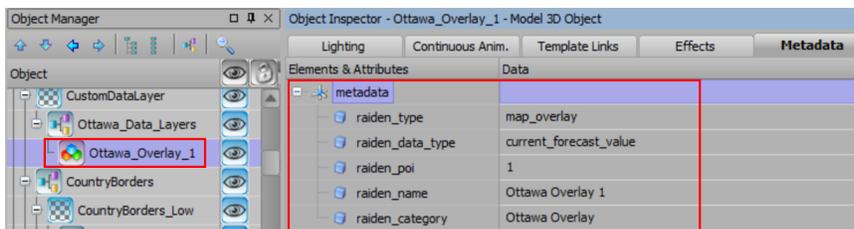
"Ottawa_Overlay_1"



MeshNode 1 Renamed

8. Select the **Metadata** tab and add the following Raiden metadata attributes to the **MeshNode 1**.

- **raiden_type**: map_overlay
- **raiden_data_type**: current_forecast_value
- **raiden_poi**: [ID OF THE REGION]
- **raiden_name**: Human readable name for the **Overlay**, which can have spaces. For example, "Ottawa Overlay 1".
- **raiden_category**: Human readable name for the category to be displayed in Story creator. For example, "Ottawa Overlay".



<%PRODUCT_NAME%> Metadata Attributes

9. In the **Object Manager**, select the **MeshNode1**, create a copy, and update the "**raiden_name**" metadata attribute for the copied **MeshNode1** (MeshNode1_2).

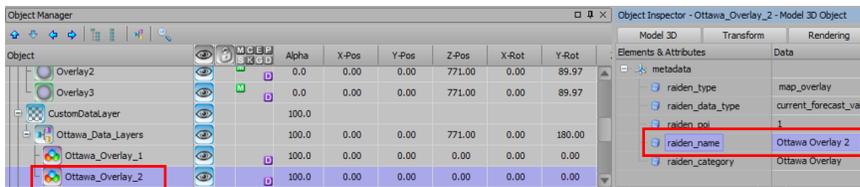


Two Overlays

★ **Note:** Only two overlays are required for this setup. Ensure that the `raiden_name` metadata attribute for each overlay is updated to reflect its corresponding name (e.g., "Ottawa Overlay 1" and "Ottawa Overlay 2")

For example:

The corresponding `raiden_name` metadata attribute for `Ottawa_Overlay_2` should be updated to `Ottawa Overlay 2`.



Updated Metadata Attribute

10. Select **File** and **Save**, and then proceed to configure the [material video and texture shader settings](#).¹⁵⁵

★ You will need to repeat this procedure for each custom region mesh you want to use in your project.

Configuring Material Video and Texture Shaders

After importing and saving your custom region meshes, the next step is to configure the material video and texture shader settings and apply the materials to each custom region mesh layer. This step ensures that your custom region meshes are fully integrated and ready for use in your XPression project.

This section provides two methods for setting up the material video and texture shader settings:

- [To duplicate an existing material from the world domain \(recommended\)](#).¹⁵⁵

This method simplifies the process and is recommended for most users.

- [To configure the Material Video and Texture Shader Settings from scratch](#).¹⁵⁷

Use this method if you decide to delete the world domain and work exclusively with regions, or if the world domain setup encounters issues and requires rebuilding. These instructions describe how to reestablish the configuration in such cases.

To duplicate an existing material from the world domain (recommended method):

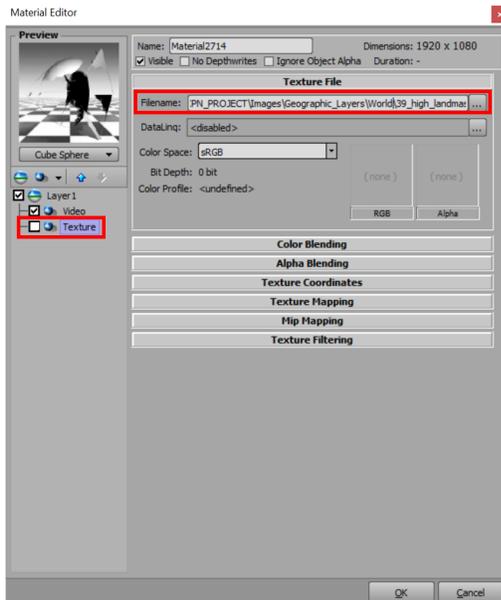
1. In your XPression project, open the **Material Manager**.
2. In the **Filter** field, enter "world" to retrieve the existing world overlays.
3. Right-click on an overlay and from the option menu, select **Duplicate**.

The duplicated overlay now appears in the list of world overlays in the **Material Manager**.

4. Right-click on the new overlay and select **Rename** from the options menu.

5. Rename the overlay to correspond with the region you are setting up.
6. Right-click on the new overlay and select **Edit** from the options menu.
The **Material Editor** opens.
7. In the **Material Editor**, select **Texture**.
8. Update the **Filename** as follows:
 - a. In the **Texture File** section, ensure the **Filename** is set to the corresponding land mask file of the custom region you are setting up.

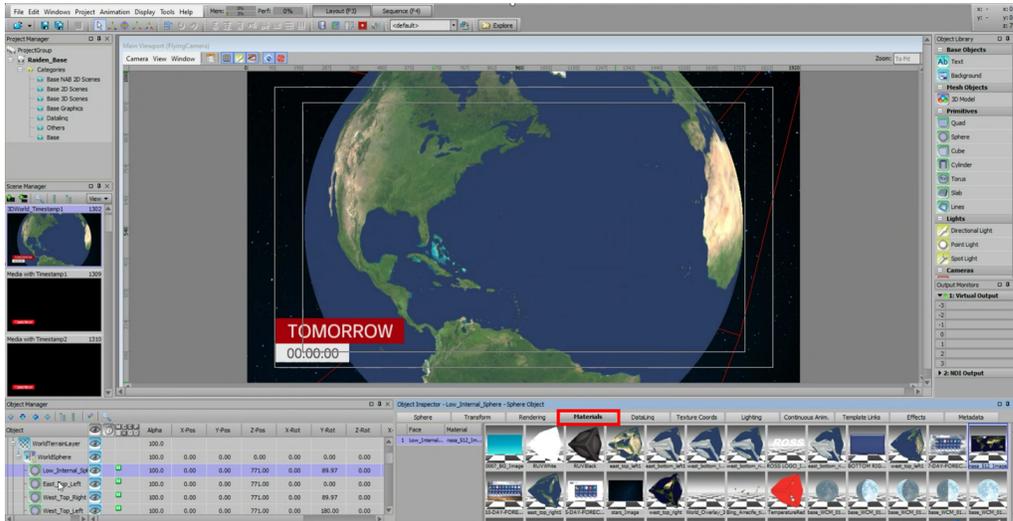
★ The corresponding land mask file is the high-resolution landmask file ([ID OF THE REGION]_high_landmask.png) that was previously extracted and saved in the **Image** subfolder within the XPression project folder.



Material Editor - Texture File Settings

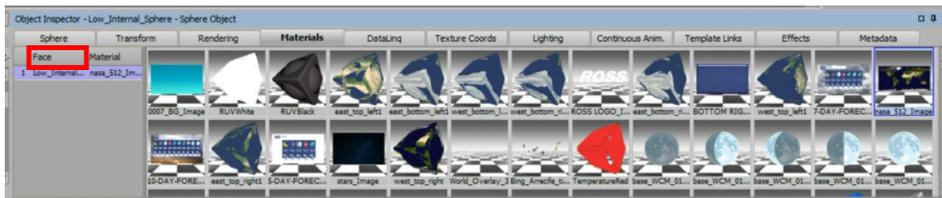
- b. Select **OK**.

The **Material Editor** closes and the material and texture shaders have been configured.
9. Apply the materials to the respective overlay meshes as follows:
 - a. In the **Object Manager**, select the mesh to which you want to apply the material, and in the **Object Inspector**, select the **Materials Tab**.



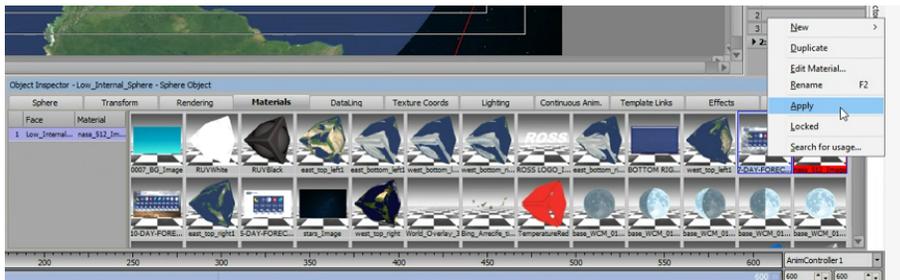
Object Inspector - Materials Tab

- b. In the **Materials** tab, under the **Face** section, select the desired **Face**.



Materials Tab - Face Section

- c. In the **Materials** tab, from the selection of materials, right-click the new material you want to apply and from the options menu, select **Apply**.



Materials - Options Menu

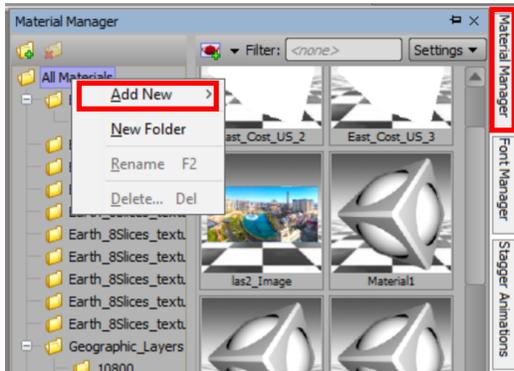
Alternatively, you can double-click the new material to apply it to the mesh.

The material is applied to the first mesh.

- d. In the **Object Manager**, select the second overlay.
 - e. In the **Object Inspector**, select the **Materials** tab.
 - f. Right-click on the new material and select **Duplicate** from the options menu.
The material is duplicated.
 - g. Double-click the duplicated material to apply it to the second overlay.
10. Save the project.
The changes are saved and can now be detected by the Story Creator.

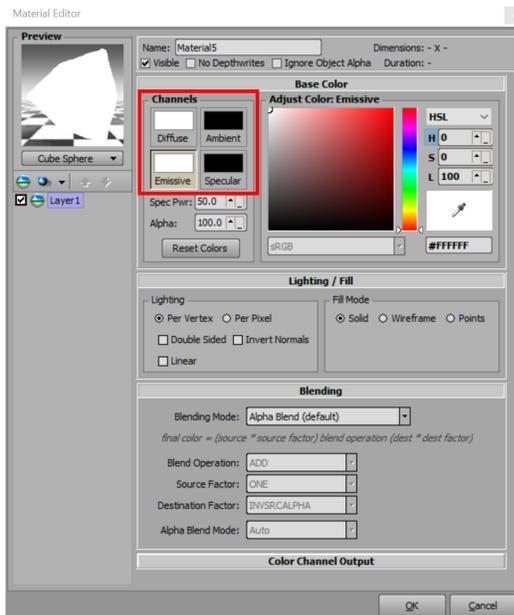
To configure the Material Video and Texture Shaders from scratch:

1. In your XPression project, in the **Material Manager**, right-click the **Material Folders** tree and expand the **Add New** options.



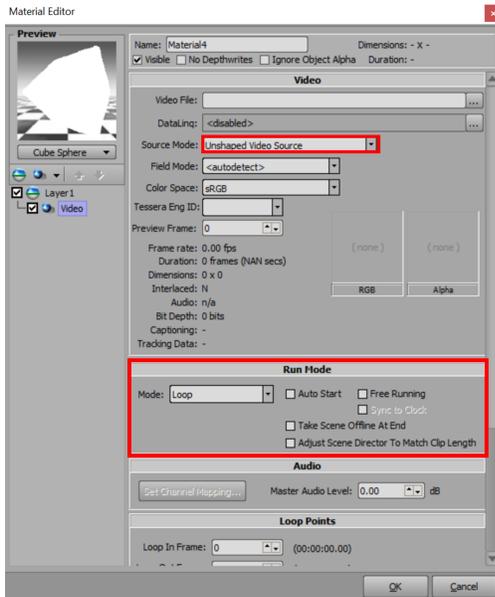
Material Manager - Add New Options

2. From the **Add New** options, select **Material**.
The **Material Editor** opens.
3. In **Material Editor**, in the **Base Color** section, set the **Diffuse** and **Emissive Channels** to white.



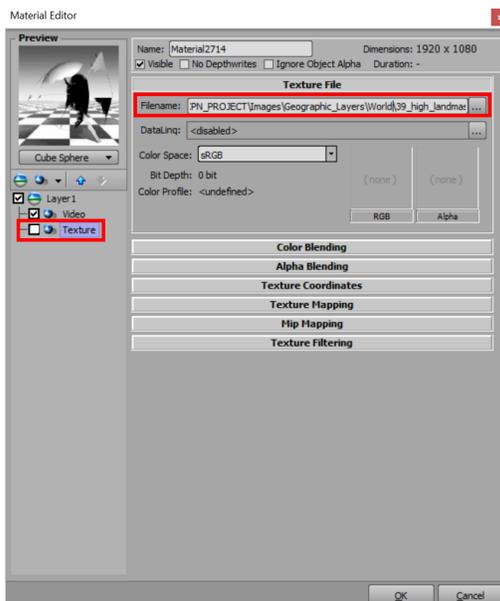
Material Editor - Base Color Settings

4. Add a **Video** shader to the current layer and configure the settings as follows:
 - a. Right-click on **Layer 1**, expand the **Add Shader** options from the menu, and select **Video**.
 - b. In the **Video** section, set the **Source Mode** to **Unshaped Video Source**.
 - c. In the **Run Mode** section, set the **Mode** to **Loop**, and disable **Auto Start** and **Free Running**.



Material Editor - Source and Run Mode Settings

5. Next, add a **Texture** shader to the current layer and configure the settings as follows:
 - a. Right-click on **Layer 1**, expand the **Add Shader** options from the menu, and select **Texture**.
The **Texture** shader appears below the **Video** shader in the layer stack.
 - b. Ensure that the **Texture** shader checkbox is not selected.
 - ★ The **Texture** shader is only required for landmasks and should be disabled by default. The Story Creator will automatically enable the **Texture** shader when it is needed.
 - c. In the **Texture File** section, ensure the **Filename** is set to the corresponding land mask file of the custom region you are setting up.
- ★ **Note:** The corresponding land mask file is the high-resolution landmask file ([ID OF THE REGION]_high_landmask.png) that was previously extracted and saved in the **Image** subfolder within the XPression project folder.



Material Editor - Texture File Settings

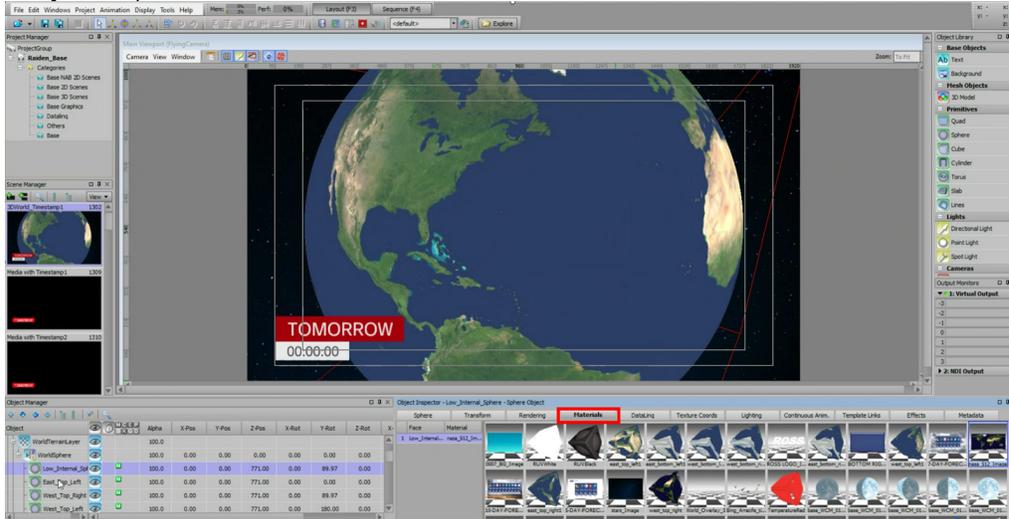
6. Select **OK**.

The **Material Editor** closes and the **Material** and **Texture Shaders** have been configured.

★ **Important:** For this setup, only two overlays are required. Ensure that each overlay has the material applied to it.

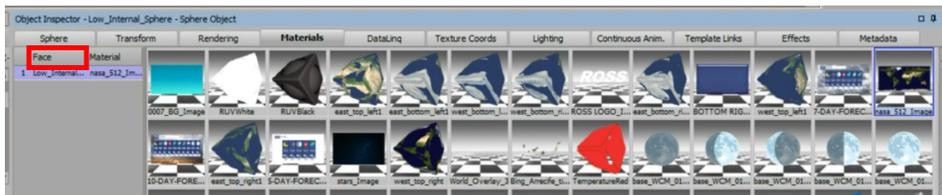
7. Apply the materials to the respective overlay meshes as follows:

- a. In the **Object Manager**, select the mesh to which you want to apply the material, and in the **Object Inspector**, select the **Materials** tab.



Object Inspector - Materials Tab

- b. In the **Materials** tab, under the **Face** section, select the desired **Face**.



Materials Tab - Face Section

- c. In the **Materials** tab, from the selection of materials, right-click the new material you want to apply and from the options menu, select **Apply**.



Materials - Options Menu

Alternatively, you can double-click the new material to apply it to the mesh.

The material is applied to the mesh.

8. Repeat the process and apply the second material to the second overlay.

9. Once both overlays have their materials applied, save the project.
The changes are saved and can now be detected by the Story Creator.

Tessera System Setup for Raiden

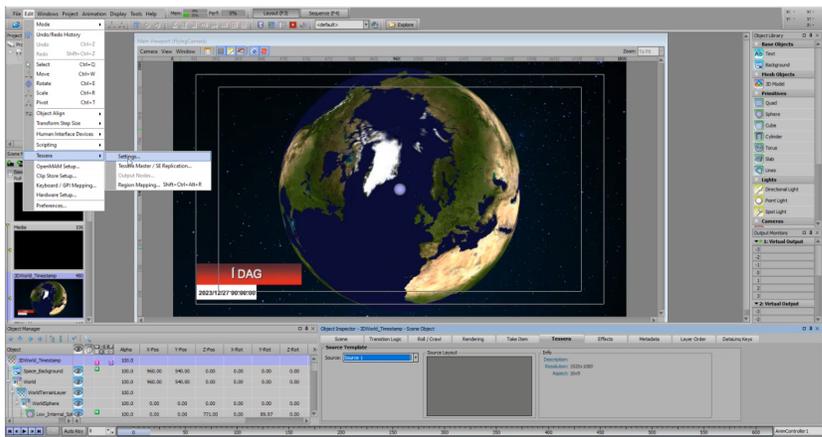
★ **Important:** If you are not running a Tessera system, skip this section.

If you are running a Tessera system, ensure that the **Source** and **Destination Mappings** have been configured.

If the **Source** and **Destination Mappings** have not been configured in your Tessera system, you will need to create a new mapping, and configure the **Source Template** for all **Regions**.

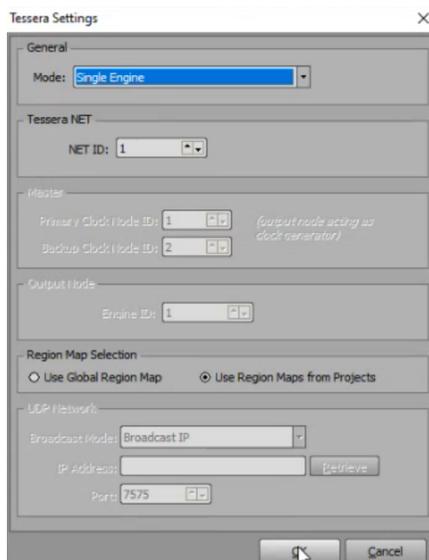
To configure Source and Destination Mappings and the Tessera Source Template:

1. First you will need to configure the **Tessera** settings as follows:
 - a. Open your XPression project.
 - b. Go to **Edit** and from the **Tessera** drop-down, select **Settings**.



Edit Menu - Tessera Settings

The **Tessera Settings** window opens.



Tessera Settings

c. From the **Mode** drop-down, select **Single Engine** and select **OK** to close the window.

The **Tessera Settings** window closes.

2. Next, you will need to configure the **Source** and **Destination Region Layouts** as follows:

a. In the **Edit** menu, go to **Tessera** and from the **Tessera** drop-down, select **Region Mapping**.

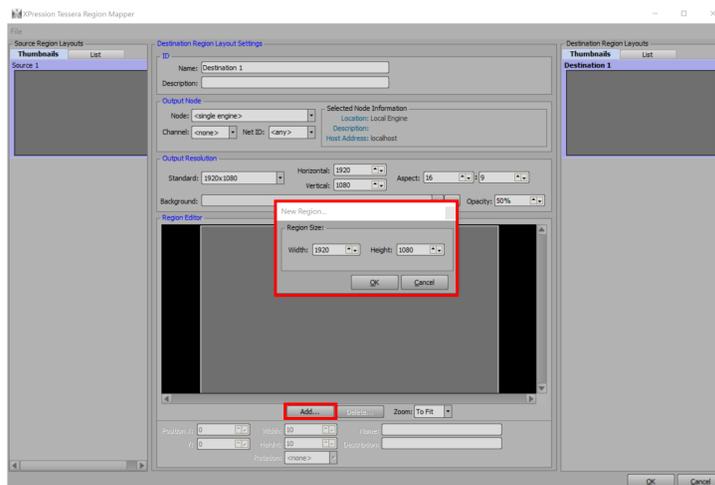
The **XPression Tessera Region Mapper** window opens.

b. In the **Source Region Layouts** panel, right-click in the **Thumbnails** tab and select **Add Source**.

c. In the **Destination Region Layouts** panel, right-click in the **Thumbnails** tab and select **Add Destination**.

d. In the **Region Editor** section, select **Add**.

The **New Region** window opens.

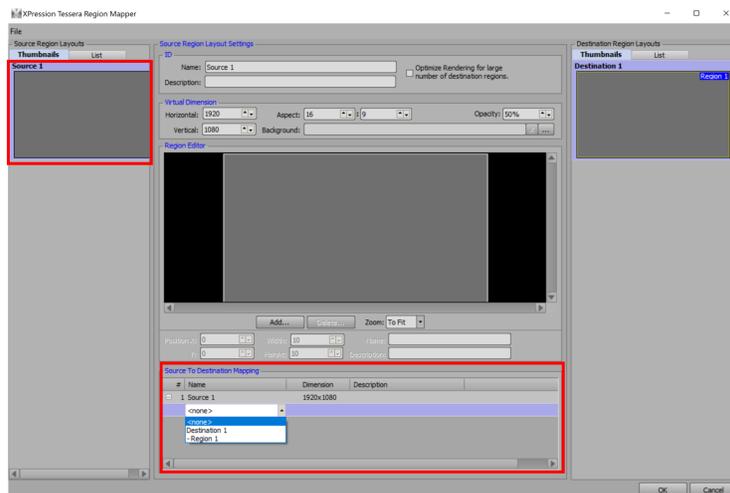


XPression Tessera Region Mapper - New Region Settings

e. Set the **Width** of the **Region Size** to **1920** and select **OK**.

f. In the **Source Region Layouts**, go to the **Thumbnails** tab and select **Source 1**.

g. In the **Source To Destination Mapping** section, select **Source 1** and from the drop-down, select the **Region 1**.



XPression Tessera Region Mapper - Source To Destination Mapping Settings

h. Select **OK** and the **XPression Tessera Region Mapper** window closes.

The **XPression Tessera Region Mapper** closes and the **Source** and **Destination Mappings** have been configured

3. Next, set the **Tessera Source Template** for all of the **Regions** in your XPression project as follows:

a. In the **Object Inspector**, select the **Tessera** tab.

b. From the **Source Template** drop-down, select **Source 1**.

4. Next you will need to configure the **Output Options** as follows:

a. In the **Edit** menu, go to **Hardware Options** and select the **Inputs/Outputs** tab.

b. In the **Output Options** section, select the **Exclude from Tessera** checkbox.

c. Select **Close**.

The **Hardware Setup** window closes and the **Source Template** for the **Region** is configured.

Raiden for XPression—Using Story Creator

XPression metadata enables Story Creator to recognize which XPression objects can be used, the purpose of each object, and the context of each scene.

The provided base scenes are predefined with XPression metadata and are ready to use in Story Creator. However, you can make modifications to adapt a base scene to your specific needs.

You will need to add metadata to the following:

- Each scene that you want to control from the Story Creator.
- Each object that you want the Story Creator to apply content to.

The metadata may vary depending on the specific scene type. The most common scene and object metadata are described below:

Scene Metadata

raidен_is_base: The flag to indicate if the scene is to be used as a base scene or not.

- **1** — Is base scene.
- **None** or **0** — Is not base scene, but a story based on a template scene.

raidен_type: The code to differentiate the purpose of scenes.

- "full_screen_texture" — Simple image or video scene.
- "forecast_3dworld" — Main 3D World scene for any mapping requirements.
- "forecast_single_poi_days" — Scene to display daily forecast information for a single place of interest, for instance, next 3 days forecast for Ottawa (based on the "raidен_days" metadata value).
- "forecast_multi_poi_days"
- "forecast_multi_poi_day_summary"
- "current_conditions_multi_poi" — Scene to display current observations for multiple places of interest (based on the raidен_pois metadata array).
- "summary_single_poi" — Add to display current observations as well as next day(s) forecast for a single place of interest.

raidен_pois: A comma separated list of the default places of interest's IDs to include:

- [1] — Between brackets
- [] — Can be empty

★ For the 3D World Scene, the **raidен_pois** should be set to [] empty by default as the Story Creator will automatically populate the place of interest's ID.

raidен_days: number of days data that the scene would cover.

For example:

- 3 — Indicates a 3-day forecast

- 5 — Indicates a 5-day forecast

raidен_use_unit_symbol:

- 1 or 0 — to display the unit symbol by default, e.g.: 1

raidен_region: ID of the specific region this scene is related to.

For example:

1 — Indicates the whole world.

★ For the 3D World Scene, the default region ID for **raidен_region** is set to **1**, as the region covers the whole world.

Object Metadata

raidен_type: code to differentiate the purpose of the object.

- "map_overlay" — object used to display a map overlay.

raidен_data_type: code to specify the type of content that the object supports.

- "current_forecast_value"

raidен_variable: code to specify the variable type that the object supports.

- TMP — Temperature
- VGRD — Wind Direction
- PRMSL — Mean Sea Level Pressure

raidен_poi: ID of the place of interest related to the object.

For example:

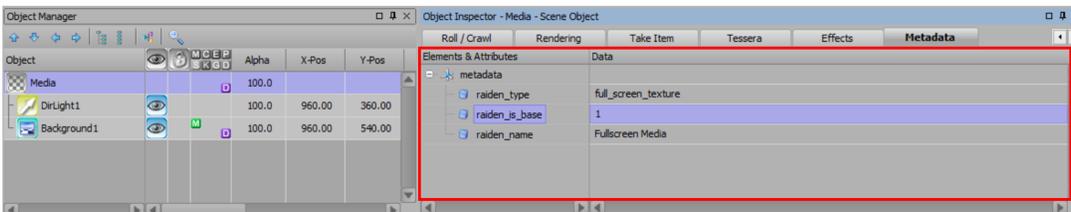
- 1 — Indicated the whole world.

Applying Metadata to a Scene

You can adapt any of the provided base scenes to your specific needs by modifying the pre-defined metadata.

★ Metadata must to be applied to base scenes that you want to control from the Story Creator.

In the **Object Manager**, select the base scene and go to the **Metadata** tab. The **Metadata** tab contains two sections, **Elements & Attributes** and **Data**.



Metadata Tab

The **Element & Attributes** section displays the metadata types applied to the scene. You can select each type and in the **Data** section you assign metadata codes to specify which metadata type to use.

The following procedure provides an example of how to add metadata to a scene.

To add metadata to a scene:

1. In the **Elements & Attributes** section, select **raiden_type**.
2. In the **Data** field, enter the scene metadata code to specify the purpose of the scene.

The **raiden_type** code options are:

- "full_screen_texture"
- "forecast_3dworld"
- "forecast_single_poi_days"
- "forecast_multi_poi_days"
- "forecast_multi_poi_day_summary"
- "current_conditions_multi_poi"
- "summary_single_poi"

3. In the **Data** field, enter the scene metadata code you want for the the base scene. This code lets the Story Creator know that the scene can be used as a base scene or not.

The **raiden_base_template** code options are:

- 1
- None or 0

4. In the **Element & Attributes** panel, select **raiden_poi**.
5. In the **Data** field, enter the point of interest ID you want for the the scene.

The **raiden_poi** code is delineated by comma separated list of default places of interest to include:

- Between bracket [1]
- Can be empty []

★ The raiden_poi metadata can be set in Story Creator and is optional for you to set in XPression.

6. In the **Element & Attributes** panel, select **raiden_days**.
7. In the **Data** field, enter the scene metadata code you want for the number of days you want the scene to cover.

Examples of raiden_days code use:

- 3 — Indicates a 3-day forecast.
- 5 — Indicates a 5-day forecast.

8. From the **File** menu, select **Save**.

The scene metadata has been updated and saved to the project.

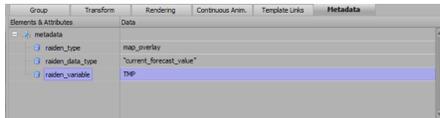
Applying Metadata to an Object

Once you have applied metadata at the scene level, you can apply metadata to objects.

The following procedure provides an example of how to add metadata to an object.

To apply metadata to an Object:

1. Select an **Object** and go to the **Metadata** tab.
2. The **Elements & Attributes** section displays the metadata that has been applied to the **Object**.



Elements & Attributes - Data Code Examples

3. In the **Elements & Attributes** section, select **raiden_data_type**.
4. In the **Data** field, enter the metadata code to specify the type of content the **Object** supports such as:
 - "current_forecast_value"
5. In the **Elements & Attributes** section, select **raiden_type**.
6. In the **Data** field, enter the metadata code that specifies the purpose of the object such as:
 - map_overlay
7. In the **Elements & Attributes** section, select **raiden_variable**.
8. In the **Data** field, enter the metadata code to specify the variable type that the **Object** supports.

Refer to [Appendix A: Metadata Descriptions](#) ¹⁸⁹ to find the metadata codes and their corresponding details.

9. From the **File** menu, select **Save**.

The **Object** metadata has been updated and saved to the project.

Managing Font and Color Updates for Text Objects

When working on a project with multiple scenes and Points of Interest (POIs), individually changing the text color across numerous text objects can be time-consuming and error-prone. To streamline this process and maintain consistency, editing the Font Material ensures that the desired changes are automatically applied to all associated text objects, rather than applying a material directly to the face of each object.

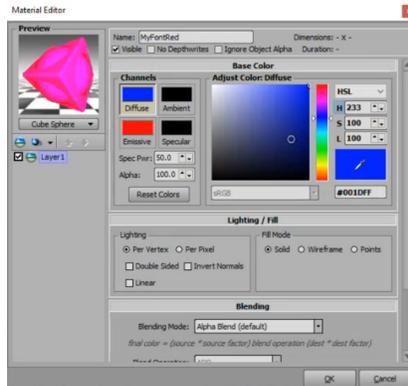
To edit the font and color for all text objects across a project:

1. In the **Object Inspector**, select the **Scene Fonts** tab.
2. Select **Edit Material**.



Scene Fonts Tab - Edit Material Button

The **Material Editor** opens.



Material Editor

3. In the **Material Editor**, adjust the color settings as desired.
4. Select **OK** when you have finished adjusting the color settings.

The **Material Editor** closes, and the updated settings are applied to all associated text objects.

Raiden for XPression—Using DataLinq

To apply Raiden data to your custom XPression project, without using the Story Creator, you will need to use the Raiden DataLinq Server. The Raiden DataLinq Server allows you to connect to data from the Local Server and make the data available to XPression.

First, you will need to add and configure the Raiden DataLinq source to the XPression DataLinq Server. Once you have the Raiden DataLinq source enabled, then you can apply the data directly to your XPression Project.

Before getting started, you will need to have the XPression DataLinq Server installed on your network. If you do not have the XPression DataLinq Server, please contact Ross Video at the numbers listed in the section [Getting Help](#) for assistance.

The Raiden DataLinq Server provides the list of Places of Interest (POI) through DataLinq, exposing queries as dynamic JSON DataLinq Sources.

HTTP Ports:

- Default HTTP port: 8083
- Default HTTPS (SSL) port: 8483

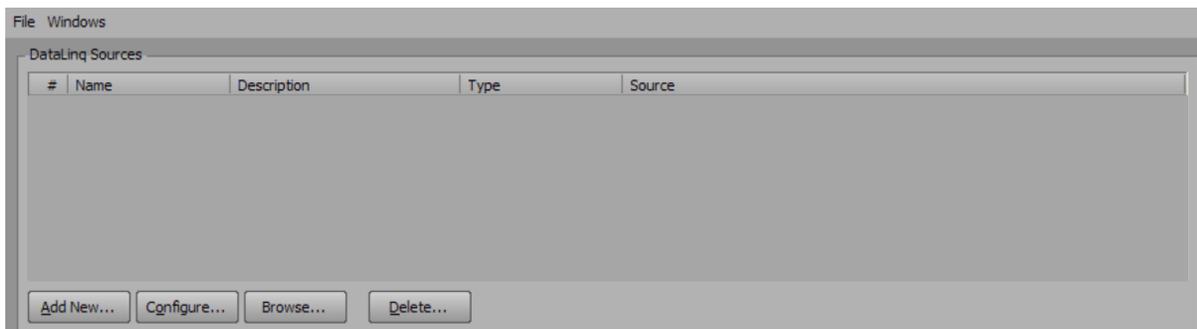
Adding the Raiden DataLinq Source

The Raiden DataLinq Source plugin enables direct access to the DataLinq Server.

To add and configure the Raiden DataLinq source to the XPression DataLinq Server:

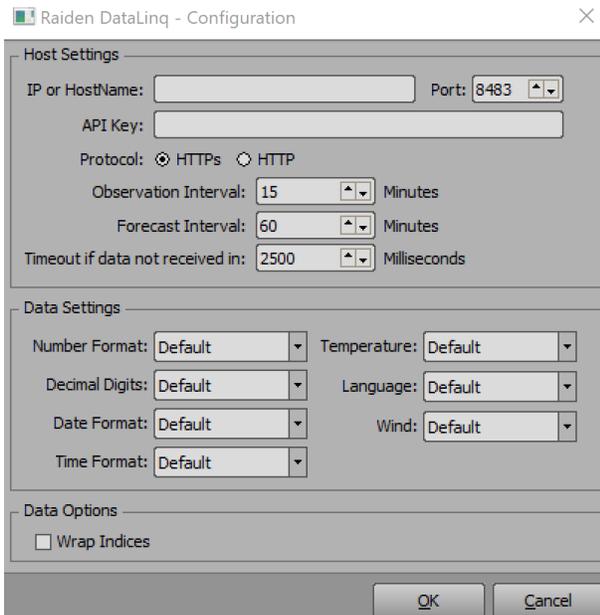
1. Use one of the following methods to start the **XPression DataLinq Server**:
 - Double-click the **XPression DataLinq Server** icon on the desktop.
 - Use the **Start** menu to select **All Programs > XPression > XPression DataLinq Server**.

The **XPression DataLinq Server** window opens.



XPression DataLinq Server Window

2. Select **Add New**.
The **Add DataLinq Source** dialog opens.
3. From the list of **DataLinq Sources**, select **Raiden DataLinq Source**.
4. Select **OK**.
5. The **Raiden DataLinq Configuration** window opens.



Raideen DataLinq - Configuration Window

6. Configure the **Raideen DataLinq** source as follows:
 - a. In the **IP** or **HostName** field, enter the IP address or host name of your Raideen DataLinq server.
 - b. In the **Port** field, enter or select the port number of your Raideen DataLinq server.
 - c. In the **API Key** field, enter the API key for the Raideen DataLinq server.
 - d. In the **Observation Interval** field, enter the intervals (5 minutes or higher) at which observation data should be retrieved.
 - e. In the **Forecast Interval** field, enter the intervals (30 minutes or higher) at which forecast data should be retrieved.
 - f. In the **Timeout if data not received in field**, enter the amount of time (2500 milliseconds recommended) to wait before timing out.
 - g. In the **Data Settings** section, configure the following preferences for the Raideen DataLinq source:
 - ★ The default option is the value configured in the Data Aggregator server.
 - **Number Format**
 - **Decimal Digits**
 - **Date Format**
 - **Time Format**
 - **Temperature**
 - **Language**
 - **Wind**
 - h. **Wrap Indices** check box - select this check box to wrap the indices above the record count within record count limits. This check box should be selected when using looping queries.

When Wrap Indices is enabled, an index greater than the number of records in the source wraps around to zero when index reaches the record count. For example: a data source holds 5 records and a field selection with the value of 8 is issued, the DataLinq field with index 3 ($8-5=3$).

7. Select **OK**.

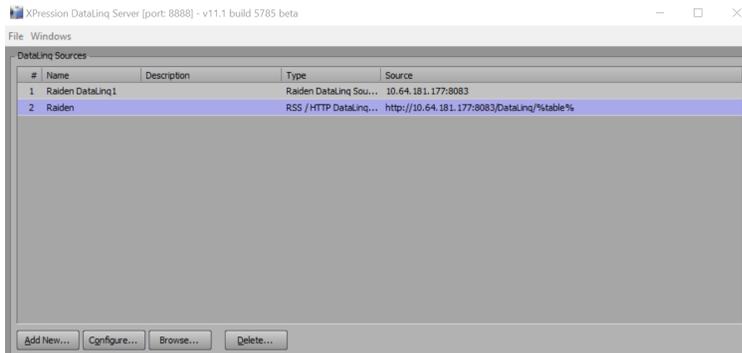
The **Raiden DataLinq Configuration** dialog closes and the **Raiden DataLinq Source** is added to the list of DataLinq sources in the XPression DataLinq Server.

Verifying XPression DataLinq is Receiving Raiden Data

Next, you will need to verify that XPression DataLinq Server is receiving data from the Raiden DataLinq source.

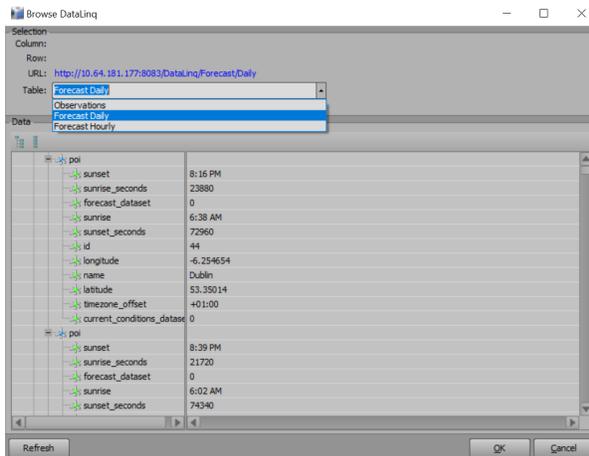
To verify XPression DataLinq is receiving data from the Raiden DataLinq source:

1. In **XPression DataLinq Server**, select the **Raiden DataLinq Source** and select **Browse**.



XPression DataLinq - Raiden DataLinq Source

The **Browse DataLinq** window opens.



Browse DataLinq Window - Raiden Source Data

Raiden DataLinq data is displayed.

2. From the **Table** drop-down, select the data you want to view.

The options are:

Observations

Forecast Daily

Forecast Hourly

The selected data will be displayed.

3. Select **OK** and close the **XPression DataLinq Server** window.

The **XPression DataLinq Server** window will be minimized to the task bar.

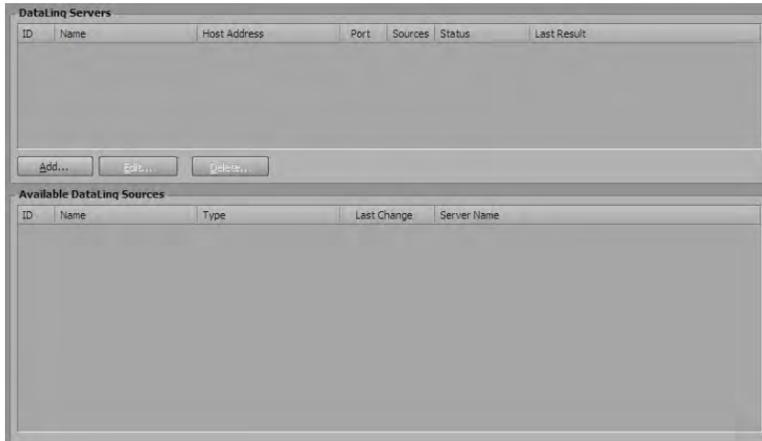
Connecting XPression to the Raiden DataLinq Source

Once you have added the Raiden DataLinq source, you will need to enable it in XPression and then set-up the [Raiden DataLinq User Controls](#)¹⁷⁶.

To enable Raiden DataLinq source in XPression:

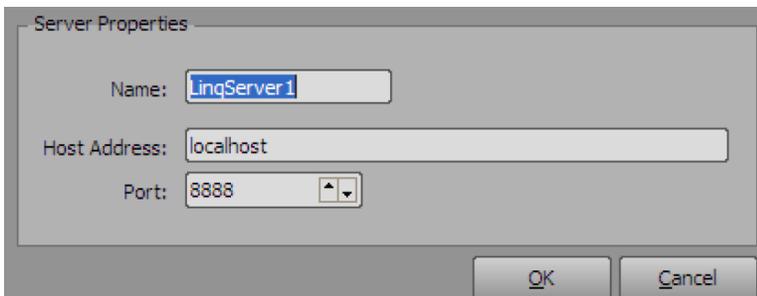
1. In **XPression**, go to **Project** and select **DataLinq Manager**.

The **XPression DataLinq Manager** dialog opens.



XPression DataLinq Manager Dialog

2. Select **Add**.
3. The **DataLinq Server - Properties** dialog opens.



XPression DataLinq Server Dialog

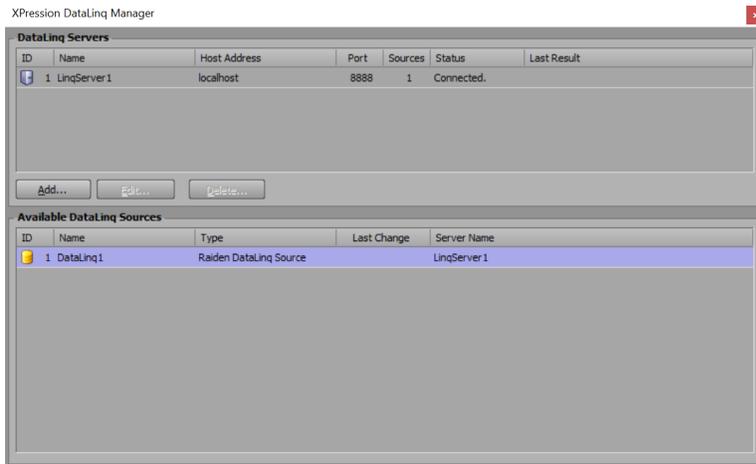
4. In the **Name** field, enter a name for the new DataLinq server connection.
 5. In the **Host Address** field, enter the IP address of the computer running your XPression DataLinq server.
- ★ Enter `localhost` when the DataLinq server is running on the same computer as XPression.
6. In the **Port** field, enter or select the port number used to communicate with the computer running the XPression DataLinq server.

The default port number is **8888**.

7. Select **OK**.

The **Raiden DataLinq** server connection is added to the **DataLinq Servers** section of the **XPression DataLinq Manager** dialog.

The DataLinq sources that are made available by the Raiden DataLinq connection are listed in the **Available DataLinq Sources** section.



XPression DataLinq Manager - Available Sources

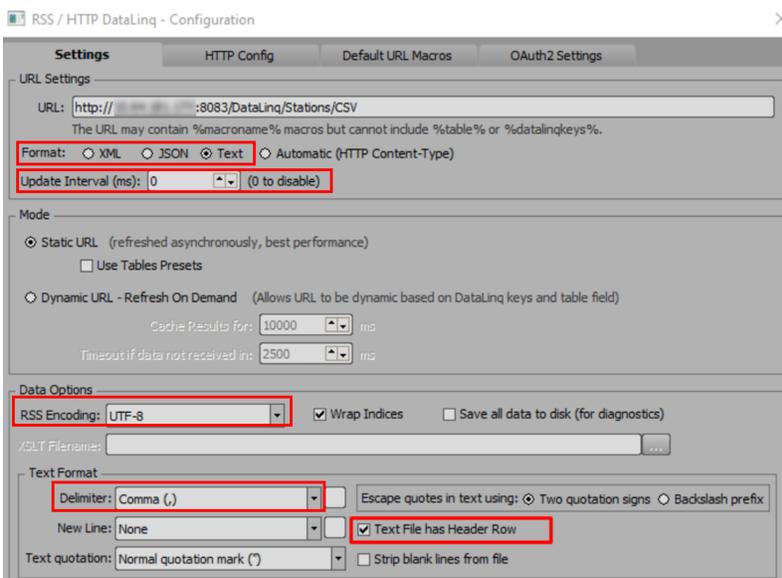
Setting Up User Input Controls

The Raiden DataLinq server provides the list of Places of Interest (POI) through CSV endpoints:

- List of Stations in CSV format: /DataLinq/Stations/CSV
- List of Places of Interest in CSV format: /DataLinq/Pois/CSV

You can add table-based data sources to your XPression DataLinq Server as an RSS / HTTP DataLinq Source.

- **Format:** Text
- **Update Interval (ms):** Set to 0, if Station or Places of Interest are not regularly added.
- **RSS Encoding:** UTF-8
- **Delimiter:** Comma (,)
- **Text File has Header Row:** Enabled



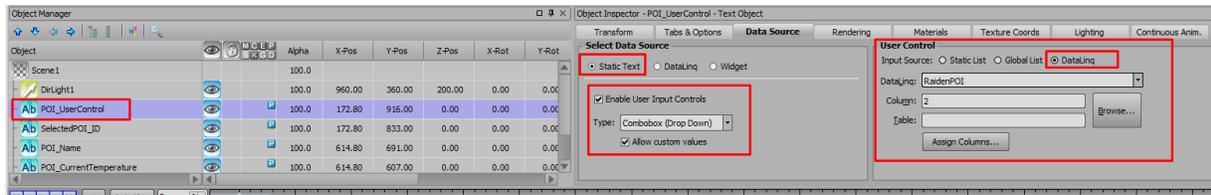
RSS / HTTP DataLinq - Configuration

Once you have configured the XPression DataLinq server as an RSS/HTTP DataLinq Source, you can then use the **User Control** in XPression as a parameter for your DataLinq requests.

To use the User Control in XPression as a parameter for DataLinq requests:

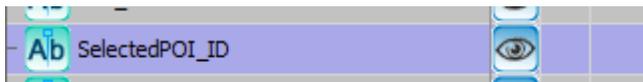
1. In XPression, add a text object to your scene. This text object will be used as your **User Control**.
2. In the **Object Inspector**, select the **Data Source** tab.
3. In the **Select Data Source** section, select the following settings:
 - **Static Text**
 - **Enable User Input Controls**
 - From the **Type** drop down, select the **Combobox (Drop Down)** option.
4. In the **User Control** section, configure the settings as follows:
 - a. From the **Input Source** options, select **DataLinq**.
 - b. From the **DataLinq** drop-down, select the **Raiden Places of Interest Table Data Source**.

- c. Select **Browse**.
- d. The **select DataLinq Field** window opens.
- e. Select the **Name** column.
- f. Select **OK**.



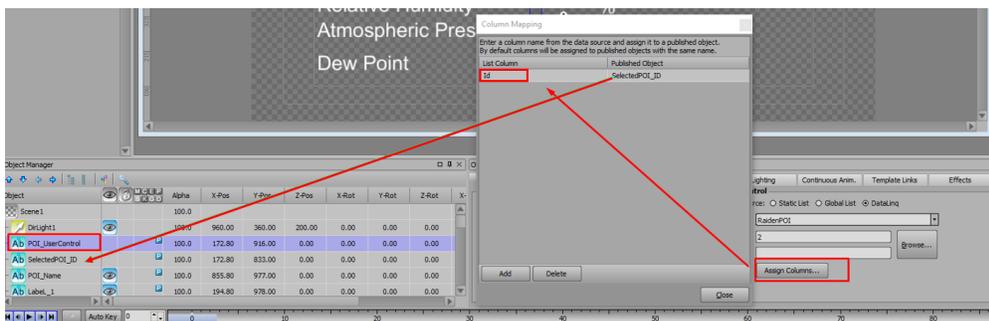
Object Inspector Settings

- 5. Add a text object to store the selected Place of Interest ID.



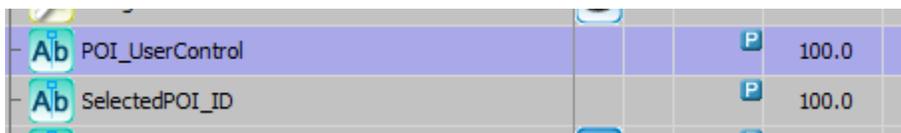
Selected Place of Interest ID

- 6. Assign the **ID Column** to the text object to be used for storing the selected **Place of Interest ID**.



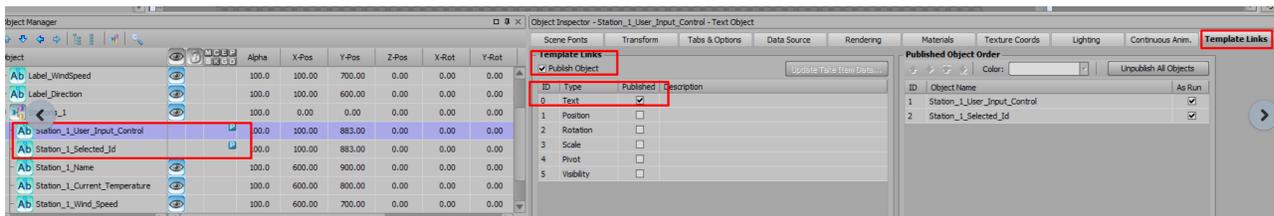
Object Inspector - Assign Columns

Additionally, you can hide both text objects by deselecting the  **Visibility** button.



Object Visibility - Text Object

- 7. In the Template Links tab, ensure the User Input Control and the Selected ID is set to **Published**.



Template Links - Publish Setting

Additionally, you can hide the User Input Control and the Selected ID by deselecting the  **Visibility** button.

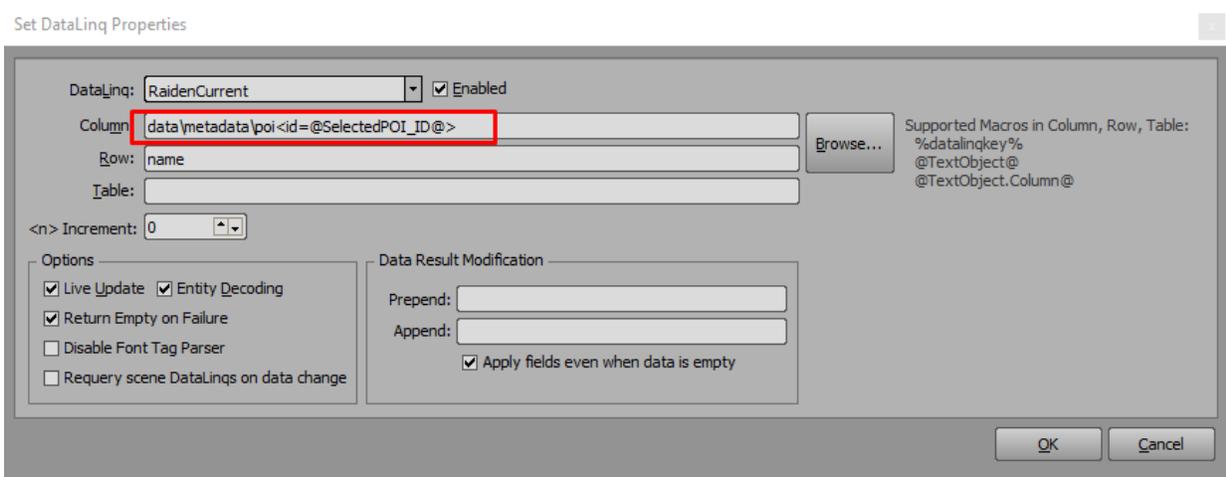
Ab	Label_WindSpeed			100.0	100.00
Ab	Label_Direction			100.0	100.00
Stations_1				100.0	0.00
Ab	Station_1_User_Input_Control		P	100.0	100.00
Ab	Station_1_Selected_Id		P	100.0	100.00
Ab	Station_1_Name			100.0	600.00
Ab	Station_1_Current_Temperature			100.0	600.00
Ab	Station_1_Wind_Speed			100.0	600.00

Object Visibility - User Input Control and Selected ID

- Use the selected **Place of Interest ID** anywhere in your DataLinq queries, surrounding its name with the "@" character.

For example:

The "SelectedPOI_ID" text object would be entered as "@SelectedPOI_ID@".



Place of Interest ID - Example

You can now use the selected **Place of Interest ID** anywhere in your DataLinq queries.

Raiden and XPression Maintenance

Managing the application update is a manual process and is required for maintaining Raiden's performance and compatibility with XPression.

Raiden must be updated with each XPression update.

Raiden Application Update Process

The manual update process includes updating the following for each Raiden project in XPression:

[Global Scripts](#) ¹⁷⁹

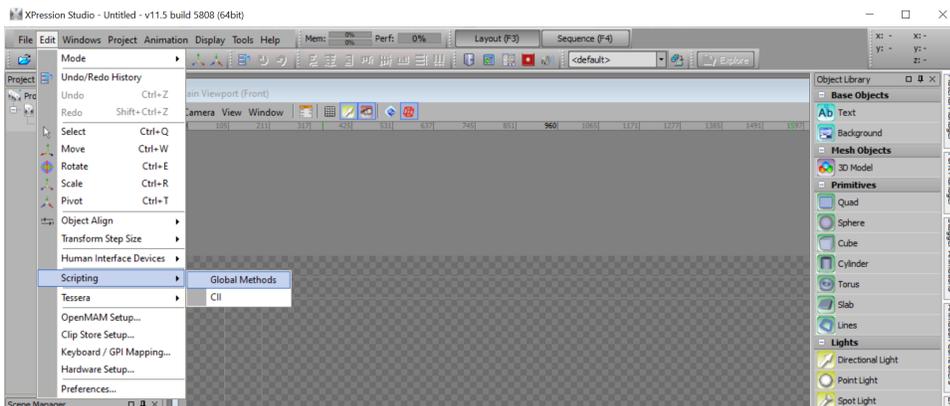
[Base Scene Scripts](#) ¹⁸⁰

[Keyboard/GPI Mapping Scripts](#) ¹⁸⁰

[3D World and Pushpin Template Scenes](#) ¹⁸²

To update the Global Scripts:

1. In your XPression project, go to **Edit**, select **Scripting** and from the **Scripting** drop-down, select **Global Methods**.



Edit Menu - Global Methods

The **Global Script Methods Editor** opens.

2. Navigate to the **XPressionPlugin>XPN>VB** folder.
3. Copy the scripting from the **VB** folder and return to the **Global Script Methods Editor**.
4. Delete the scripting in the **Global Script Methods Editor**.
5. Paste the scripting from the **XPN.Globals.vb** folder into the **Global Script Methods Editor**.
6. Select the  **Compile current script (F7)** button.

The **Global Scripts** have been updated.

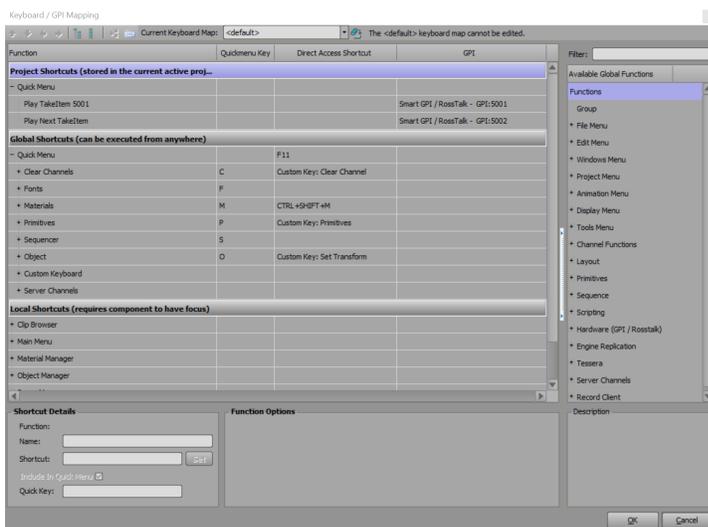
7. Next, update the **Base Scene Scripts**.

To update the Base Scene Scripts:

1. In your XPression project, right-click on the **3D World Scene**.
2. From the menu, select **Edit Script Events**.
The **Script Editor** opens.
3. Update the **OnBeforeOnline** scripting as follows:
 - a. In the **Events** section, select **OnBeforeOnline**.
 - b. Navigate to the **XPN>VB** folder and open the **XPN.Scene.OnBeforeOnline.vb** file.
 - c. Copy the scripting from the file and return to the **Script Editor**.
 - d. Delete the **OnBeforeOnline** scripting.
 - e. Paste the scripting from the **XPN.Scene.OnbeforeOnline.vb** file in **OnBeforeOnline** tab.
4. Next, update the **OnRender** scripting as follows:
 - a. Navigate to the **XPN>VB** folder and open the **XPN.Scene.OnRender.vb** file.
 - b. Copy the contents of the file and return to the **Script Editor**.
 - c. Delete the contents of the **OnRender** tab.
 - d. Paste the scripting from **XPN.Scene.OnRender.vb** file into the **OnRender** tab.
5. Select the  **Compile current script (F7)** button.
6. The **3D World** scene scripts have been updated.
7. Repeat this procedure for the **3D World Timestamp** scene.
8. Next, update the **Keyboard/GPI Mapping** scripts.

To update Keyboard/GPI Mapping scripts:

1. In your XPression project, go to **Edit** and select **Keyboard/GPI Mapping**.
2. The **Keyboard/GPI Mapping** window opens.

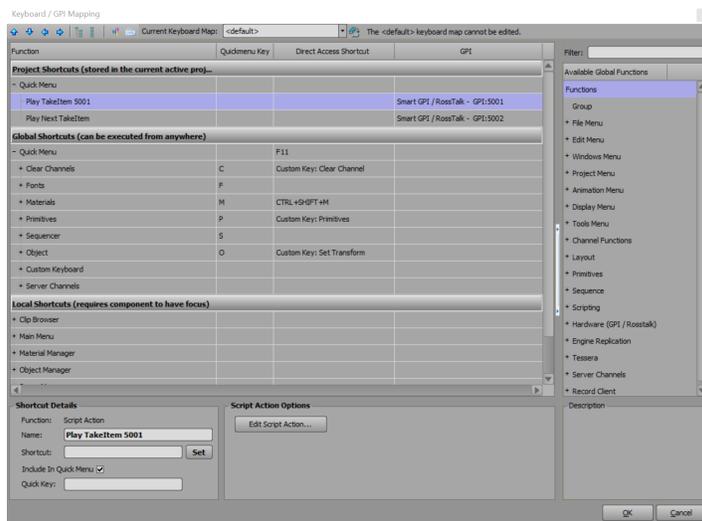


Keyboard/GPI Mapping Window

3. Update the **Project Shortcuts GPI** scripting as follows:

- a. In the **GPI** column, use the **GPI** fields to enter or select **5001** in the first **GPI** field and **5002** in the second **GPI** field.

★ The **GPI** defaults are **5001** and **5002**, and can be changed if they are already in use.



Keyboard/GPI Mapping Window - Play TakeItem 5001

- b. In the **Script Action Options** section, select **Edit Script Action**.

The **Script Editor - Script Shortcut** window opens.

- c. Delete the scripting.

- d. Navigate to the **XPN>VB** folder and open the **XPN.Mapping.NEXT.vb** file.

- e. Copy the script from the file and return to the **Script Editor - Script Shortcut** window.

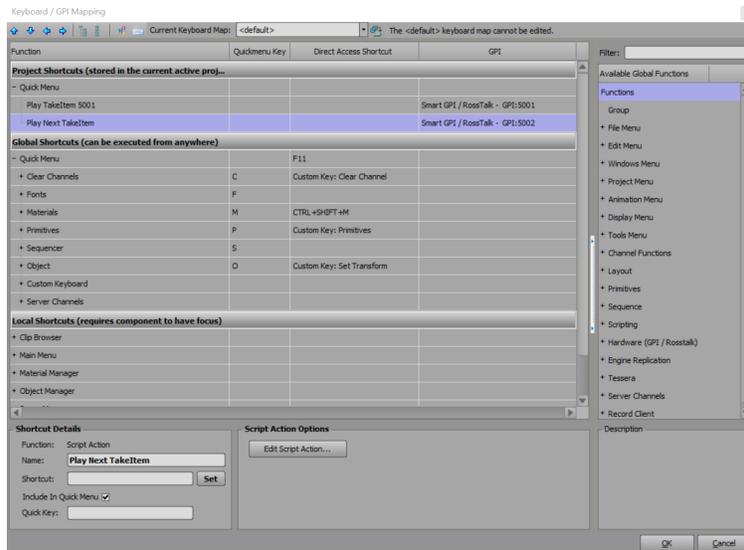
- f. Paste the copied script from the **XPN.Mapping.NEXT.vb** file into the **Script Editor**.

- g. Select the  **Compile Current Script (F7)** button.

The script has been updated.

4. Next, update the **Play Next TakeItem** script as follows:

- a. In the **Project Shortcuts** section, select **Play Next TakeItem**.



Keyboard/GPI Mapping Window - Play Next TakeItem

- b. In the **Script Action Options** section, select **Edit Script Action**.

The **Script Editor - Script Shortcut** window opens.

- c. Delete the scripting.

- d. Navigate to the **XPN>VB** folder and open the **XPN.Mapping.FOCUS.vb** file.

- e. Copy the script from the file and return to the **Script Editor - Script Shortcut** window.

- f. Paste the copied script from the **XPN.Mapping.FOCUS.vb** file into the **Script Editor**.

- g. Select the  **Compile Current Script (F7)** button.

The script has been updated.

5. Select **OK** to close the **Keyboard/GPI Mapping** window.

The **Keyboard/GPI Mapping** scripts have been updated.

6. Next, update the **3D World** and **Pushpin Template** scenes in your project.

To update the 3D World and Pushpin Template scenes:

You will need to update the **3D World**, **3D World Timestamp**, and **Pushpin** base scenes. To update these scenes in your project, you need to first delete these scenes, and then import them back into your project.

The procedure below provides instructions for updating the **PushPin**, **3D World**, and **3D World Timestamp** base scenes.

Additionally, you can use this procedure to restore lost or accidentally deleted scenes.

1. In your project, delete the **Pushpin** base scene (or **3D World**) scenes.

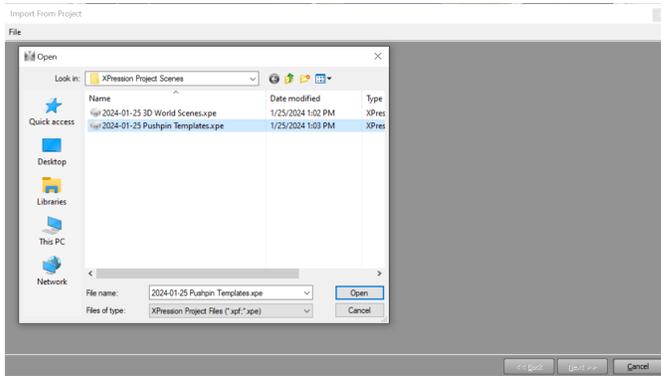
2. Next, import the **Pushpin** base scene (or **3D World**) scenes as follows:

- a. From the **File** menu, select the **Import** drop-down and select **From Project / File**.

The **Import From Project** window opens.

- b. From the **File** menu, select **Open**.

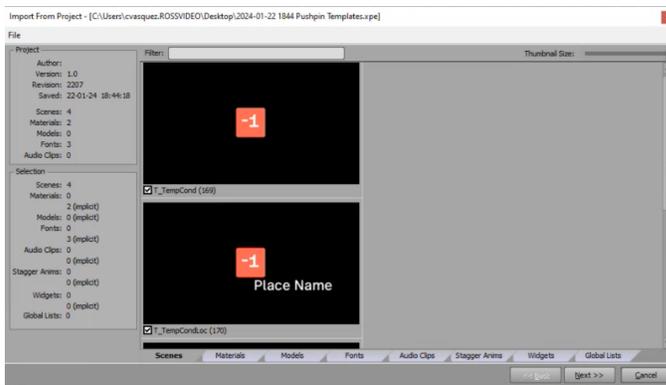
- c. Select the **Pushpin Templates.xpe** file (or the **3D World Scenes.xpe** file) and select **Open**.



Pushpin Templates.xpe File

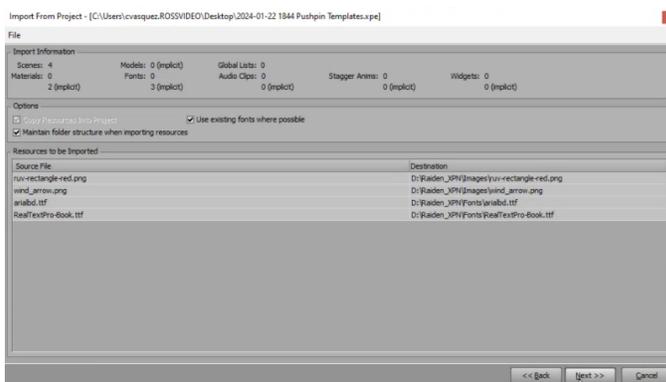
The files are opened in the **Import From Project** window.

- d. Select **Next** to accept the default selected options.



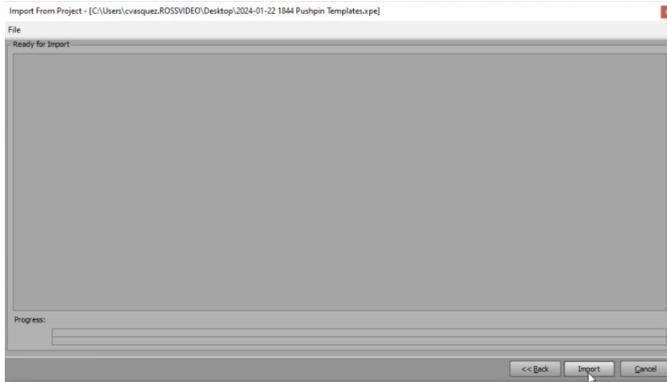
Import From Project - Pushpin Templates

- e. Select **Next** to accept the default settings.



Import From Project - File Settings

- f. Select **Import** to import the scenes into the project.



Import From Project - Import

- g. Select **Close**.
3. Save your project.

The base scenes have been imported into your project.

To recover lost or deleted scenes in your project:

- To restore lost or deleted scenes in your project, follow **Steps 2 - 3** of the [To update 3D World and Pushpin Template scenes](#) ¹⁸²¹ procedure.

Voyager Plugin

This section outlines the manual installation process for the Raiden plugins in Voyager and is intended for advanced Voyager users. For additional information about Voyager, please refer to the *Voyager User Guide*.

The Raiden integration is divided into three separate plugins, each with a specific function, and these must be installed manually by copying the Raiden plugin folders to **Voyager/Engine/Plugins/Raiden**.

The three plugins are as follows:

- **RaidenCore**: This is the essential plugin required for any Raiden functionality within Voyager. It manages Raiden's licensing and provides core services, enabling other modules to access Raiden data.
- **RaidenDataLinq**: This plugin enables the integration of DataLinq data from Raiden into Voyager, streamlining data utilization.
- **RaidenUDS**: This plugin enables the connection between Raiden and the Ultra Dynamic Sky (UDS) plugin, allowing users to visualize weather simulations such as rain and snow based on Raiden's data. Please be aware that Ultra Dynamic Sky is a third-party plugin and is not included with the Raiden plugin. What is provided with the Raiden plugin is the middleware integration necessary to connect Raiden with UDS. The UDS plugin must be obtained separately and [manually installed](#)¹⁸⁷ to leverage its capabilities for weather visualization in Voyager.

The following procedures are covered in this section:

[To manually install the Raiden Plugins for Voyager](#)¹⁸⁶

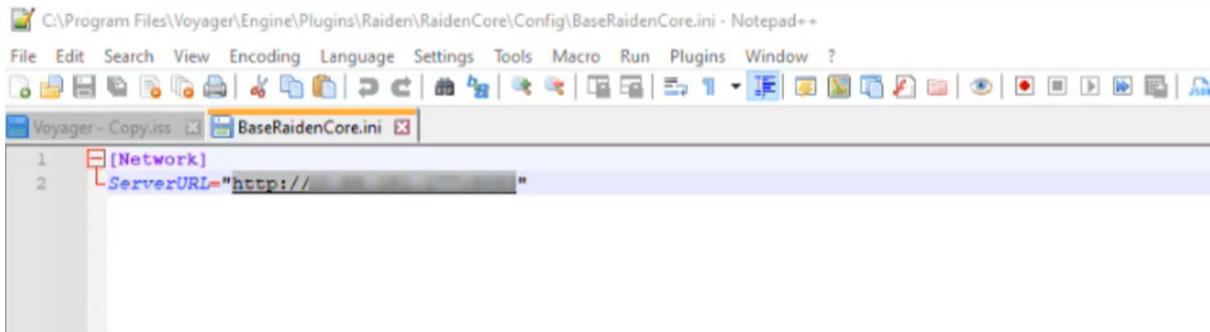
[To enable the Raiden plugins in Voyager](#)¹⁸⁶

[To manually install the Ultra Dynamic Sky \(UDS\) plugin](#)¹⁸⁷

[To enable the Ultra Dynamic Sky plugin content in Voyager](#)¹⁸⁷

To manually install the Raiden Plugins for Voyager:

1. Copy the Raiden plugin folders to **Voyager/Engine/Plugins/Raiden**.
2. In the **RaidenCore** folder, navigate to the **Config** folder and open the **BaseRaidenCore** configuration file.
3. Add the URL of your Local Server to the **BaseRaidenCore** configuration file.



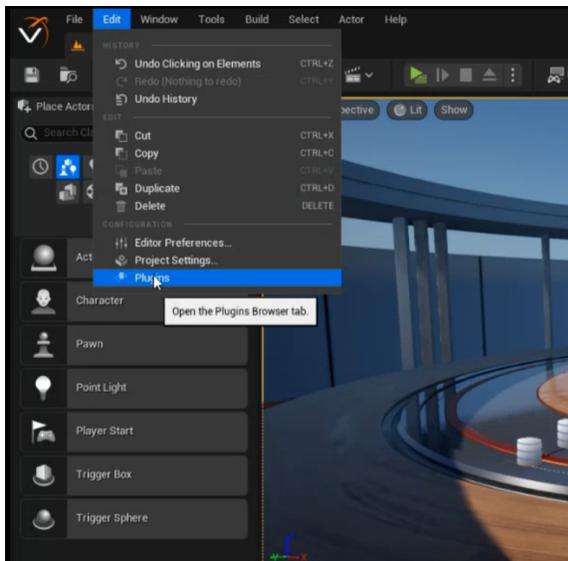
BaseRaidenCore Configuration File - Local Server URL

The Raiden plugin files are now installed.

4. Next, in Voyager, go to the **Ross Raiden** plugin and enable the Raiden plugins.

To enable the Ross Raiden plugins in Voyager:

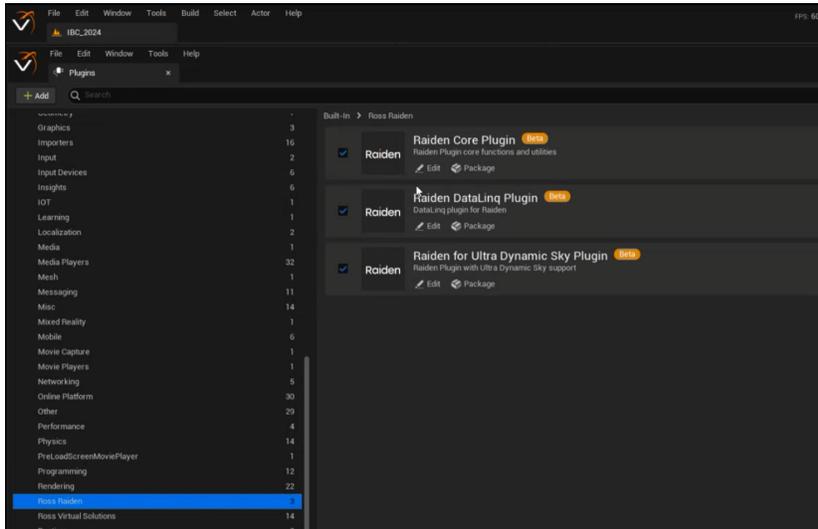
1. From the **Edit** menu, select **Plugins**.



Edit Menu - Plugins

The **Plugins Browser** opens.

2. From the list, select **Ross Raiden**.
3. Select the checkboxes for each of the Raiden plugins to enable them.



Ross Raiden Plugins Enabled

4. The Raiden plugins are now enabled in Voyager.

To manually install the Ultra Dynamic Sky (UDS) plugin:

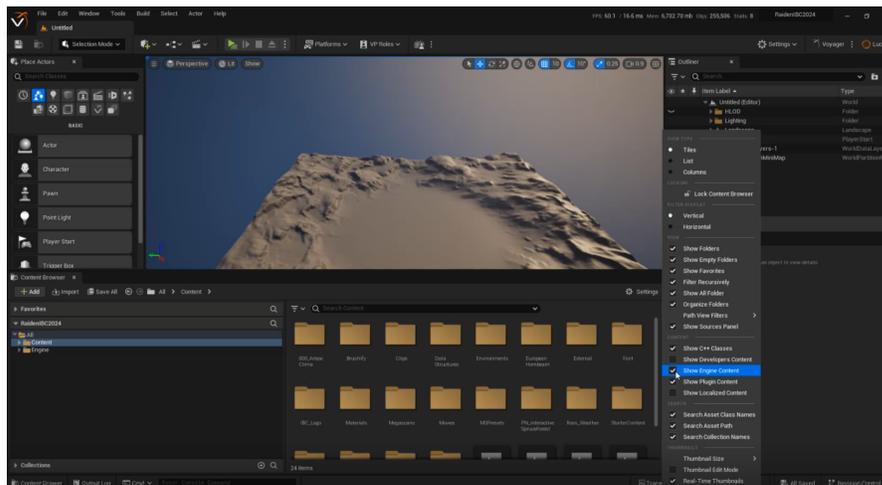
- Copy the **UltraDynamicSky** folder to **Voyager/Engine/Plugins/Raiden/RaidenUDS/Content**.
The Ultra Dynamic Sky third-party plugin has been installed.

To use the Ultra Dynamic Sky plugin content in Voyager:

1. Enable the UDS plugin content as follows:
 - a. In Voyager, open the **Settings** menu from the **Content Browser** tab.
 - b. Enable the following options:

Show Engine Content

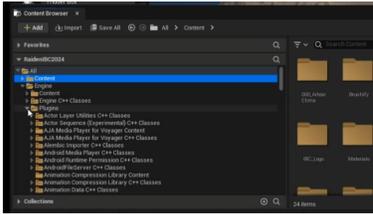
Show Plugin Content



Content Browser - Settings

2. Access the plugin content as follows:

- a. In the **Content Browser**, navigate to the **Engine** folder.
- b. In the **Engine** folder, select the **Plugin** folder.



Content Browser - Plugins Folder

3. Locate the **Ultra Dynamic Sky** plugin content as follows:
 - Inside the **Plugins** folder, go to the **Raiden for Ultra Dynamic Sky Plugin Content** folder, and select the **UltraDynamicSky** folder.
4. Add the UDS assets to your scene as follows:
 - a. In the **UltraDynamicSky** folder, select **Blueprints**.
 - b. In the **Blueprints** folder, drag the **UltraDynamic_Sky** and **Ultra_Dynamic_Weather** assets onto your scene.

You now have the two required elements for using UDS in your scene.

Appendix A: Metadata Descriptions

RAIDEN DATA DEFINITIONS

For Raiden specific data, use the following tables as a reference for Weather Variable IDs.

VARIABLE ID

NAME	ID	CODE
911 Telephone Outage Emergency	20	NWS_911_TELEPHONE_OUTAGE_EMERGENCY
Accumulated Precipitation (1 Hour)	183	APCP_1H
Accumulated Precipitation (12 Hour)	186	APCP_12H
Accumulated Precipitation (120 Hour)	191	APCP_120H
Accumulated Precipitation (24 Hour)	187	APCP_24H
Accumulated Precipitation (3 Hour)	184	APCP_3H
Accumulated Precipitation (48 Hour)	188	APCP_48H
Accumulated Precipitation (6 Hour)	185	APCP_6H
Accumulated Precipitation (72 Hour)	189	APCP_72H
Accumulated Precipitation (96 Hour)	190	APCP_96H
Accumulated Rainfall	149	ACCUM_RAINFALL
Administrative Message	21	NWS_ADMINISTRATIVE_MESSAGE
Air Quality Alert	22	NWS_AIR_QUALITY_ALERT
Air Stagnation Advisory	23	NWS_AIR_STAGNATION_ADVISORY
Arroyo And Small Stream Flood Advisory	24	NWS_ARROYO_AND_SMALL_STREAM_FLOOD_ADVISORY
Ashfall Advisory	25	NWS_ASHFALL_ADVISORY
Ashfall Warning	26	NWS_ASHFALL_WARNING
Atmospheric Pressure	13	ATM_PRESSURE
Avalanche Advisory	27	NWS_AVALANCHE_ADVISORY
Avalanche Warning	28	NWS_AVALANCHE_WARNING
Avalanche Watch	29	NWS_AVALANCHE_WATCH
Avalanches	163	AVALANCHES_ALERT
Beach Hazards Statement	30	NWS_BEACH_HAZARDS_STATEMENT
Blizzard Warning	31	NWS_BLIZZARD_WARNING
Blizzard Watch	32	NWS_BLIZZARD_WATCH
Blowing Dust Advisory	33	NWS_BLOWING_DUST_ADVISORY
Blowing Dust Warning	34	NWS_BLOWING_DUST_WARNING
Brisk Wind Advisory	35	NWS_BRISK_WIND_ADVISORY
Categorical Freezing Rain	9	CFRZR

NAME	ID	CODE
Categorical Ice Pellets	10	CICEP
Categorical Precipitation	180	CPCP
Categorical Rain	8	CRAIN
Categorical Snow	11	CSNOW
Categorical Storm	15	STRM_CAT
Chance of Precipitation	19	APCP2
Child Abduction Emergency	36	NWS_CHILD_ABDUCTION_EMERGENCY
Civil Danger Warning	37	NWS_CIVIL_DANGER_WARNING
Civil Emergency Message	38	NWS_CIVIL_EMERGENCY_MESSAGE
Cloud Cover	6	TCDC
Cloud Cover @1000mb	217	TCDC_1000
Cloud Cover @100mb	197	TCDC_100
Cloud Cover @150mb	198	TCDC_150
Cloud Cover @200mb	199	TCDC_200
Cloud Cover @250mb	200	TCDC_250
Cloud Cover @300mb	201	TCDC_300
Cloud Cover @350mb	202	TCDC_350
Cloud Cover @400mb	203	TCDC_400
Cloud Cover @450mb	204	TCDC_450
Cloud Cover @500mb	205	TCDC_500
Cloud Cover @50mb	196	TCDC_50
Cloud Cover @550mb	206	TCDC_550
Cloud Cover @600mb	207	TCDC_600
Cloud Cover @650mb	208	TCDC_650
Cloud Cover @700mb	209	TCDC_700
Cloud Cover @750mb	210	TCDC_750
Cloud Cover @800mb	211	TCDC_800
Cloud Cover @850mb	212	TCDC_850
Cloud Cover @900mb	213	TCDC_900
Cloud Cover @925mb	214	TCDC_925
Cloud Cover @950mb	215	TCDC_950
Cloud Cover @975mb	216	TCDC_975
Coastal Event	161	COASTAL_EVENT_ALERT
Coastal Flood Advisory	39	NWS_COASTAL_FLOOD_ADVISORY
Coastal Flood Statement	40	NWS_COASTAL_FLOOD_STATEMENT
Coastal Flood Warning	41	NWS_COASTAL_FLOOD_WARNING

NAME	ID	CODE
Coastal Flood Watch	42	NWS_COASTAL_FLOOD_WATCH
Convective Available Potential Energy	177	CAPE
Convective Precipitation Rate	178	CPRAT
Dense Fog Advisory	43	NWS_DENSE_FOG_ADVISORY
Dense Smoke Advisory	44	NWS_DENSE_SMOKE_ADVISORY
Dew Point	14	DEW_POINT
Dust Advisory	45	NWS_DUST_ADVISORY
Dust Storm Warning	46	NWS_DUST_STORM_WARNING
Earthquake Warning	47	NWS_EARTHQUAKE_WARNING
Evacuation Immediate	48	NWS_EVACUATION_IMMEDIATE
Excessive Heat Warning	49	NWS_EXCESSIVE_HEAT_WARNING
Excessive Heat Watch	50	NWS_EXCESSIVE_HEAT_WATCH
Extreme Cold Warning	51	NWS_EXTREME_COLD_WARNING
Extreme Cold Watch	52	NWS_EXTREME_COLD_WATCH
Extreme Fire Danger	53	NWS_EXTREME_FIRE_DANGER
Extreme Wind Warning	54	NWS_EXTREME_WIND_WARNING
Fire Warning	55	NWS_FIRE_WARNING
Fire Weather Watch	56	NWS_FIRE_WEATHER_WATCH
Flash Flood Statement	57	NWS_FLASH_FLOOD_STATEMENT
Flash Flood Warning	58	NWS_FLASH_FLOOD_WARNING
Flash Flood Watch	59	NWS_FLASH_FLOOD_WATCH
Flood Advisory	60	NWS_FLOOD_ADVISORY
Flood Statement	61	NWS_FLOOD_STATEMENT
Flood Warning	62	NWS_FLOOD_WARNING
Flood Watch	63	NWS_FLOOD_WATCH
Flooding	165	FLOODING_ALERT
Fog	158	FOG_ALERT
Forest Fire	162	FOREST_FIRE_ALERT
Freeze Warning	64	NWS_FREEZE_WARNING
Freeze Watch	65	NWS_FREEZE_WATCH
Freezing Fog Advisory	66	NWS_FREEZING_FOG_ADVISORY
Freezing Rain Advisory	67	NWS_FREEZING_RAIN_ADVISORY
Freezing Spray Advisory	68	NWS_FREEZING_SPRAY_ADVISORY
Frost Advisory	69	NWS_FROST_ADVISORY
Gale Warning	70	NWS_GALE_WARNING
Gale Watch	71	NWS_GALE_WATCH

NAME	ID	CODE
Hard Freeze Warning	72	NWS_HARD_FREEZE_WARNING
Hard Freeze Watch	73	NWS_HARD_FREEZE_WATCH
Hazardous Materials Warning	74	NWS_HAZARDOUS_MATERIALS_WARNING
Hazardous Seas Warning	75	NWS_HAZARDOUS_SEAS_WARNING
Hazardous Seas Watch	76	NWS_HAZARDOUS_SEAS_WATCH
Hazardous Weather Outlook	77	NWS_HAZARDOUS_WEATHER_OUTLOOK
Heat Advisory	78	NWS_HEAT_ADVISORY
Heavy Freezing Spray Warning	79	NWS_HEAVY_FREEZING_SPRAY_WARNING
Heavy Freezing Spray Watch	80	NWS_HEAVY_FREEZING_SPRAY_WATCH
High Cloud Cover	167	HCDC
High Surf Advisory	81	NWS_HIGH_SURF_ADVISORY
High Surf Warning	82	NWS_HIGH_SURF_WARNING
High Temperature	159	HIGH_TEMPERATURE_ALERT
High Wind Warning	83	NWS_HIGH_WIND_WARNING
High Wind Watch	84	NWS_HIGH_WIND_WATCH
Highest Wind Gust	151	GUST_MAX
Highest Wind Speed	150	WIND_U_MAX
Hurricane Force Wind Warning	85	NWS_HURRICANE_FORCE_WIND_WARNING
Hurricane Force Wind Watch	86	NWS_HURRICANE_FORCE_WIND_WATCH
Hurricane Local Statement	87	NWS_HURRICANE_LOCAL_STATEMENT
Hurricane Warning	88	NWS_HURRICANE_WARNING
Hurricane Watch	89	NWS_HURRICANE_WATCH
Hydrologic Advisory	90	NWS_HYDROLOGIC_ADVISORY
Hydrologic Outlook	91	NWS_HYDROLOGIC_OUTLOOK
Ice Storm Warning	92	NWS_ICE_STORM_WARNING
Lake Effect Snow Advisory	93	NWS_LAKE_EFFECT_SNOW_ADVISORY
Lake Effect Snow Warning	94	NWS_LAKE_EFFECT_SNOW_WARNING
Lake Effect Snow Watch	95	NWS_LAKE_EFFECT_SNOW_WATCH
Lake Wind Advisory	96	NWS_LAKE_WIND_ADVISORY
Lakeshore Flood Advisory	97	NWS_LAKESHORE_FLOOD_ADVISORY
Lakeshore Flood Statement	98	NWS_LAKESHORE_FLOOD_STATEMENT
Lakeshore Flood Warning	99	NWS_LAKESHORE_FLOOD_WARNING
Lakeshore Flood Watch	100	NWS_LAKESHORE_FLOOD_WATCH
Law Enforcement Warning	101	NWS_LAW_ENFORCEMENT_WARNING
Lifted Index	176	LFTX
Local Area Emergency	102	NWS_LOCAL_AREA_EMERGENCY

NAME	ID	CODE
Longwave Infrared	192	LWI
Low Cloud Cover	168	LCDC
Low Temperature	160	LOW_TEMPERATURE_ALERT
Low Water Advisory	103	NWS_LOW_WATER_ADVISORY
Marine Weather Statement	104	NWS_MARINE_WEATHER_STATEMENT
Maximum Temperature	2	TMAX
Mean Sea Level Pressure	147	PRMSL
Medium Cloud Cover	169	MCDC
Minimum Temperature	3	TMIN
Nuclear Power Plant Warning	105	NWS_NUCLEAR_POWER_PLANT_WARNING
Precipitation Rate	179	PRATE
Radiological Hazard Warning	106	NWS_RADIOLOGICAL_HAZARD_WARNING
Rain	164	RAIN_ALERT
Rain Flood	166	RAIN_FLOOD_ALERT
Red Flag Warning	107	NWS_RED_FLAG_WARNING
Relative Humidity	12	REL_HUM
Rip Current Statement	108	NWS_RIP_CURRENT_STATEMENT
Severe Thunderstorm Warning	109	NWS_SEVERE_THUNDERSTORM_WARNING
Severe Thunderstorm Watch	110	NWS_SEVERE_THUNDERSTORM_WATCH
Severe Weather Statement	111	NWS_SEVERE_WEATHER_STATEMENT
Shelter In Place Warning	112	NWS_SHELTER_IN_PLACE_WARNING
Short Term Forecast	113	NWS_SHORT_TERM_FORECAST
Shortwave Infrared	195	SWI
Small Craft Advisory	114	NWS_SMALL_CRAFT_ADVISORY
Small Craft Advisory For Hazardous Seas	115	NWS_SMALL_CRAFT_ADVISORY_FOR_HAZARDOUS_SEAS
Small Craft Advisory For Rough Bar	116	NWS_SMALL_CRAFT_ADVISORY_FOR_ROUGH_BAR
Small Craft Advisory For Winds	117	NWS_SMALL_CRAFT_ADVISORY_FOR_WINDS
Small Stream Flood Advisory	118	NWS_SMALL_STREAM_FLOOD_ADVISORY
Snow Squall Warning	119	NWS_SNOW_SQUALL_WARNING
Snow or Ice	156	SNOW_OR_ICE_ALERT
Snowfall	170	SNOWFALL
Snowfall Rate	182	SRATE
Special Marine Warning	120	NWS_SPECIAL_MARINE_WARNING
Special Weather Statement	121	NWS_SPECIAL_WEATHER_STATEMENT
Storm Hail	17	STRM_HAIL
Storm Surge Warning	122	NWS_STORM_SURGE_WARNING

NAME	ID	CODE
Storm Surge Watch	123	NWS_STORM_SURGE_WATCH
Storm Warning	124	NWS_STORM_WARNING
Storm Watch	125	NWS_STORM_WATCH
Storm Wind	16	STRM_WIND
Temperature	1	TMP
Temperature @850mb	181	TMP_850
Thunderstorm	157	THUNDERSTORM_ALERT
Timestamp	175	TIMESTAMP
Tornado	18	STRM_TORNADO
Tornado Warning	126	NWS_TORNADO_WARNING
Tornado Watch	127	NWS_TORNADO_WATCH
Total Precipitation	171	APCP
Total Solid Precipitation	174	ASPCP
Tropical Depression Local Statement	128	NWS_TROPICAL_DEPRESSION_LOCAL_STATEMENT
Tropical Storm Local Statement	129	NWS_TROPICAL_STORM_LOCAL_STATEMENT
Tropical Storm Warning	130	NWS_TROPICAL_STORM_WARNING
Tropical Storm Watch	131	NWS_TROPICAL_STORM_WATCH
Tsunami Advisory	132	NWS_TSUNAMI_ADVISORY
Tsunami Warning	133	NWS_TSUNAMI_WARNING
Tsunami Watch	134	NWS_TSUNAMI_WATCH
Typhoon Local Statement	135	NWS_TYPHOON_LOCAL_STATEMENT
Typhoon Warning	136	NWS_TYPHOON_WARNING
Typhoon Watch	137	NWS_TYPHOON_WATCH
Urban And Small Stream Flood Advisory	138	NWS_URBAN_AND_SMALL_STREAM_FLOOD_ADVISORY
Visibility	152	VIS
Visible	193	VISR
Volcano Warning	139	NWS_VOLCANO_WARNING
Water Vapor	194	WV
Weather Code	148	WEATHER_CODE
Weather Description	154	WEATHER_DESC
Weather Icon	153	WEATHER_ICON
Wind	155	WIND_ALERT
Wind Advisory	140	NWS_WIND_ADVISORY
Wind Chill Advisory	141	NWS_WIND_CHILL_ADVISORY
Wind Chill Warning	142	NWS_WIND_CHILL_WARNING
Wind Chill Watch	143	NWS_WIND_CHILL_WATCH

NAME	ID	CODE
Wind Direction	5	VGRD
Wind Gust	7	GUST
Wind Gust Direction	173	VGUST
Wind Gust Speed	172	UGUST
Wind Speed	4	UGRD
Winter Storm Warning	144	NWS_WINTER_STORM_WARNING
Winter Storm Watch	145	NWS_WINTER_STORM_WATCH
Winter Weather Advisory	146	NWS_WINTER_WEATHER_ADVISORY

CURRENT OBSERVATION DATA SOURCES

NAME	ID	COVERAGE
Direccion Meterologica de Chile	5	Chile (Stations only)
Global Surface Observations (METARs)	7	Global
Icelandic Met Office (Vedur)	6	Iceland (Stations only)
National Weather Service Stations	3	North America Stations
RTMA Alaska	1	North Pole / Alaska
RTMA Conus Rapid Update	2	North America Regions
Satellite Imagery - Global Mosaic (NOAA)	8	Global

FORECAST OBSERVATION DATA SOURCES

NAME	ID	COVERAGE
Alaska High Resolution Ensemble Forecast	5	North Pole / Alaska
Alaska High Resolution Window	4	North Pole / Alaska
ECMWF Iceland High Resolution	14	Iceland
ECMWF Public Open Data	12	Whole world
GFS Global Forecast System	1	Whole world
Hawaii High Resolution Ensemble Forecast	7	Hawaii
Hawaii High Resolution Window	6	Hawaii
Icelandic Met Office IGIS	15	Iceland and Greenland area
NCEP Short-Range Ensemble Forecast	11	North America
Puerto Rico High Resolution Ensemble Forecast	9	Puerto Rico
Puerto Rico High Resolution Window	8	Puerto Rico

NAME	ID	COVERAGE
USA High Resolution Ensemble Forecast	3	North America
USA High Resolution Window	2	North America
USA Storm Prediction Center	10	North America
Vedur/IMO Station Forecasts	13	Iceland (Stations only)

★ **Important:** Not every variable will have a value for a specific place of interest for a certain Data Source. For example, only Chilean Cities will have data for the Chilean Meteorologic Datasource.

Appendix B: Wind Particle Sizing

The following table outlines the recommended wind particle sizing settings based on region size. It includes descriptions of each region size and the corresponding size settings for stroke, velocity, and density. These recommendations are designed to optimize performance and visual accuracy while minimizing storage impact on the system.

Recommended Wind Particle Size Settings by Region Size

Region Size	Description	Size Setting
 <p>Small Region</p>	US DMA, small country, or a small region of a country.	<ul style="list-style-type: none"> • Isobars Stroke Size: 2 • Wind Particles Stroke Size: 2 • Wind Particles Velocity Scale: 0.002-0.003 • Wind Particles Density: 1000
 <p>Medium Region</p>	Region of a large country, medium country, or ocean basin.	<ul style="list-style-type: none"> • Isobars Stroke Size: 1 • Wind Particles Stroke Size: 1 • Wind Particles Velocity Scale: 0.008 • Wind Particles Density: 3000-4000
 <p>Large Region</p>	Region of a large country, continent, or ocean.	<ul style="list-style-type: none"> • Isobars Stroke Size: 1 • Wind Particles Stroke Size: 1 • Wind Particles Velocity Scale: 0.01 • Wind Particles Density: 6000-7000
 <p>Full World</p>	The full world.	<ul style="list-style-type: none"> • Isobars Stroke Size: 1 • Wind Particles Stroke Size: 1 • Wind Particles Velocity Scale: 0.02 • Wind Particles Density: 5000 <p>★ Wind particles density values above 5000 are available, but they will place a heavy demand on storage resources on your local server.</p>

Appendix C: Raiden Licensing

This section provides an overview of the process for installing and activating the Raiden product key license(s).

Prerequisites

Before beginning the licensing process, ensure you have the following:

- **Raiden product key license(s)** - provided by Ross Video.

If you do not have the product key license(s), contact [Ross Technical Support](#)  for assistance.

- **Ross Platform Manager (RPM)**

Ensure the Ross Platform Manager (RPM) is installed and running on your local network.

- **XPression License Tool**

Ensure the XPression License Tool is installed on each Raiden server.

★ **Note:** This section does not provide instructions for how to use the Ross Platform Manager (RPM) or the XPression License Tool.

For detailed instructions on using RPM, refer to the *RPM User Guide*. For information on using the XPression License Tool, consult the *XPression License Tool and Software Maintenance* document.

Installing the Raiden Product Key License

This section explains the process for installing and activating the product key license for the Raiden system.

To install the Raiden product key license:

1. Use the Ross Platform Manager (RPM) to add and activate the Raiden product key license provided by Ross Video.
2. Once the Raiden product key license has been activated, install it on each Raiden server using the XPression License Tool.

The servers include:

- Raiden Data Aggregator Server
- Raiden Local Server
- Raiden Story Creator Server
- Raiden DataLinq Server

Upon completing the licensing process, all Raiden servers will be fully activated and operational.

Appendix D: Raiden User Rights Management

This appendix outlines the process for configuring user rights for Raiden using the Ross Platform Manager (RPM).

This section does not provide instructions on how to use RPM. For instructions on adding roles and creating user accounts in RPM, refer to the *RPM User Guide*.

To set up and configure Raiden user rights in Ross Platform Manager (RPM):

1. In RPM, create the following Raiden-specific roles:

- Data Aggregator Administrator
- Data Aggregator User
- Local Server Administrator
- Local Server User
- Story Creator Administrator
- Story Creator User

★ **Important:** Ensure that the roles are entered exactly as listed above, including capitalization, as they are case sensitive.

2. Create user accounts as follows:

- a. Add a user account for each individual who needs access to Raiden.
- b. Ensure accurate user details are entered during account creation.

3. For each user account, assign one or more of the Raiden-specific roles created in step 1 and ensure the following:

- a. Enable each user account by marking it as **Active**.
- b. Enable API access for each user.

4. Verify that all users have the appropriate roles and settings applied.

Once the user rights configuration is complete, users will have the appropriate roles and access levels required to use the Raiden application.

Appendix E: Third Party Licenses

This product may use one or more software components subject to the following licenses.

As required by the GNU General Public License, and the Lesser GNU Public License (LGPL), source code can be obtained from Ross Video for at least 3 years. Contact [Ross Video Technical Support](#) for more information.

Software licenses used are described in the table below:

NAME	VERSION	LICENSE
adobe.xmp		
xmpcore	6.1.11	BSD 3-Clause License ^[210]
apache.commons		
commons-math3	3.6.1	Apache Software License, Version 2.0 ^[203]
commons-collections4	4.4	
commons-lang3	3.12.0	
commons-text	1.10.0	
apache.pdfbox		
xmpbox	2.0.25	Apache Software License, Version 2.0 ^[203]
commons-codec		
commons-codec	1.15	Apache Software License, Version 2.0 ^[203]
commons-io		
commons-io	2.18	Apache Software License, Version 2.0 ^[203]
commons-logging		
commons-logging	1.2	Apache Software License, Version 2.0 ^[203]
commons-net		
commons-net	3.9.0	Apache Software License, Version 2.0 ^[203]
de.micromata.jak		
JavaAPIforKml	2.2.1-SNAPSHOT	BSD 3-Clause License ^[211]
eclipse.ecf		
ch.ethz.iks.slp	1.4.1	Eclipse Public License, Version 1.0 ^[222]
eclipse.jetty		
apache-jsp	11.0.24	Eclipse Public License - Version 2.0 ^[225] Apache Software License, Version 2.0 ^[203]
jetty-annotations	11.0.24	
jetty-http	11.0.24	
jetty-security	11.0.24	
jetty-server	11.0.24	
jetty-servlet	11.0.24	

NAME	VERSION	LICENSE
jetty-webapp	11.0.24	
websocket-jetty-server	11.0.24	Eclipse Public License - Version 2.0 ^[225] Apache Software License, Version 2.0 ^[203]
edu.ucar		
cdm-core	5.6.0	BSD 3-Clause License ^[212]
grib	5.6.0	
netcdf4	5.6.0	
fasterxml.uuid		
java-uuid-generator	4.0.1	Apache Software License, Version 2.0 ^[203]
FFmpeg		This software uses libraries from the FFmpeg project under the LGPLv2.1.
geotools		
gt-coverage	32.0	Lesser General Public License (LGPL) Version 3.0 ^[220]
gt-epsg-extension	32.0	
gt-epsg-wkt	32.0	
gt-geojson	32.0	
gt-geotiff	32.0	
gt-grid	32.0	
gt-process	32.0	
gt-process-feature	32.0	
gt-referencing	32.0	
gt-render	32.0	
gt-shapefile	32.0	
gt-swing	32.0	
gt-xml	32.0	
gt-epsg-hsql	32.0	Lesser General Public License (LGPL) Version 3.0 ^[220] EPSG database distribution license ^[234] BSD License for HSQL ^[214]
gt-xsd-kml	32.0	Lesser General Public License (LGPL) Version 3.0 ^[220]
github.cosinekitty		
astronomy	v2.1.17	MIT License ^[236]
github.oshi		
oshi-core	5.7.0	MIT License ^[237]
github.seancoley		
ipaddress	5.3.3	Apache Software License, Version 2.0 ^[203]

NAME	VERSION	LICENSE
google.code.gson		
gson	2.10.1	Apache Software License, Version 2.0 ^[203]
io.lettuce		
lettuce-core	6.5.0.RELEASE	MIT License ^[237]
it.sauronsoftware		
junique	1.0.4	GNU Lesser General Public License, version 2.1 ^[215]
javatuples		
javatuples	1.2	Apache Software License, Version 2.0 ^[203]
locationtech.jts		
jts-core	1.18.1	Eclipse Public License, Version 2.0 ^[225] Eclipse Distribution License, Version 1.0 ^[222]
luckycatlabs		
SunriseSunsetCalculator	1.2	Apache Software License, Version 2.0 ^[203]
net.sf.jsi		
jsi	1.1.0-SNAPSHOT	GNU Lesser General Public License, version 2.1 ^[215]
openpnp		
opencv	4.9.0-0	BSD License ^[206]
postgresql		
postgresql	42.7.4	BSD-2-Clause ^[208]
shredzone.commons		
commons-suncalc	3.1	Apache Software License, Version 2.0 ^[203]
slf4j		
slf4j-api	2.0.16	MIT License ^[238]
slf4j-reload4j	2.0.16	
snmp4j		
snmp4j	3.7.0	Apache Software License, Version 2.0 ^[203]
snmp4j-agent	3.7.0	
software.amazon.awssdk		
s3	2.23.14	Apache Software License, Version 2.0 ^[203]
twelvemonkeys.imageio		
imageio-tga	3.8.1	BSD 3 Clause License ^[213]
imageio-tiff	3.8.1	
zaxxer		
HikariCP	5.0.1	Apache Software License, Version 2.0 ^[203]

Apache Software License Version 2.0

Apache License

Version 2.0, January 2004

<http://www.apache.org/licenses/>

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition,

"control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work.

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files;

and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License. You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

BSD License (openpnp)

License Agreement

For Open Source Computer Vision Library

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

- Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
- Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
- Neither the names of the copyright holders nor the names of the contributors may be used to endorse or promote products derived from this software without specific prior written permission.

This software is provided by the copyright holders and contributors "as is" and any express or implied warranties, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose are disclaimed. In no event shall copyright holders or contributors be liable for any direct, indirect, incidental, special, exemplary, or consequential damages (including, but not limited to, procurement of substitute goods or services; loss of use, data, or profits; or business interruption) however caused and on any theory of liability, whether in contract, strict liability, or tort (including negligence or otherwise) arising in any way out of the use of this software, even if advised of the possibility of such damage.

BSD 2 Clause License

Copyright <YEAR> <COPYRIGHT HOLDER>

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

BSD 2 Clause License (postgresql)

BSD 2-clause "Simplified" License

The PostgreSQL JDBC Driver is distributed under the BSD-2-Clause License.

The simplest explanation of the licensing terms is that you can do whatever you want with the product and source code as long as you don't claim you wrote it or sue us. You should give it a read though, it's only half a page. Copyright (c) 1997, PostgreSQL Global Development Group All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

This Software Is Provided By The Copyright Holders And Contributors "as Is" And Any Express Or Implied Warranties, Including, But Not Limited To, The Implied Warranties Of Merchantability And Fitness For A Particular Purpose Are Disclaimed. In No Event Shall The Copyright Owner Or Contributors Be Liable For Any Direct, Indirect, Incidental, Special, Exemplary, Or Consequential Damages (including, But Not Limited To, Procurement Of Substitute Goods Or Services; Loss Of Use, Data, Or Profits; Or Business Interruption) However Caused And On Any Theory Of Liability, Whether In Contract, Strict Liability, Or Tort (including Negligence Or Otherwise) Arising In Any Way Out Of The Use Of This Software, Even If Advised Of The Possibility Of Such Damage.

BSD 3 Clause License

Copyright <YEAR> <COPYRIGHT HOLDER>

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
3. Neither the name of the copyright holder nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

BSD 3 Clause License (adobe.xmp)

BSD 3-Clause License

Copyright (c) 2020, Adobe

All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
3. Neither the name of the copyright holder nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE US OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

BSD 3 Clause License (de.micromata.jak)

Copyright (c) 2009, Micromata GmbH

All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
3. Neither the name of the Micromata GmbH nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY Micromata GmbH "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL Micromata GmbH BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

BSD 3 Clause (edu.ucar)

BSD 3-Clause License

Copyright (c) 1998-2023, University Corporation for Atmospheric Research/Unidata

All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
3. Neither the name of the copyright holder nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

BSD 3 Clause License (twelvemonkeys.imageio)

BSD 3-Clause License

Copyright (c) 2008-2022, Harald Kuhr

All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
3. Neither the name of the copyright holder nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

BSD License for HSQL

HSQL license (BSD 3-Clause License)

Copyright (c) 2001-2004, The HSQL Development Group All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
3. Neither the name of the HSQL Development Group nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL HSQL DEVELOPMENT GROUP, HSQLDB.ORG, OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

source: www.hsqldb.org

GNU Lesser General Public License, vs 2.1

Version 2.1, February 1999

Copyright (C) 1991, 1999 Free Software Foundation, Inc.

51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA

Everyone is permitted to copy and distribute verbatim copies of this license document, but changing it is not allowed.

[This is the first released version of the Lesser GPL. It also counts as the successor of the GNU Library Public License, version 2, hence the version number 2.1.]

Preamble

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public Licenses are intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users. This license, the Lesser General Public License, applies to some specially designated software packages--typically libraries--of the Free Software Foundation and other authors who decide to use it. You can use it too, but we suggest you first think carefully about whether this license or the ordinary General Public License is the better strategy to use in any particular case, based on the explanations below. When we speak of free software, we are referring to freedom of use, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish); that you receive source code or can get it if you want it; that you can change the software and use pieces of it in new free programs; and that you are informed that you can do these things. To protect your rights, we need to make restrictions that forbid distributors to deny you these rights or to ask you to surrender these rights. These restrictions translate to certain responsibilities for you if you distribute copies of the library or if you modify it. For example, if you distribute copies of the library, whether gratis or for a fee, you must give the recipients all the rights that we gave you. You must make sure that they, too, receive or can get the source code. If you link other code with the library, you must provide complete object files to the recipients, so that they can relink them with the library after making changes to the library and recompiling it. And you must show them these terms so they know their rights.

We protect your rights with a two-step method: (1) we copyright the library, and (2) we offer you this license, which gives you legal permission to copy, distribute and/or modify the library. To protect each distributor, we want to make it very clear that there is no warranty for the free library. Also, if the library is modified by someone else and passed on, the recipients should know that what they have is not the original version, so that the original author's reputation will not be affected by problems that might be introduced by others. Finally, software patents pose a constant threat to the existence of any free program. We wish to make sure that a company cannot effectively restrict the users of a free program by obtaining a restrictive license from a patent holder. Therefore, we insist that any patent license obtained for a version of the library must be consistent with the full freedom of use specified in this license. Most GNU software, including some libraries, is covered by the ordinary GNU General Public License.

This license, the GNU Lesser General Public License, applies to certain designated libraries, and is quite different from the ordinary General Public License. We use this license for certain libraries in order to permit linking those libraries into non-free programs. When a program is linked with a library, whether statically or using a shared library, the combination of the two is legally speaking a combined work, a derivative of the original library. The ordinary General Public License therefore permits such linking only if the entire combination fits its criteria of freedom. The Lesser General Public License permits more lax criteria for linking other code with the library. We call this license the "Lesser" General Public License because it does less to protect the user's freedom than the ordinary General Public License. It also provides other free software developers less of an advantage over competing non-free programs. These disadvantages are the reason we use the ordinary General Public License for many libraries. However, the Lesser license provides advantages in certain special circumstances. For example, on rare occasions, there may be a special need to encourage the widest possible use of a certain library, so that it becomes a de-facto standard. To achieve

this, non-free programs must be allowed to use the library. A more frequent case is that a free library does the same job as widely used non-free libraries. In this case, there is little to gain by limiting the free library to free software only, so we use the Lesser General Public License. In other cases, permission to use a particular library in non-free programs enables a greater number of people to use a large body of free software. For example, permission to use the GNU C Library in nonfree programs enables many more people to use the whole GNU operating system, as well as its variant, the GNU/Linux operating system.

Although the Lesser General Public License is Less protective of the users' freedom, it does ensure that the user of a program that is linked with the Library has the freedom and the wherewithal to run that program using a modified version of the Library. The precise terms and conditions for copying, distribution and modification follow. Pay close attention to the difference between a "work based on the library" and a "work that uses the library". The former contains code derived from the library, whereas the latter must be combined with the library in order to run.

TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License Agreement applies to any software library or other program which contains a notice placed by the copyright holder or other authorized party saying it may be distributed under the terms of this Lesser General Public License (also called "this License"). Each licensee is addressed as "you". A "library" means a collection of software functions and/or data prepared so as to be conveniently linked with application programs (which use some of those functions and data) to form executables. The "Library", below, refers to any such software library or work which has been distributed under these terms. A "work based on the Library" means either the Library or any derivative work under copyright law: that is to say, a work containing the Library or a portion of it, either verbatim or with modifications and/or translated straightforwardly into another language. (Hereinafter, translation is included without limitation in the term "modification".) "Source code" for a work means the preferred form of the work for making modifications to it. For a library, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the library.

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running a program using the Library is not restricted, and output from such a program is covered only if its contents constitute a work based on the Library (independent of the use of the Library in a tool for writing it). Whether that is true depends on what the Library does and what the program that uses the Library does.

1. You may copy and distribute verbatim copies of the Library's complete source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and distribute a copy of this License along with the Library. You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Library or any portion of it, thus forming a work based on the Library, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) The modified work must itself be a software library.

b) You must cause the files modified to carry prominent notices stating that you changed the files and the date of any change.

c) You must cause the whole of the work to be licensed at no charge to all third parties under the terms of this License.

d) If a facility in the modified Library refers to a function or a table of data to be supplied by an application program that uses the facility, other than as an argument passed when the facility is invoked, then you must make a good faith effort to ensure that, in the event an application does not supply such function or table, the facility still operates, and performs whatever part of its purpose remains meaningful. (For example, a function in a library to compute square roots has a purpose that is entirely well defined independent of the application. Therefore, Subsection 2d requires that any application-supplied function or

table used by this function must be optional: if the application does not supply it, the square root function must still compute square roots.) These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Library, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Library, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it. Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Library. In addition, mere aggregation of another work not based on the Library with the Library (or with a work based on the Library) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may opt to apply the terms of the ordinary GNU General Public License instead of this License to a given copy of the Library. To do this, you must alter all the notices that refer to this License, so that they refer to the ordinary GNU General Public License, version 2, instead of to this License. (If a newer version than version 2 of the ordinary GNU General Public License has appeared, then you can specify that version instead if you wish.) Do not make any other change in these notices. Once this change is made in a given copy, it is irreversible for that copy, so the ordinary GNU General Public License applies to all subsequent copies and derivative works made from that copy. This option is useful when you wish to copy part of the code of the Library into a program that is not a library.

4. You may copy and distribute the Library (or a portion or derivative of it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange. If distribution of object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place satisfies the requirement to distribute the source code, even though third parties are not compelled to copy the source along with the object code.

5. A program that contains no derivative of any portion of the Library, but is designed to work with the Library by being compiled or linked with it, is called a "work that uses the Library". Such a work, in isolation, is not a derivative work of the Library, and therefore falls outside the scope of this License. However, linking a "work that uses the Library" with the Library creates an executable that is a derivative of the Library (because it contains portions of the Library), rather than a "work that uses the library". The executable is therefore covered by this License. Section 6 states terms for distribution of such executables. When a "work that uses the Library" uses material from a header file that is part of the Library, the object code for the work may be a derivative work of the Library even though the source code is not. Whether this is true is especially significant if the work can be linked without the Library, or if the work is itself a library. The threshold for this to be true is not precisely defined by law. If such an object file uses only numerical parameters, data structure layouts and accessors, and small macros and small inline functions (ten lines or less in length), then the use of the object file is unrestricted, regardless of whether it is legally a derivative work. (Executables containing this object code plus portions of the Library will still fall under Section 6.) Otherwise, if the work is a derivative of the Library, you may distribute the object code for the work under the terms of Section 6. Any executables containing that work also fall under Section 6, whether or not they are linked directly with the Library itself.

6. As an exception to the Sections above, you may also combine or link a "work that uses the Library" with the Library to produce a work containing portions of the Library, and distribute that work under terms of your choice, provided that the terms permit modification of the work for the customer's own use and reverse engineering for debugging such modifications. You must give prominent notice with each copy of the work that the Library is used in it and that the Library and its use are covered by this License. You must supply a copy of this License. If the work during execution displays copyright notices, you must include the copyright notice for the Library among them, as well as a reference directing the user to the copy of this License. Also, you must do one of these things:

a) Accompany the work with the complete corresponding machine-readable source code for the Library including whatever changes were used in the work (which must be distributed under Sections 1 and 2 above); and, if the work is an executable linked with the Library, with the complete machine-readable "work that uses the Library", as object code and/or source code, so that the user can modify the Library and then relink to produce a modified executable containing the modified Library. (It is understood that the user who

changes the contents of definitions files in the Library will not necessarily be able to recompile the application to use the modified definitions.)

b) Use a suitable shared library mechanism for linking with the Library. A suitable mechanism is one that (1) uses at run time a copy of the library already present on the user's computer system, rather than copying library functions into the executable, and (2) will operate properly with a modified version of the library, if the user installs one, as long as the modified version is interface-compatible with the version that the work was made with.

c) Accompany the work with a written offer, valid for at least three years, to give the same user the materials specified in Subsection 6a, above, for a charge no more than the cost of performing this distribution.

d) If distribution of the work is made by offering access to copy from a designated place, offer equivalent access to copy the above specified materials from the same place.

e) Verify that the user has already received a copy of these materials or that you have already sent this user a copy. For an executable, the required form of the "work that uses the Library" must include any data and utility programs needed for reproducing the executable from it. However, as a special exception, the materials to be distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable. It may happen that this requirement contradicts the license restrictions of other proprietary libraries that do not normally accompany the operating system. Such a contradiction means you cannot use both them and the Library together in an executable that you distribute.

7. You may place library facilities that are a work based on the Library side-by-side in a single library together with other library facilities not covered by this License, and distribute such a combined library, provided that the separate distribution of the work based on the Library and of the other library facilities is otherwise permitted, and provided that you do these two things:

a) Accompany the combined library with a copy of the same work based on the Library, uncombined with any other library facilities. This must be distributed under the terms of the Sections above.

b) Give prominent notice with the combined library of the fact that part of it is a work based on the Library, and explaining where to find the accompanying uncombined form of the same work.

8. You may not copy, modify, sublicense, link with, or distribute the Library except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense, link with, or distribute the Library is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

9. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Library or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Library (or any work based on the Library), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Library or works based on it.

10. Each time you redistribute the Library (or any work based on the Library), the recipient automatically receives a license from the original licensor to copy, distribute, link with or modify the Library subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties with this License.

11. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Library at all. For example, if a patent license would not permit royalty-free redistribution of the Library by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to

refrain entirely from distribution of the Library. If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply, and the section as a whole is intended to apply in other circumstances. It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice. This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

12. If the distribution and/or use of the Library is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Library under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

13. The Free Software Foundation may publish revised and/or new versions of the Lesser General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns. Each version is given a distinguishing version number. If the Library specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Library does not specify a license version number, you may choose any version ever published by the Free Software Foundation.

14. If you wish to incorporate parts of the Library into other free programs whose distribution conditions are incompatible with these, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally. NO WARRANTY

15. BECAUSE THE LIBRARY IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE LIBRARY, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE LIBRARY "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE LIBRARY IS WITH YOU. SHOULD THE LIBRARY PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

16. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE LIBRARY AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE LIBRARY (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE LIBRARY TO OPERATE WITH ANY OTHER SOFTWARE), EVEN IF SUCH HOLDER OR OTHER

GNU Lesser General Public License Version 3.0

GNU LESSER GENERAL PUBLIC LICENSE

Version 3, 29 June 2007

Copyright © 2007 Free Software Foundation, Inc. <<https://fsf.org/>>

Everyone is permitted to copy and distribute verbatim copies of this license document, but changing it is not allowed.

This version of the GNU Lesser General Public License incorporates the terms and conditions of version 3 of the GNU General Public License, supplemented by the additional permissions listed below.

0. Additional Definitions. As used herein, “this License” refers to version 3 of the GNU Lesser General Public License, and the “GNU GPL” refers to version 3 of the GNU General Public License. “The Library” refers to a covered work governed by this License, other than an Application or a Combined Work as defined below. An “Application” is any work that makes use of an interface provided by the Library, but which is not otherwise based on the Library. Defining a subclass of a class defined by the Library is deemed a mode of using an interface provided by the Library. A “Combined Work” is a work produced by combining or linking an Application with the Library. The particular version of the Library with which the Combined Work was made is also called the “Linked Version”.

The “Minimal Corresponding Source” for a Combined Work means the Corresponding Source for the Combined Work, excluding any source code for portions of the Combined Work that, considered in isolation, are based on the Application, and not on the Linked Version. The “Corresponding Application Code” for a Combined Work means the object code and/or source code for the Application, including any data and utility programs needed for reproducing the Combined Work from the Application, but excluding the System Libraries of the Combined Work.

1. Exception to Section 3 of the GNU GPL. You may convey a covered work under sections 3 and 4 of this License without being bound by section 3 of the GNU GPL.

2. Conveying Modified Versions. If you modify a copy of the Library, and, in your modifications, a facility refers to a function or data to be supplied by an Application that uses the facility (other than as an argument passed when the facility is invoked), then you may convey a copy of the modified version:

a) under this License, provided that you make a good faith effort to ensure that, in the event an Application does not supply the function or data, the facility still operates, and performs whatever part of its purpose remains meaningful, or

b) under the GNU GPL, with none of the additional permissions of this License applicable to that copy.

3. Object Code Incorporating Material from Library Header Files. The object code form of an Application may incorporate material from a header file that is part of the Library. You may convey such object code under terms of your choice, provided that, if the incorporated material is not limited to numerical parameters, data structure layouts and accessors, or small macros, inline functions and templates (ten or fewer lines in length), you do both of the following:

a) Give prominent notice with each copy of the object code that the Library is used in it and that the Library and its use are covered by this License.

b) Accompany the object code with a copy of the GNU GPL and this license document.

4. Combined Works. You may convey a Combined Work under terms of your choice that, taken together, effectively do not restrict modification of the portions of the Library contained in the Combined Work and reverse engineering for debugging such modifications, if you also do each of the following:

a) Give prominent notice with each copy of the Combined Work that the Library is used in it and that the Library and its use are covered by this License.

b) Accompany the Combined Work with a copy of the GNU GPL and this license document.

c) For a Combined Work that displays copyright notices during execution, include the copyright notice for the Library among these notices, as well as a reference directing the user to the copies of the GNU GPL and this license document.

d) Do one of the following:

0) Convey the Minimal Corresponding Source under the terms of this License, and the Corresponding Application Code in a form suitable for, and under terms that permit, the user to recombine or relink the Application with a modified version of the Linked Version to produce a modified Combined Work, in the manner specified by section 6 of the GNU GPL for conveying Corresponding Source.

1) Use a suitable shared library mechanism for linking with the Library. A suitable mechanism is one that (a) uses at run time a copy of the Library already present on the user's computer system, and (b) will operate properly with a modified version of the Library that is interface-compatible with the Linked Version.

e) Provide Installation Information, but only if you would otherwise be required to provide such information under section 6 of the GNU GPL, and only to the extent that such information is necessary to install and execute a modified version of the Combined Work produced by recombining or relinking the Application with a modified version of the Linked Version. (If you use option 4d0, the Installation Information must accompany the Minimal Corresponding Source and Corresponding Application Code. If you use option 4d1, you must provide the Installation Information in the manner specified by section 6 of the GNU GPL for conveying Corresponding Source.)

5. Combined Libraries. You may place library facilities that are a work based on the Library side by side in a single library together with other library facilities that are not Applications and are not covered by this License, and convey such a combined library under terms of your choice, if you do both of the following:

a) Accompany the combined library with a copy of the same work based on the Library, uncombined with any other library facilities, conveyed under the terms of this License.

b) Give prominent notice with the combined library that part of it is a work based on the Library, and explaining where to find the accompanying uncombined form of the same work.

6. Revised Versions of the GNU Lesser General Public License. The Free Software Foundation may publish revised and/or new versions of the GNU Lesser General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Library as you received it specifies that a certain numbered version of the GNU Lesser General Public License "or any later version" applies to it, you have the option of following the terms and conditions either of that published version or of any later version published by the Free Software Foundation. If the Library as you received it does not specify a version number of the GNU Lesser General Public License, you may choose any version of the GNU Lesser General Public License ever published by the Free Software Foundation. If the Library as you received it specifies that a proxy can decide whether future versions of the GNU Lesser General Public License shall apply, that proxy's public statement of acceptance

Eclipse Public License Version 1.0

Eclipse Public License - v 1.0

THE ACCOMPANYING PROGRAM IS PROVIDED UNDER THE TERMS OF THIS ECLIPSE PUBLIC LICENSE ("AGREEMENT"). ANY USE, REPRODUCTION OR DISTRIBUTION OF THE PROGRAM CONSTITUTES RECIPIENT'S ACCEPTANCE OF THIS AGREEMENT.

1. DEFINITIONS

"Contribution" means:

a) in the case of the initial Contributor, the initial code and documentation distributed under this Agreement, and

b) in the case of each subsequent Contributor:

i) changes to the Program, and

ii) additions to the Program; where such changes and/or additions to the Program originate from and are distributed by that particular Contributor. A Contribution 'originates' from a Contributor if it was added to the Program by such Contributor itself or anyone acting on such Contributor's behalf. Contributions do not include additions to the Program which: (i) are separate modules of software distributed in conjunction with the Program under their own license agreement, and (ii) are not derivative works of the Program.

"Contributor" means any person or entity that distributes the Program. "Licensed Patents" mean patent claims licensable by a Contributor which are necessarily infringed by the use or sale of its Contribution alone or when combined with the Program. "Program" means the Contributions distributed in accordance with this Agreement. "Recipient" means anyone who receives the Program under this Agreement, including all Contributors.

2. GRANT OF RIGHTS

a) Subject to the terms of this Agreement, each Contributor hereby grants Recipient a non-exclusive, worldwide, royalty-free copyright license to reproduce, prepare derivative works of, publicly display, publicly perform, distribute and sublicense the Contribution of such Contributor, if any, and such derivative works, in source code and object code form.

b) Subject to the terms of this Agreement, each Contributor hereby grants Recipient a non-exclusive, worldwide, royalty-free patent license under Licensed Patents to make, use, sell, offer to sell, import and otherwise transfer the Contribution of such Contributor, if any, in source code and object code form. This patent license shall apply to the combination of the Contribution and the Program if, at the time the Contribution is added by the Contributor, such addition of the Contribution causes such combination to be covered by the Licensed Patents. The patent license shall not apply to any other combinations which include the Contribution. No hardware per se is licensed hereunder.

c) Recipient understands that although each Contributor grants the licenses to its Contributions set forth herein, no assurances are provided by any Contributor that the Program does not infringe the patent or other intellectual property rights of any other entity. Each Contributor disclaims any liability to Recipient for claims brought by any other entity based on infringement of intellectual property rights or otherwise. As a condition to exercising the rights and licenses granted hereunder, each Recipient hereby assumes sole responsibility to secure any other intellectual property rights needed, if any. For example, if a third party patent license is required to allow Recipient to distribute the Program, it is Recipient's responsibility to acquire that license before distributing the Program.

d) Each Contributor represents that to its knowledge it has sufficient copyright rights in its Contribution, if any, to grant the copyright license set forth in this Agreement.

3. REQUIREMENTS

A Contributor may choose to distribute the Program in object code form under its own license agreement, provided that:

- a) it complies with the terms and conditions of this Agreement; and
- b) its license agreement:
 - i) effectively disclaims on behalf of all Contributors all warranties and conditions, express and implied, including warranties or conditions of title and non-infringement, and implied warranties or conditions of merchantability and fitness for a particular purpose;
 - ii) effectively excludes on behalf of all Contributors all liability for damages, including direct, indirect, special, incidental and consequential damages, such as lost profits;
 - iii) states that any provisions which differ from this Agreement are offered by that Contributor alone and not by any other party; and
 - iv) states that source code for the Program is available from such Contributor, and informs licensees how to obtain it in a reasonable manner on or through a medium customarily used for software exchange. When the Program is made available in source code form:
 - a) it must be made available under this Agreement; and
 - b) a copy of this Agreement must be included with each copy of the Program. Contributors may not remove or alter any copyright notices contained within the Program. Each Contributor must identify itself as the originator of its Contribution, if any, in a manner that reasonably allows subsequent Recipients to identify the originator of the Contribution.

4. COMMERCIAL DISTRIBUTION

Commercial distributors of software may accept certain responsibilities with respect to end users, business partners and the like. While this license is intended to facilitate the commercial use of the Program, the Contributor who includes the Program in a commercial product offering should do so in a manner which does not create potential liability for other Contributors. Therefore, if a Contributor includes the Program in a commercial product offering, such Contributor ("Commercial Contributor") hereby agrees to defend and indemnify every other Contributor ("Indemnified Contributor") against any losses, damages and costs (collectively "Losses") arising from claims, lawsuits and other legal actions brought by a third party against the Indemnified Contributor to the extent caused by the acts or omissions of such Commercial Contributor in connection with its distribution of the Program in a commercial product offering. The obligations in this section do not apply to any claims or Losses relating to any actual or alleged intellectual property infringement. In order to qualify, an Indemnified Contributor must: a) promptly notify the Commercial Contributor in writing of such claim, and b) allow the Commercial Contributor to control, and cooperate with the Commercial Contributor in, the defense and any related settlement negotiations. The Indemnified Contributor may participate in any such claim at its own expense. For example, a Contributor might include the Program in a commercial product offering, Product X. That Contributor is then a Commercial Contributor. If that Commercial Contributor then makes performance claims, or offers warranties related to Product X, those performance claims and warranties are such Commercial Contributor's responsibility alone. Under this section, the Commercial Contributor would have to defend claims against the other Contributors related to those performance claims and warranties, and if a court requires any other Contributor to pay any damages as a result, the Commercial Contributor must pay those damages.

5. NO WARRANTY

EXCEPT AS EXPRESSLY SET FORTH IN THIS AGREEMENT, THE PROGRAM IS PROVIDED ON AN "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, EITHER EXPRESS OR IMPLIED INCLUDING, WITHOUT LIMITATION, ANY WARRANTIES OR CONDITIONS OF TITLE, NONINFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Each Recipient is solely responsible for determining the appropriateness of using and distributing the Program and assumes all risks associated with its exercise of rights under this Agreement, including but not limited to the risks and costs of program errors, compliance with applicable laws, damage to or loss of data, programs or equipment, and unavailability or interruption of operations.

6. DISCLAIMER OF LIABILITY

EXCEPT AS EXPRESSLY SET FORTH IN THIS AGREEMENT, NEITHER RECIPIENT NOR ANY CONTRIBUTORS SHALL HAVE ANY LIABILITY FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING WITHOUT LIMITATION LOST PROFITS), HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OR DISTRIBUTION OF THE PROGRAM OR THE EXERCISE OF ANY RIGHTS GRANTED HEREUNDER, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

7. GENERAL

If any provision of this Agreement is invalid or unenforceable under applicable law, it shall not affect the validity or enforceability of the remainder of the terms of this Agreement, and without further action by the parties hereto, such provision shall be reformed to the minimum extent necessary to make such provision valid and enforceable. If Recipient institutes patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Program itself (excluding combinations of the Program with other software or hardware) infringes such Recipient's patent(s), then such Recipient's rights granted under Section 2(b) shall terminate as of the date such litigation is filed. All Recipient's rights under this Agreement shall terminate if it fails to comply with any of the material terms or conditions of this Agreement and does not cure such failure in a reasonable period of time after becoming aware of such noncompliance. If all Recipient's rights under this Agreement terminate, Recipient agrees to cease use and distribution of the Program as soon as reasonably practicable. However, Recipient's obligations under this Agreement and any licenses granted by Recipient relating to the Program shall continue and survive. Everyone is permitted to copy and distribute copies of this Agreement, but in order to avoid inconsistency the Agreement is copyrighted and may only be modified in the following manner. The Agreement Steward reserves the right to publish new versions (including revisions) of this Agreement from time to time. No one other than the Agreement Steward has the right to modify this Agreement.

The Eclipse Foundation is the initial Agreement Steward. The Eclipse Foundation may assign the responsibility to serve as the Agreement Steward to a suitable separate entity. Each new version of the Agreement will be given a distinguishing version number. The Program (including Contributions) may always be distributed subject to the version of the Agreement under which it was received. In addition, after a new version of the Agreement is published, Contributor may elect to distribute the Program (including its Contributions) under the new version. Except as expressly stated in Sections

2(a) and 2(b) above, Recipient receives no rights or licenses to the intellectual property of any Contributor under this Agreement, whether expressly, by implication, estoppel or otherwise. All rights in the Program not expressly granted under this Agreement are reserved. This Agreement is governed by the laws of the State of New York and the intellectual property laws of the United States of America. No party to this Agreement will bring a legal action under this Agreement more than one year after the cause of action arose. Each party waives its rights to a jury trial in any resulting litigation.

Eclipse Public License Version 2.0

Eclipse Public License - v 2.0

THE ACCOMPANYING PROGRAM IS PROVIDED UNDER THE TERMS OF THIS ECLIPSE PUBLIC LICENSE ("AGREEMENT"). ANY USE, REPRODUCTION OR DISTRIBUTION OF THE PROGRAM CONSTITUTES RECIPIENT'S ACCEPTANCE OF THIS AGREEMENT.

1. DEFINITIONS

"Contribution" means:

- a) in the case of the initial Contributor, the initial content Distributed under this Agreement, and
- b) in the case of each subsequent Contributor:
 - i) changes to the Program, and
 - ii) additions to the Program;

where such changes and/or additions to the Program originate from and are Distributed by that particular Contributor. A Contribution "originates" from a Contributor if it was added to the Program by such Contributor itself or anyone acting on such Contributor's behalf. Contributions do not include changes or additions to the Program that are not Modified Works.

"Contributor" means any person or entity that Distributes the Program.

"Licensed Patents" mean patent claims licensable by a Contributor which are necessarily infringed by the use or sale of its Contribution alone or when combined with the Program.

"Program" means the Contributions Distributed in accordance with this Agreement.

"Recipient" means anyone who receives the Program under this Agreement or any Secondary License (as applicable), including Contributors.

"Derivative Works" shall mean any work, whether in Source Code or other form, that is based on (or derived from) the Program and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship.

"Modified Works" shall mean any work in Source Code or other form that results from an addition to, deletion from, or modification of the contents of the Program, including, for purposes of clarity any new file in Source Code form that contains any contents of the Program. Modified Works shall not include works that contain only declarations, interfaces, types, classes, structures, or files of the Program solely in each case in order to link to, bind by name, or subclass the Program or Modified Works thereof.

"Distribute" means the acts of a) distributing or b) making available in any manner that enables the transfer of a copy.

"Source Code" means the form of a Program preferred for making modifications, including but not limited to software source code, documentation source, and configuration files. 177 180 178.

"Secondary License" means either the GNU General Public License, Version 2.0, or any later versions of that license, including any exceptions or additional permissions as identified by the initial Contributor.

2. GRANT OF RIGHTS

- a) Subject to the terms of this Agreement, each Contributor hereby grants Recipient a non-exclusive, worldwide, royalty-free copyright license to reproduce, prepare Derivative Works of, publicly display,

publicly perform, Distribute and sublicense the Contribution of such Contributor, if any, and such Derivative Works.

b) Subject to the terms of this Agreement, each Contributor hereby grants Recipient a non-exclusive, worldwide, royalty-free patent license under Licensed Patents to make, use, sell, offer to sell, import and otherwise transfer the Contribution of such Contributor, if any, in Source Code or other form. This patent license shall apply to the combination of the Contribution and the Program if, at the time the Contribution is added by the Contributor, such addition of the Contribution causes such combination to be covered by the Licensed Patents. The patent license shall not apply to any other combinations which include the Contribution. No hardware per se is licensed hereunder.

c) Recipient understands that although each Contributor grants the licenses to its Contributions set forth herein, no assurances are provided by any Contributor that the Program does not infringe the patent or other intellectual property rights of any other entity. Each Contributor disclaims any liability to Recipient for claims brought by any other entity based on infringement of intellectual property rights or otherwise. As a condition to exercising the rights and licenses granted hereunder, each Recipient hereby assumes sole responsibility to secure any other intellectual property rights needed, if any. For example, if a third party patent license is required to allow Recipient to Distribute the Program, it is Recipient's responsibility to acquire that license before distributing the Program.

d) Each Contributor represents that to its knowledge it has sufficient copyright rights in its Contribution, if any, to grant the copyright license set forth in this Agreement.

e) Notwithstanding the terms of any Secondary License, no Contributor makes additional grants to any Recipient (other than those set forth in this Agreement) as a result of such Recipient's receipt of the Program under the terms of a Secondary License (if permitted under the terms of Section 3).

3. REQUIREMENTS

3.1 If a Contributor Distributes the Program in any form, then:

a) the Program must also be made available as Source Code, in accordance with section 3.2, and the Contributor must accompany the Program with a statement that the Source Code for the Program is available under this Agreement, and informs Recipients how to obtain it in a reasonable manner on or through a medium customarily used for software exchange; and

b) the Contributor may Distribute the Program under a license different than this Agreement, provided that such license:

i) effectively disclaims on behalf of all other Contributors all warranties and conditions, express and implied, including warranties or conditions of title and non-infringement, and implied warranties or conditions of merchantability and fitness for a particular purpose;

ii) effectively excludes on behalf of all other Contributors all liability for damages, including direct, indirect, special, incidental and consequential damages, such as lost profits;

iii) does not attempt to limit or alter the recipients' rights in the Source Code under section 3.2; and

iv) requires any subsequent distribution of the Program by any party to be under a license that satisfies the requirements of this section 3.

3.2 When the Program is Distributed as Source Code:

a) it must be made available under this Agreement, or if the Program (i) is combined with other material in a separate file or files made available under a Secondary License, and (ii) the initial Contributor attached to the Source Code the notice described in Exhibit A of this Agreement, then the Program may be made available under the terms of such Secondary Licenses, and

b) a copy of this Agreement must be included with each copy of the Program. 3.3 Contributors may not remove or alter any copyright, patent, trademark, attribution notices, disclaimers of warranty, or limitations of liability ('notices') contained within the Program from any copy of the Program which they Distribute, provided that Contributors may add their own appropriate notices.

4. COMMERCIAL DISTRIBUTION

Commercial distributors of software may accept certain responsibilities with respect to end users, business partners and the like. While this license is intended to facilitate the commercial use of the Program, the Contributor who includes the Program in a commercial product offering should do so in a manner which does not create potential liability for other Contributors. Therefore, if a Contributor includes the Program in a commercial product offering, such Contributor ("Commercial Contributor") hereby agrees to defend and indemnify every other Contributor ("Indemnified Contributor") against any losses, damages and costs (collectively "Losses") arising from claims, lawsuits and other legal actions brought by a third party against the Indemnified Contributor to the extent caused by the acts or omissions of such Commercial Contributor in connection with its distribution of the Program in a commercial product offering. The obligations in this section do not apply to any claims or Losses relating to any actual or alleged intellectual property infringement. In order to qualify, an Indemnified Contributor must: a) promptly notify the Commercial Contributor in writing of such claim, and b) allow the Commercial Contributor to control, and cooperate with the Commercial Contributor in, the defense and any related settlement negotiations. The Indemnified Contributor may participate in any such claim at its own expense. For example, a Contributor might include the Program in a commercial product offering, Product X. That Contributor is then a Commercial Contributor. If that Commercial Contributor then makes performance claims, or offers warranties related to Product X, those performance claims and warranties are such Commercial Contributor's responsibility alone. Under this section, the Commercial Contributor would have to defend claims against the other Contributors related to those performance claims and warranties, and if a court requires any other Contributor to pay any damages as a result, the Commercial Contributor must pay those damages.

5. NO WARRANTY

EXCEPT AS EXPRESSLY SET FORTH IN THIS AGREEMENT, AND TO THE EXTENT PERMITTED BY APPLICABLE LAW, THE PROGRAM IS PROVIDED ON AN "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, EITHER EXPRESS OR IMPLIED INCLUDING, WITHOUT LIMITATION, ANY WARRANTIES OR CONDITIONS OF TITLE, NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Each Recipient is solely responsible for determining the appropriateness of using and distributing the Program and assumes all risks associated with its exercise of rights under this Agreement, including but not limited to the risks and costs of program errors, compliance with applicable laws, damage to or loss of data, programs or equipment, and unavailability or interruption of operations.

6. DISCLAIMER OF LIABILITY

EXCEPT AS EXPRESSLY SET FORTH IN THIS AGREEMENT, AND TO THE EXTENT PERMITTED BY APPLICABLE LAW, NEITHER RECIPIENT NOR ANY CONTRIBUTORS SHALL HAVE ANY LIABILITY FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING WITHOUT LIMITATION LOST PROFITS), HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OR DISTRIBUTION OF THE PROGRAM OR THE EXERCISE OF ANY RIGHTS GRANTED HEREUNDER, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

7. GENERAL

If any provision of this Agreement is invalid or unenforceable under applicable law, it shall not affect the validity or enforceability of the remainder of the terms of this Agreement, and without further action by the parties hereto, such provision shall be reformed to the minimum extent necessary to make such provision valid and enforceable. If Recipient institutes patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Program itself (excluding combinations of the Program with other software or hardware) infringes such Recipient's patent(s), then such Recipient's rights granted under Section 2(b) shall terminate as of the date such litigation is filed. All Recipient's rights under this Agreement shall terminate if it fails to comply with any of the material terms or conditions of this Agreement and does not cure such failure in a reasonable period of time after becoming aware of such noncompliance. If all Recipient's rights under this Agreement terminate, Recipient agrees to cease use and distribution of the Program as soon as reasonably practicable. However, Recipient's obligations under this Agreement and any licenses granted by Recipient relating to the Program shall continue and survive. Everyone is permitted to copy and distribute copies of this Agreement, but in order to avoid inconsistency the Agreement is copyrighted and may only be modified in the following manner. The Agreement Steward reserves the right to publish new versions (including revisions) of this Agreement from time to time. No one other than the

Agreement Steward has the right to modify this Agreement. The Eclipse Foundation is the initial Agreement Steward. The Eclipse Foundation may assign the responsibility to serve as the Agreement Steward to a suitable separate entity. Each new version of the Agreement will be given a distinguishing version number. The Program (including Contributions) may always be Distributed subject to the version of the Agreement under which it was received. In addition, after a new version of the Agreement is published, Contributor may elect to Distribute the Program (including its Contributions) under the new version. Except as expressly stated in Sections 2(a) and 2(b) above, Recipient receives no rights or licenses to the intellectual property of any Contributor under this Agreement, whether expressly, by implication, estoppel or otherwise. All rights in the Program not expressly granted under this Agreement are reserved. Nothing in this Agreement is intended to be enforceable by any entity that is not a Contributor or Recipient. No third-party beneficiary rights are created under this Agreement.

Exhibit A – Form of Secondary Licenses Notice “This Source Code may also be made available under the following Secondary Licenses when the conditions for such availability set forth in the Eclipse Public License, v. 2.0 are satisfied: {name license(s), version(s), and exceptions or additional permissions here}.” Simply including a copy of this Agreement, including this Exhibit A is not sufficient to license the Source Code under Secondary Licenses. If it is not possible or desirable to put the notice in a particular file, then You may include the notice in a location (such as a LICENSE file in a relevant directory) where a recipient would be likely to look for such a notice. You may add additional accurate notices of copyright ownership.

Eclipse Public License Version 2.1

GNU LESSER GENERAL PUBLIC LICENSE

Version 2.1, February 1999

Copyright (C) 1991, 1999 Free Software Foundation, Inc.

51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA

Everyone is permitted to copy and distribute verbatim copies of this license document, but changing it is not allowed.

[This is the first released version of the Lesser GPL. It also counts as the successor of the GNU Library Public License, version 2, hence the version number 2.1.]

Preamble

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public Licenses are intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users. This license, the Lesser General Public License, applies to some specially designated software packages--typically libraries--of the Free Software Foundation and other authors who decide to use it. You can use it too, but we suggest you first think carefully about whether this license or the ordinary General Public License is the better strategy to use in any particular case, based on the explanations below.

When we speak of free software, we are referring to freedom of use, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish); that you receive source code or can get it if you want it; that you can change the software and use pieces of it in new free programs; and that you are informed that you can do these things. To protect your rights, we need to make restrictions that forbid distributors to deny you these rights or to ask you to surrender these rights. These restrictions translate to certain responsibilities for you if you distribute copies of the library or if you modify it. For example, if you distribute copies of the library, whether gratis or for a fee, you must give the recipients all the rights that we gave you. You must make sure that they, too, receive or can get the source code. If you link other code with the library, you must provide complete object files to the recipients, so that they can relink them with the library after making changes to the library and recompiling it. And you must show them these terms so they know their rights. We protect your rights with a two-step method: (1) we copyright the library, and (2) we offer you this license, which gives you legal permission to copy, distribute and/or modify the library. To protect each distributor, we want to make it very clear that there is no warranty for the free library. Also, if the library is modified by someone else and passed on, the recipients should know that what they have is not the original version, so that the original author's reputation will not be affected by problems that might be introduced by others. Finally, software patents pose a constant threat to the existence of any free program. We wish to make sure that a company cannot effectively restrict the users of a free program by obtaining a restrictive license from a patent holder. Therefore, we insist that any patent license obtained for a version of the library must be consistent with the full freedom of use specified in this license. Most GNU software, including some libraries, is covered by the ordinary GNU General Public License.

This license, the GNU Lesser General Public License, applies to certain designated libraries, and is quite different from the ordinary General Public License. We use this license for certain libraries in order to permit linking those libraries into non-free programs. When a program is linked with a library, whether statically or using a shared library, the combination of the two is legally speaking a combined work, a derivative of the original library. The ordinary General Public License therefore permits such linking only if the entire combination fits its criteria of freedom. The Lesser General Public License permits more lax criteria for linking other code with the library. We call this license the "Lesser" General Public License because it does Less to protect the user's freedom than the ordinary General Public License. It also provides other free software developers Less of an advantage over competing non-free programs. These disadvantages are the reason we use the ordinary General Public License for many libraries. However, the Lesser license provides advantages in certain special circumstances.

For example, on rare occasions, there may be a special need to encourage the widest possible use of a certain library, so that it becomes a de-facto standard. To achieve this, non-free programs must be allowed to use the library. A more frequent case is that a free library does the same job as widely used non-free libraries. In this case, there is little to gain by limiting the free library to free software only, so we use the Lesser General Public License. In other cases, permission to use a particular library in non-free programs enables a greater number of people to use a large body of free software. For example, permission to use the GNU C Library in nonfree programs enables many more people to use the whole GNU operating system, as well as its variant, the GNU/Linux operating system.

Although the Lesser General Public License is Less protective of the users' freedom, it does ensure that the user of a program that is linked with the Library has the freedom and the wherewithal to run that program using a modified version of the Library. The precise terms and conditions for copying, distribution and modification follow. Pay close attention to the difference between a "work based on the library" and a "work that uses the library". The former contains code derived from the library, whereas the latter must be combined with the library in order to run.

TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License Agreement applies to any software library or other program which contains a notice placed by the copyright holder or other authorized party saying it may be distributed under the terms of this Lesser General Public License (also called "this License"). Each licensee is addressed as "you". A "library" means a collection of software functions and/or data prepared so as to be conveniently linked with application programs (which use some of those functions and data) to form executables. The "Library", below, refers to any such software library or work which has been distributed under these terms. A "work based on the Library" means either the Library or any derivative work under copyright law: that is to say, a work containing the Library or a portion of it, either verbatim or with modifications and/or translated straightforwardly into another language. (Hereinafter, translation is included without limitation in the term "modification".) "Source code" for a work means the preferred form of the work for making modifications to it. For a library, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the library.

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running a program using the Library is not restricted, and output from such a program is covered only if its contents constitute a work based on the Library (independent of the use of the Library in a tool for writing it). Whether that is true depends on what the Library does and what the program that uses the Library does.

1. You may copy and distribute verbatim copies of the Library's complete source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and distribute a copy of this License along with the Library. You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Library or any portion of it, thus forming a work based on the Library, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) The modified work must itself be a software library.

b) You must cause the files modified to carry prominent notices stating that you changed the files and the date of any change.

c) You must cause the whole of the work to be licensed at no charge to all third parties under the terms of this License.

d) If a facility in the modified Library refers to a function or a table of data to be supplied by an application program that uses the facility, other than as an argument passed when the facility is invoked, then you must make a good faith effort to ensure that, in the event an application does not supply such function or table, the facility still operates, and performs whatever part of its purpose remains meaningful. (For

example, a function in a library to compute square roots has a purpose that is entirely well defined independent of the application. Therefore, Subsection 2d requires that any application-supplied function or table used by this function must be optional: if the application does not supply it, the square root function must still compute square roots.) These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Library, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Library, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it. Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Library. In addition, mere aggregation of another work not based on the Library with the Library (or with a work based on the Library) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may opt to apply the terms of the ordinary GNU General Public License instead of this License to a given copy of the Library. To do this, you must alter all the notices that refer to this License, so that they refer to the ordinary GNU General Public License, version 2, instead of to this License. (If a newer version than version 2 of the ordinary GNU General Public License has appeared, then you can specify that version instead if you wish.) Do not make any other change in these notices. Once this change is made in a given copy, it is irreversible for that copy, so the ordinary GNU General Public License applies to all subsequent copies and derivative works made from that copy. This option is useful when you wish to copy part of the code of the Library into a program that is not a library.

4. You may copy and distribute the Library (or a portion or derivative of it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange. If distribution of object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place satisfies the requirement to distribute the source code, even though third parties are not compelled to copy the source along with the object code.

5. A program that contains no derivative of any portion of the Library, but is designed to work with the Library by being compiled or linked with it, is called a "work that uses the Library". Such a work, in isolation, is not a derivative work of the Library, and therefore falls outside the scope of this License. However, linking a "work that uses the Library" with the Library creates an executable that is a derivative of the Library (because it contains portions of the Library), rather than a "work that uses the library". The executable is therefore covered by this License. Section 6 states terms for distribution of such executables. When a "work that uses the Library" uses material from a header file that is part of the Library, the object code for the work may be a derivative work of the Library even though the source code is not. Whether this is true is especially significant if the work can be linked without the Library, or if the work is itself a library. The threshold for this to be true is not precisely defined by law. If such an object file uses only numerical parameters, data structure layouts and accessors, and small macros and small inline functions (ten lines or less in length), then the use of the object file is unrestricted, regardless of whether it is legally a derivative work. (Executables containing this object code plus portions of the Library will still fall under Section 6.) Otherwise, if the work is a derivative of the Library, you may distribute the object code for the work under the terms of Section 6. Any executables containing that work also fall under Section 6, whether or not they are linked directly with the Library itself.

6. As an exception to the Sections above, you may also combine or link a "work that uses the Library" with the Library to produce a work containing portions of the Library, and distribute that work under terms of your choice, provided that the terms permit modification of the work for the customer's own use and reverse engineering for debugging such modifications. You must give prominent notice with each copy of the work that the Library is used in it and that the Library and its use are covered by this License. You must supply a copy of this License. If the work during execution displays copyright notices, you must include the copyright notice for the Library among them, as well as a reference directing the user to the copy of this License. Also, you must do one of these things:

a) Accompany the work with the complete corresponding machine-readable source code for the Library including whatever changes were used in the work (which must be distributed under Sections 1 and 2 above); and, if the work is an executable linked with the Library, with the complete machine-readable "work

that uses the Library", as object code and/or source code, so that the user can modify the Library and then relink to produce a modified executable containing the modified Library. (It is understood that the user who changes the contents of definitions files in the Library will not necessarily be able to recompile the application to use the modified definitions.) b) Use a suitable shared library mechanism for linking with the Library. A suitable mechanism is one that (1) uses at run time a copy of the library already present on the user's computer system, rather than copying library functions into the executable, and (2) will operate properly with a modified version of the library, if the user installs one, as long as the modified version is interface-compatible with the version that the work was made with. c) Accompany the work with a written offer, valid for at least three years, to give the same user the materials specified in Subsection 6a, above, for a charge no more than the cost of performing this distribution. d) If distribution of the work is made by offering access to copy from a designated place, offer equivalent access to copy the above specified materials from the same place. e) Verify that the user has already received a copy of these materials or that you have already sent this user a copy. For an executable, the required form of the "work that uses the Library" must include any data and utility programs needed for reproducing the executable from it. However, as a special exception, the materials to be distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable. It may happen that this requirement contradicts the license restrictions of other proprietary libraries that do not normally accompany the operating system. Such a contradiction means you cannot use both them and the Library together in an executable that you distribute.

7. You may place library facilities that are a work based on the Library side-by-side in a single library together with other library facilities not covered by this License, and distribute such a combined library, provided that the separate distribution of the work based on the Library and of the other library facilities is otherwise permitted, and provided that you do these two things:

a) Accompany the combined library with a copy of the same work based on the Library, uncombined with any other library facilities. This must be distributed under the terms of the Sections above.

b) Give prominent notice with the combined library of the fact that part of it is a work based on the Library, and explaining where to find the accompanying uncombined form of the same work.

8. You may not copy, modify, sublicense, link with, or distribute the Library except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense, link with, or distribute the Library is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

9. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Library or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Library (or any work based on the Library), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Library or works based on it.

10. Each time you redistribute the Library (or any work based on the Library), the recipient automatically receives a license from the original licensor to copy, distribute, link with or modify the Library subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties with this License.

11. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Library at all. For example, if a patent license would not permit royalty-free redistribution of the Library by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Library. If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply, and the section as a whole is intended to apply in other circumstances. It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system which is implemented by

public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice. This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

12. If the distribution and/or use of the Library is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Library under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

13. The Free Software Foundation may publish revised and/or new versions of the Lesser General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns. Each version is given a distinguishing version number. If the Library specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Library does not specify a license version number, you may choose any version ever published by the Free Software Foundation.

14. If you wish to incorporate parts of the Library into other free programs whose distribution conditions are incompatible with these, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

15. BECAUSE THE LIBRARY IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE LIBRARY, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE LIBRARY "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE LIBRARY IS WITH YOU. SHOULD THE LIBRARY PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

16. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE LIBRARY AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE LIBRARY (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE LIBRARY TO OPERATE WITH ANY OTHER SOFTWARE), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

EPSG Database Distribution License

EPSG Geodetic Parameter Dataset Terms of Use

In this document the following definitions of terms apply:

“Registry” means the EPSG Geodetic Parameter Registry; “EPSG Dataset” means EPSG Geodetic Parameter Dataset; “IOGP” means the International Association of Oil and Gas Producers, incorporated in England as a company limited by guarantee (number 1832064); “EPSG Facilities” means the Registry, the EPSG Dataset (published through the Registry or through a downloadable MS-Access file or through a set of SQL scripts that enable a user to create an Oracle, MySQL, PostgreSQL or other database and populate that database with the EPSG Dataset) and associated documentation consisting of the Release Notes and Guidance Notes 7.1 and 7.2 “the data” means the geodetic parameter data and associated metadata, contained in the EPSG Dataset; it also refers to any subset of data from the EPSG Dataset.

The EPSG Facilities are published by IOGP at no charge. Distribution for profit is forbidden. The EPSG Facilities are owned by IOGP. They are compiled by the Geodetic Subcommittee of the IOGP from publicly available and member-supplied information. In order to use the EPSG Facilities, you must agree to these Terms of Use. You may not use the EPSG Facilities or any of them in whole or in part unless you agree to these Terms of Use.

You can accept these Terms of Use by clicking the command button ‘Accept Terms’ upon registering as a new user. You will also be required to accept any revised Terms of Use prior to using or downloading any EPSG Facilities. You understand and agree that any use of the EPSG Facilities or any of them, even if obtained without clicking acceptance, will be acceptance of these Terms of Use.

The data may be used, copied and distributed subject to the following conditions:

Whilst every effort has been made to ensure the accuracy of the information contained in the EPSG Facilities, neither the IOGP nor any of its members past present or future warrants their accuracy or will, regardless of its or their negligence, assume liability for any foreseeable or unforeseeable use made thereof, which liability is hereby excluded. Consequently, such use is at your own risk. You are obliged to inform anyone to whom you provide the EPSG Facilities of these Terms of Use.

DATA AND INFORMATION PROVIDED IN THE EPSG FACILITIES ARE PROVIDED "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND/OR FITNESS FOR A PARTICULAR PURPOSE.

The data may be included in any commercial package provided that any commerciality is based on value added by the provider and not on a value ascribed to the EPSG Dataset which is made available at no charge.

Ownership of the EPSG Dataset by IOGP must be acknowledged in any publication or transmission (by whatever means) thereof (including permitted modifications).

Subsets of information may be extracted from the dataset. Users are advised that coordinate reference system and coordinate transformation descriptions are incomplete unless all elements detailed as essential in IOGP Surveying and Positioning Guidance Note 7-1 Annex A are included.

Essential elements should preferably be reproduced as described in the dataset. Modification of parameter values is permitted as described in the table below to allow change to the content of the information provided that numeric equivalence is achieved. Numeric equivalence refers to the results of geodetic calculations in which the parameters are used, for example (i) conversion of ellipsoid defining parameters, or (ii) conversion of parameters between one and two standard parallel projection methods, or (iii) conversion of parameters between 7-parameter geocentric transformation methods.

No data that has been modified other than as permitted in these Terms of Use shall be attributed to the EPSG Dataset.

Table 1: permitted modifications of data

| AS GIVEN IN EPSG DATASET || PERMITTED CHANGE FOR VENDORS/USERS TO ADOPT | | - | | | Change of ellipsoid defining parameters. ||| | 1a | Ellipsoid parameters a and b. | a and 1/f ; a and f; a and e; a and e2. | | 1b | Ellipsoid parameters a and 1/f. | a and b; a and f; a and e; a and e2. | | Change of projection method ||| | 2a | Lambert Conic Conformal (1 SP) method with projection parameters and kO. | Lambert Conic Conformal (2 SP) method with projection parameters and | | 2b | Lambert Conic Conformal (2 SP) method with projection and | Lambert Conic Conformal (1 SP) method with projection parameters and kO. | | 3a | Mercator (variant A) method with projection parameters and kO. | Mercator (variant B) method with projection parameter | | 3b | Mercator (variant B) method with projection parameter | Mercator (variant A) method with projection parameters and kO. | | 4a | Hotine Oblique Mercator (variant A) method with projection parameters FE and FN. | Hotine Oblique Mercator (variant B) method with projection parameters EC and NC. | | 4b | Hotine Oblique Mercator (variant B) method with projection parameters EC and NC. | Hotine Oblique Mercator (variant A) method with projection parameters FE and FN. | | 5a | Polar Stereographic (Variant A) method with projection parameters and kO. | Polar Stereographic (Variant B) method with projection parameter | | 5b | Polar Stereographic (Variant B) method with projection parameter | Polar Stereographic (Variant A) method with projection parameters and kO. | | 5c | Polar Stereographic (Variant A) method with projection parameters kO, FE and FN. | Polar Stereographic (Variant C) method with projection parameters EF and NF. | | 5d | Polar Stereographic (Variant C) method with projection parameters EF and NF. | Polar Stereographic (Variant A) method with projection parameters kO, FE and FN. | | 5e | Polar Stereographic (Variant B) method with projection parameter FE and FN. | Polar Stereographic (Variant C) method with projection parameters EF and NF. | | 5f | Polar Stereographic (Variant C) method with projection parameters EF and NF. | Polar Stereographic (Variant B) method with projection parameter FE and FN. | | Change of transformation method | | | 6a | Position Vector 7-parameter transformation method parameters RX RY and RZ. | Coordinate Frame transformation method with signs of position vector parameters RX RY and RZ reversed. | | 6b | Coordinate Frame transformation method parameters RX RY and RZ. | Position Vector 7-parameter transformation method with signs of coordinate frame parameters RX RY and RZ reversed. | | 7 | Concatenated transformation using geocentric methods (Geocentric translations, Position Vector 7-parameter transformation, Coordinate Frame rotation). | Equivalent single geocentric transformation in which for each parameter the parameter values of the component steps have been summed. | | Change of units ||| | 8 | NTV2 method grid file filename. | NTV2 method grid file relative storage path with file name including removal (if necessary) of "special characters" [spaces, parentheses, etc] which are replaced by underscore characters. | | 9 | Parameter value. | Convert unit to another, for example from microradian to arc-second, using conversion factors obtained from the EPSG dataset Unit table. |

source: <https://epsg.org/terms-of-use.html>

MIT License (github.cosinekitty)

The MIT License

Copyright (c) 2019-2024 Don Cross:

cosinekitty@gmail.com

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

MIT License (github.oshi)

The MIT License

Copyright (c) 2010-2023 The OSHI Project Contributors:

<https://github.com/oshi/oshi/graphs/contributors>

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

MIT License (slf4j)

The MIT License

Copyright (c) 2004-2022 QOS.ch Sarl (Switzerland)

All rights reserved.

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions: The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

Glossary of Terms

A

Areas of Interest — Geographic location on a map that represents either a point, region, or station.

Attribute — Non-spatial data that describes geographic information (such as the name, length, and depth of a river).

Attribution Text — Copyright text for basemap layer or data which credits the basemap layer or data service.

B

Basemap — The foundation of a map on which layers of geographic information are overlaid.

Basemap Layer — Map layers that display geographic features on a basemap.

D

Data Aggregator Server — A component of the Raiden application that retrieves and processes raw weather data from sources such as the National Centers for Environmental Prediction (NCEP), Global Forecast System (GFS), the Storm Prediction Center, the USA High Resolution Window and others.

Datalinq™ — A server that enables XPression and Voyager to import dynamic data from external sources and make it available for use in live templates.

Digital Elevation Models (DEMs) — Files that use either Shuttle Radar Topography Mission 1 (SRTM1) or Shuttle Radar Topography Mission 3 (SRTM3) radar observations to provide digital representations of surface elevations on a map.

F

Forecast — A prediction of atmospheric conditions for a particular point in time.

Frame rate — The measurement or frequency at which images appear on screen, also known as Frames Per Second (FPS).

K

Key frames — The anchor points that define when transitions between animations begin and end.

L

Local Server — A component of the Raiden application that calls the Data Aggregator Server for data specific to a region or point of interest and then outputs that data to various graphical endpoints.

M

Metadata — The up-to-date forecast and current observation data for the places of interest in the Local Server.

N

Network Device Interface (NDI) — A network protocol that enables video to be delivered over a network in real time.

O

Observations — The atmospheric conditions (such as temperature, precipitation, and cloud cover) at a particular point in time.

P

Pause point — anchor points in a video timeline that temporarily stop the video playout.

Point — A geographic location of interest on a map defined by a specific longitude and latitude coordinate (such as a city).

R

Region — A broad geographic location of interest on a map defined by specific boundaries.

Ross Platform Manager (RPM) Server — A web based application that supports common administrative functions (such as licenses and user access) for Ross products.

S

Server — A computer component that stores, organizes, and processes data upon request.

Station — A point of interest based on an official weather station.

Shapefile — A Geographic Information System (GIS) vector format that contains the spatial and attribute components of features displayed on a map.

Shuttle Radar Topography Mission (SRTM) — A database of radar observations that provide digital representations of surface elevations on a map.

Story — An organized collection of scenes used to make a graphics sequence.

Story Creator — A weather story creation platform that requests data from the Local Server and interacts with either XPression or Voyager, enabling users to create weather stories from scratch or from templates.

T

Template — A saved story, used as a baseline so that the story does not have to be recreated each time it is used.

Contact Us

Contact our friendly and professional support representatives for the following:

- Name and address of your local dealer
- Product information and pricing
- Technical support
- Upcoming trade show information

Technical Support	Telephone:	+1-844-652-0645 (North America) +800 3540 3545 (International)
	After Hours Emergency:	+1 613 • 349 • 0006
	Email:	techsupport@rossvideo.com

General Information	Telephone:	+1 613 • 652 • 4886
	Fax:	+1 613 • 652 • 4425
	Email:	solutions@rossvideo.com
	Website:	http://www.rossvideo.com

Visit Us

Visit our website for:

- Company information and news
- Related products and full product lines
- Online catalog
- Testimonials