



Vizop Software for PHA and Alarm Rationalization

Version 1.0

User Guide



www.xsericon.com

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Welcome to Vizop

On this page	More information
● Introduction ● Process Hazards Analysis (PHA) ● Alarm Rationalization (AR) ● Other convenient features ● How to get Vizop	● What is Vizop? ● Vizop concepts

Vizop is an application for documenting Process Hazards Analysis (PHA) and Alarm Rationalization (AR) studies. First launched in 2025, it offers a wide range of innovative features to improve efficiency and reduce the cost of executing PHA and AR.

Process Hazards Analysis (PHA)

For PHA studies, such as HAZID, HAZOP, and CHAZOP, Vizop provides a familiar style worksheet. Also, you can work directly on a P&ID to define 'devices', which are equipment used in the process such as sensors, valves, and pumps. Device information can then be inserted directly into the worksheet without retyping.

Vizop provides support for attaching action items, parking lot items, and other 'annotations' to any element (cause, consequence etc.) in the PHA worksheet.

PHA data can be imported from previous studies via an Excel worksheet.

The PHA worksheet, P&ID list, node list, and annotations list (action items, parking lot etc.) are easily exported to Excel spreadsheets.

Alarm Rationalization (AR)

Vizop provides a powerful function to import alarms from a spreadsheet. Even if multiple alarms (such as high high, high, low, and low low) are shown on a single row, Vizop imports them all automatically in one step, with minimal preparation.

The alarm list can be viewed, filtered and exported. Even with large alarm databases over 10,000 alarms, Vizop continues to run smoothly with no delay.

An alarm detail page allows you to edit settings of each alarm, and efficiently copy individual settings from one alarm to one or many other alarms.

Advanced alarming, such as first-out groups, shelving, suppression, and eclipsing, are supported and easy to set up. An advanced alarming report can be exported when required.

Vizop produces an alarm rationalization report, including detailed statistics such as priority distribution.

Other Convenient Features

Vizop offers a host of other convenient features such as:

- 'Forward' and 'Back' buttons for quick navigation
- Open file formats, for easy transfer of data to/from other PHA applications
- Autosave
- Full undo capability
- Browser-based
- Support for multiple windows/tabs. For example, you can open two HAZOP nodes at the same time, for easy cross-checking and copying.
- Easy, flexible licensing

How to Get Vizop

Please contact xSeriCon via www.xsericon.com to request a download link and license.

Vizop User Guide – Introduction, version 1.0

For feedback and questions, please [contact xSeriCon](#).



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M2 How-to Guide

On this page	More information
● How to launch Vizop ● How to load and save Vizop project files ● How to navigate among pages and worksheets ● How to create HAZOP nodes and deviations ● How to create action items, 'parking lot' and hold items ● How to do a spell check ● How to do a text search ● How to generate reports	● What is Vizop? ● Vizop concepts

How to Launch Vizop

1. Double click the Vizop icon on your desktop. Alternatively, find 'vizop.exe' in your Program Files, and double click to run it.
2. If this is the first time you have run Vizop after installation, wait a few minutes for Vizop to set everything up.
3. Open your browser and navigate to <http://localhost:3000/welcome>

Vizop requires a browser window with a horizontal size of at least 1000 pixels. It will not work on a small-screen device such as a mobile phone.

How to Load and Save Vizop Project Files

To load a Vizop project file:

1. Close any existing project (go to the Project Manager and click 'Close Project'). After closing the project, Vizop will show the Welcome screen.
2. Select the project file to open, in the bottom left of the Welcome screen.
3. Click 'Open' at the bottom of the file select box.

To save a Vizop project file:

- In the burger menu at the top right of any page, select 'Save project'.

Or:

- Go to the Project Manager and click 'Save Project'.

How to Navigate Among Pages and Worksheets

Click on the Vizop logo at the top left of every page. This shows the View Switcher, from which you can access any page.

You can also use the back and forward buttons at the top right of any page to navigate around places you have worked in the project.

How to Create HAZOP Nodes and Deviations

To create a node, go to the Node List and click the + button.

To create a deviation, go to the HAZOP worksheet and click the + button in the deviations area, at the top right.

How to Create Action Items, 'Parking Lot' and Hold Items

In Vizop, these are called 'annotations'. You can create an annotation by clicking on the note button below the numbering of any element in the HAZOP worksheet, including causes, consequences and safeguards.

How to Do a Spell Check

In the burger menu at the top right of any page, select 'Spell check'. Vizop will check texts in the project against a predefined dictionary, and display any mismatched words. You can type a correction in the 'Corrected text' box, or use one of the spelling suggestions shown by clicking on it, and then click Apply. To skip to the next word, click Skip. To end the spell check, click Finished at the top of the page.

How to Do a Text Search

Click on the magnifying glass button at the top of any page. In the 'Search for' box, type the text to search for, and press Enter. The search is case-insensitive, so 'project' also matches 'PROJECT'. Vizop will show places where the text occurs. If there are more than ten places, Vizop will show them 10 at a time, with 'Previous page' and 'Next page' buttons provided.

To see a search result in context, click on it. If the search result is an annotation, it will be displayed in the Annotations List—you can then click on the button in the 'Places used' column to see the element hosting the annotation.

To end a search, click 'Finished' at the top of the page.

How to Generate Reports

All HAZOP-related reports are available from the '[HAZOP reports](#)' page, accessible from the View Switcher.

All alarm-related reports are available from the '[Alarm reports](#)' page.

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For feedback and questions, please [contact xSeriCon](#).

M3 VIZOP Concepts

On this page	More information
● What is Vizop? ● Using Vizop in your browser ● Overall workflow in Vizop ● Where are the menus and toolbars? ● Autosave ● Projects ● Process Hazards Analyses (PHAs) ● Annotations ● Reports and exports	● Introduction to HAZOP

What is Vizop?

Vizop is an app for supporting Process Hazards Analysis (PHA) such as HAZOP, CHAZOP, and HAZID. It also supports [Alarm Rationalization](#) studies. Vizop is developed by [xSeriCon](#), who provide all necessary support and training.

Using Vizop in your Browser

Vizop consists of a 'backend' program, which runs on your computer, and a 'frontend' which uses your web browser to interact with you. It does not use the Internet (except to validate your Vizop license). All your project data remains on your own machine, so you need have no concerns about data confidentiality.

While working with Vizop, you can use your browser's normal features for controlling the view, such as resizing the window, working with multiple browser windows, and working across more than one display device (monitor or projector). You can also use your browser's zoom and scroll functions.

Overall Workflow in Vizop

When you launch Vizop, you will see the "Welcome" page in your browser. From here, you can open a 'project', which is a set of Process Hazards Analysis (PHA) data and settings. If you don't have an existing project to work with, open the basic project template supplied with Vizop (the file is named "Vizop project template 1.vp" and can be downloaded [here](#)). You must open a project before you can proceed any further.

All other functions in Vizop are spread across various pages. Each page has buttons at the top providing quick access to the pages you're most likely to use. Also, you can use the 'View Switcher', a control centre providing quick access to all pages. You can reach the View

Switcher by clicking on the Vizop logo at the top left of every page except the Welcome page.

Another handy navigation tool is the pair of 'back' and 'forward' buttons at the top right of every page. These help you quickly jump across all of Vizop to places you have recently worked. It's recommended to use these buttons, rather than your browser's forward and back buttons.

Where Are the Menus and Toolbars?

Vizop doesn't need menus and toolbars, because it provides most of the functions you need in context on the relevant pages —either as buttons or 'action' boxes, or in burger (context) menus. For the small number of commands you may wish to use at any time, such as spell check, they can be reached using the burger menu at the top right of each page.

Autosave

Vizop provides an autosave function to save every change to your project data as you work. So there is no need to save your project manually every few minutes. You only need to save the project at the end of the session, for backup purposes.

Projects

In Vizop, a 'project' is a set of Process Hazards Analysis (PHA) studies, plus associated data such as documents, alarms, annotations (see below) and other settings. It is all stored in a single project file. One project can contain multiple PHAs, such as multiple HAZOPs. Currently, you can open only one project at a time.

Process Hazards Analyses (PHAs)

Vizop currently supports 2 types of PHA:

- HAZOP (and any related study that follows a cause–consequence–safeguard approach, such as Control Systems HAZOP (CHAZOP), What-If study, HAZID, and Checklist study).
- [Alarm Rationalization](#).

PHAs consist of 'elements'. For example, in HAZOP, the elements are nodes, deviations, cause groups, causes, consequences and safeguards. Elements have the following features:

- They are automatically numbered.
- Annotations can be attached to most of them (see following section).

Annotations

Vizop's annotations system is our way of handling action items (recommendations), parking lot items and other supplementary notes associated with PHA elements. The following types of annotation are available:

- Action items
- Parking lot items
- Hold items
- Comments
- Assumptions
- Interface items

Annotations are attached to one or more PHA elements. For example, an action item can be attached to one or more HAZOP causes, consequences and safeguards.

You can create and edit annotations on any page where you work with PHA elements, such as the HAZOP worksheet page.

Annotations can also be handled in the Annotation List, which you can reach from the View Switcher.

You can export annotation reports from the Annotations Report and [HAZOP reports](#) pages. Also, annotations are shown on the HAZOP worksheet export.

Reports and Exports

From the [HAZOP reports](#) page, you can export:

- HAZOP worksheet
- Node list
- Annotations list.

From the Export Alarms page, you can export:

- Alarm list

From the Alarm Reports page, you can export:

- Alarm Rationalization summary
- Advanced Alarming report (showing details of alarm suppression groups).

From the Risk and Priority Matrix Manager, you can import and export:

- The risk matrix used for HAZOP risk ranking
- The priority matrix used for setting alarm priorities.

For feedback and questions, please [contact xSeriCon](#).

M4 Suggested HAZOP Workflow in VIZOP

On this page	More information
● Starting a new HAZOP in Vizop ● Setting up the Risk Matrix ● Setting up nodes ● Perform HAZOP in the HAZOP worksheet ● Export the worksheet and other reports	● Introduction to HAZOP ● What is Vizop? ● Vizop concepts

Starting a New HAZOP in Vizop

From the Welcome screen, open an empty project file, which can be downloaded [here](#).

Go to the Project Manager. Add the project name and other settings as required. Make sure autosave is switched on. As well as the autosave file, you can also save manually at any time using the burger menu at the top right of every page.

Go to the HAZOP Manager. There, you will find an empty HAZOP study. Add the name, start date and other settings as required.

Switch risk ranking and cause groups on or off as desired. Typical settings are: risk ranking switched on, cause groups switched off. You can change this later if required.

If you want to change the names of objects such as nodes, causes and consequences, click 'Naming Conventions' at the top of the screen and make the desired changes.

Setting Up the Risk Matrix

If your project uses risk ranking, you need to define the risk matrix. This provides a definition of the likelihood, severity, and risk categories.

Go to the 'Risk and priority matrix manager.' Select the Risk matrix tab (top left of the screen). Scroll to the bottom and click 'Produce and download risk matrix file'. This will provide an Excel template for your risk matrix.

Edit the downloaded template to match your project's risk definitions ([click here](#) for more details). Then import it back to Vizop: click 'Select file to import new risk matrix from', select your edited file, and click 'Trial import'. Check the information message on the right side of the screen. If the file is suitable for import, click 'Import to project.'

Setting Up Nodes

First, set up the deviations in the first node (which already exists in the project template you opened).

Go to the 'Perform HAZOP on worksheet' page. Add a new deviation: at the top right, click '+' and type the name of the first deviation. Repeat until all deviations are defined.

Next, duplicate the node to create as many nodes as required, with the same lineup of deviations. Go to the 'Node list' page. Select the first node in the list on the left side. In the 'Select an action' box, select 'Duplicate (copy deviations only)'. Select only the new deviation, then enter its name on the right side. Repeat until you have as many nodes as required.

Perform HAZOP in the HAZOP Worksheet

Go to the HAZOP worksheet. Select the required node and deviation using the dropdown boxes at the top. Add elements such as causes, consequences and safeguards by clicking on the '+' buttons in the worksheet area.

You can move and delete elements using the burger menu button on each element.

To add annotations such as action items, parking lot items and assumptions, click the 'note' button to open the annotation drawer. In the drawer, select the type of annotation required, then click '+' and enter the desired information.

Export the Worksheet and Other Reports

Go to the [HAZOP reports](#) page. Click on any of the tabs to select the type of export required. Then click the green button to download the report to your Downloads folder.

M5 What is HAZOP?

On this page	More information
● Introduction to HAZOP ● HAZOP terminology and workflow ● Why dedicated software is helpful for HAZOP	● Suggested HAZOP workflow in Vizop ● What is Vizop? ● Vizop concepts

Introduction to HAZOP

During the design phase of a process plant, such as an oil and gas, chemical, pharmaceutical, or power plant, it is necessary to identify all hazards and ensure they are adequately controlled. In particular, hazards arising from undesired situations such as malfunctions, misoperations, and external factors such as loss of utility supply should be considered. HAZOP is the most common method for assessing these hazards.

The overall objectives of HAZOP are:

- Identify all credible upset scenarios that the plant may experience.
- Assess the worst-case consequences that could arise if these upset scenarios take place.
- Determine whether the existing protections in the plant design are adequate.
- In many studies, each scenario is risk-ranked by estimating the likelihood and severity and combining these into a term expressing the risk level.
- Develop recommendations for design improvements or further studies.
- Capture the findings in a detailed report.

The HAZOP report is a highly valuable resource, as it can:

- Demonstrate adequate risk assessment, thereby helping to show compliance with regulatory requirements.
- Provide input data for further studies, such as SIL Assessment, [Alarm Rationalization](#), Control Systems HAZOP (CHAZOP), and ALARP demonstration.
- Provide a rationale for design decisions, which can be used to inform future design modifications.
- Support incident investigations.
- Provide a training and information resource for plant operators.

HAZOP is an example of a Process Hazards Analysis (PHA) technique. Some other PHA techniques share much in common with HAZOP methodology, such as HAZID, What-If, and CHAZOP.

HAZOP Terminology and Workflow

HAZOP is performed as an interdisciplinary workshop study, typically lasting several days or even weeks. It relies on a number of input documents, especially piping and instrumentation diagrams (P&IDs), as well as process flow diagrams (PFDs), Cause & Effect diagrams (CEDs), a process description, a process control narrative, and a plot plan.

Before starting the HAZOP workshop, the scope of work is agreed upon, and divided into physical sections called 'nodes.' These are indicated by marking coloured highlights on the P&IDs. During the workshop, each node is considered in turn.

A series of 'deviations' is studied, often starting with 'No flow.' Normally a set of 15-20 deviations is used; these are agreed before the study and applied to each node, with only minor variations between nodes. The purpose of deviations is to assist the workshop team in identifying all relevant scenarios. For each deviation, the team works systematically through the equipment in the node, following the P&IDs, and asks what scenarios, if any, could lead to the deviation. For instance, the deviation 'No flow' could occur due to a pump fault, inadvertent closure of a valve, or loss of a supply from an upstream source. Each of these is identified as a 'cause' of the deviation.

After identifying and documenting credible causes, the team assesses the reasonable worst-case outcomes, known as 'consequences', and protective measures designed to avoid the consequences, known as 'safeguards'. Risk ranking may also be performed, to determine the likelihood, severity and risk level of each consequence.

Finally, the team identifies any recommendations for further action, such as design changes, clarifications, or further study.

Why Dedicated Software is Helpful for HAZOP

HAZOP can be documented using standard office software. However, purpose-built software can greatly improve the efficiency of a HAZOP study by providing the following features:

- Automatic numbering
- Better handling of the hierarchy of nodes, deviations, causes, consequences and safeguards—for example, making it easier to move and copy scenarios from one place to another
- Handling of annotations such as action items, hold items, comments and assumptions
- Easy exporting of data tables to support the generation of the HAZOP report.

Vizop offers additional features to enhance the HAZOP workflow, including:

- Dynamic linking of devices (such as pumps and sensors) between the P&ID and the worksheet

- Multi-window display
- Enhanced display, search and navigation features.

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For feedback and questions, please [contact xSeriCon](#).

M6 What is Alarm Rationalization?

On this page	More information
● Introduction to Alarm Rationalization ● Objectives of Alarm Rationalization ● Applicable Standards ● Alarm Rationalization workflow ● Why dedicated software is helpful for Alarm Rationalization	● What is Vizop? ● Vizop concepts

Introduction to Alarm Rationalization

Alarms are configured in the control systems of all process plant, to alert the operator when attention is required to correct an excursion from desired operating parameters. Alarms can be based on process variables such as high or low flow, pressure and temperature; equipment conditions such as failure or vibration of rotating equipment; or system status such as sensor fault or communications failure.

To help the operator manage alarms, they are usually assigned priority levels. If two or more alarms are active at a time, the operator should focus on the alarms in order of priority.

While alarms are a useful tool to assist the operator in maintaining safe and efficient operation, problems often arise due to excessive numbers of alarms being active. Common alarm-related problems include:

- Needless alarms raised (alarms requiring no response from the operator).
- Multiple alarms raised from a single root cause.
- Too many alarms raised during upset conditions (this is known as 'alarm flood').
- Nuisance alarms, such as standing alarms (alarms that remain active for long periods of time and cannot be cleared), fleeting alarms (which activate for a short time, then disappear) and chattering alarms (alarms that sound repeatedly).
- Too many alarms assigned 'high' or 'critical' priority.

Alarm Rationalization is an exercise designed to resolve these issues by reviewing and improving the alarm configuration.

Objectives of Alarm Rationalization

The main tasks typically performed include:

- Review all alarms to confirm if they are useful to the operator. Consider deleting or downgrading alarms that are not useful.
- Assign priorities to each alarm according to a defined algorithm.

- Provide operator guidance texts for on-screen display and inclusion in an alarm response manual.
- Assign alarm parameters such as delay times and deadband to reduce nuisance alarms.
- Apply [advanced alarming](#) techniques to reduce needless alarms and alarm floods.

Applicable Standards

Alarm Rationalization is usually executed in line with internal standards defined by the facility owner. These, in turn, are normally consistent with one of the following international standards and guidelines: IEC 62682, ISA 18.2, EEMUA 191, or Design and Engineering Practices (DEP) prepared by Shell. Vizop is designed to assist with compliance with these standards and guidelines.

Alarm Rationalization Workflow

Alarm Rationalization (AR) is part of Alarm Management, a wider set of tasks based on a lifecycle approach to maintain and improve the performance of the alarm system. Alarm Management is governed by an Alarm Philosophy Document, which specifies the approach and timing for all phases of the lifecycle, including AR. In this section, we focus on AR only.

Typical steps in executing an AR study are as follows:

1. Determine the scope of work: which process areas and alarms will be included, and which of the objectives shown above are applicable.
2. Prepare Terms of Reference or a procedure for Alarm Rationalization.
3. Prepare a list of existing or intended alarms. For new processes, this will be derived from an 'alarm and trip schedule' or similar, or from Piping and Instrument Diagrams (P&IDs). For existing processes, the alarm list can be obtained by exporting live alarm data from the control system.
4. *Import the alarm list into the AR software.
5. *Convene a multidisciplinary workshop to review the alarms and achieve the objectives of the AR. This workshop may require several days or weeks if the alarm list is extensive.
6. *Review and tidy up the final alarm list, and export it to a Master Alarm Database.
7. *Generate a report, including any actions for further study or design changes.
8. Upload the new alarm data to the control system when ready to go live.

Vizop supports the steps marked with * in the list above.

Why Dedicated Software is Helpful for Alarm Rationalization

Alarm Rationalization can be documented using standard spreadsheet software. However, purpose-built software can greatly improve the efficiency of an AR study by providing the following features:

- Powerful filtering of alarms

Easy management of many data fields (each alarm has more than 30 fields) without a lot of scrolling left and right

Automatic generation of reports.

Vizop offers additional features to enhance the AR workflow, including:

- Multi-window display
- Enhanced display, search and navigation features.

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For feedback and questions, please [contact xSeriCon](#).

A1 Getting started with VIZOP

On this page	More information
● Licensing ● Running in unlicensed mode ● Opening a project file ● Opening an autosaved project ● Saving a project ● Closing Vizop	● What is Vizop? ● Vizop concepts ● Get an emergency license code

Licensing

Vizop uses an online licensing system. No stored key or dongle is required.

You need a Vizop license if you want to create a new project or edit an existing project. [Contact xSeriCon](#) for details of license plans and pricing.

If you have a license code, paste it into the 'License Key' box. Vizop will check and display the license validity.

Vizop needs internet access to check the validity of your license when it starts. If no internet access is available, you have 2 options:

- Run Vizop in unlicensed mode.
- [Request an emergency license code](#) from xSeriCon.

Running in Unlicensed Mode

Without a license, you can still use Vizop to open an existing project, view the data, and produce exports and reports. However, you can't make any edits to the data.

Opening a Project File

To get started, you need to open an existing project file. If you want to start with an empty project, use [this template project](#). Otherwise, you can work with any existing Vizop project file.

To open the file, click and drag from your file manager into the file box on the Welcome page, or click "Select a file to open". Then click "Open". After the file is opened successfully, you will see the HAZOP Manager page.

Opening an Autosaved Project

Vizop normally saves all edits as you work, in an autosave file. When Vizop starts, it checks for any recovery files and invites you to open any of them.

If you don't need the autosave files any more, you can delete them using the "Trash can" button. You can't undo this action.

Saving a Project

Even though Vizop autosaves all changes in a recovery file, it's best to save a separate copy of the project file at the end of your work session, for backup purposes. You can do this from the burger menu at the top right of any page, or from the Project Manager page. The project file will appear in your Downloads folder.

Closing Vizop

When you have finished your Vizop session, you can simply close all Vizop tabs in your browser. The Vizop app will continue to run in the background. You can reach the Vizop Welcome page again by navigating to <http://localhost:3000/welcome> in your browser.

If you want to stop the Vizop backend, close its terminal window on your computer.

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For feedback and questions, please [contact xSeriCon](#).

A2 Getting an Emergency License Code

On this page	More information
● What is an emergency license code? ● How to get an emergency license code	● What is Vizop? ● Vizop concepts ● Get a Vizop license

What is an Emergency License Code?

Vizop uses an online licensing system, which requires internet access to validate your license when Vizop starts. However, if you don't have internet access, you can contact xSeriCon (through another device, or in advance) to request an emergency code.

You can enter the emergency code on the Welcome screen, as if it were a license key. This will give you temporary access to all of Vizop's features.

How to Get an Emergency License Code

[Contact xSeriCon](#) to request the code.

The code is time-limited, so please specify when the emergency access needs to start.

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For feedback and questions, please [contact xSeriCon](#).

A4 View Switcher

On this page	More information
● Purpose of the View Switcher ● How to access the View Switcher ● How to use the View Switcher ● Other ways to navigate through Vizop ● Summary of pages accessible from View Switcher	● What is Vizop? ● Vizop concepts ● Suggested workflows for your PHA project

Purpose of the View Switcher

The View Switcher is a navigation page, allowing you to reach any other page in Vizop.

How to Access the View Switcher

Click on the Vizop logo in the top left corner of any page (except the Welcome screen).

How to Use the View Switcher

View Switcher shows 'tiles' (square blocks) for each page. Click on any tile to jump to the corresponding page.

If you try to jump to a page that's not available (e.g. HAZOP worksheet, when no HAZOP nodes have been defined), Vizop will take you to a related page instead.

To go back to the previous page, click on the Vizop logo in the top left corner of the View Switcher.

Other Ways to Navigate Through Vizop

Apart from the View Switcher, you can also navigate using the 'back' and 'forward' buttons at the top right of every page.

Navigating using browser bookmarks, browser 'back' and 'forward' buttons, or pasting page URLs into your browser's navigation bar, is not recommended—they may not work properly, as they rely on internal settings that change frequently.

Summary of Pages Accessible from View Switcher

Scope	Page Name	Description
Project-related	Project Manager	Set project attributes such as name and description. Manage team members.
	Document Manager	Add and edit documents such as P&IDs.
	Annotation List	Manage annotations (such as action items, parking lot, comments and assumptions).
	Risk and Priority Matrix Manager	Manage the Risk Matrix for HAZOP risk ranking, and the Priority Matrix for assigning alarm priorities.
	Annotations Report	Create and export an annotations list.
PHA-related	HAZOP Manager	Create HAZOPs. Set HAZOP-level attributes such as name, description and team members. Define terminology used (you can rename terms such as 'HAZOP' and 'deviation' according to project preferences).
	Alarm Rationalization Manager	Create alarm rationalization (AR) tasks. Set AR-level attributes such as name, description and team members. Define terminology used.
HAZOP-related	Set up HAZOP	Set HAZOP-level attributes such as name, description and team members.
	Set up Nodes	Create and edit HAZOP nodes.
	Perform HAZOP on Worksheet	View and edit the traditional grid-style HAZOP worksheet.
	HAZOP Reports	Export HAZOP-related reports such as the HAZOP worksheet, node list and annotations list.
Alarm-related	Alarm List	View and edit the list of alarms in the project. Filter alarms for alarm rationalization.
	Alarm Detail	View and edit all parameters of two alarms side by side, including shelving and eclipsing. Copy parameters between alarms.
	Advanced Alarming	Create and edit first-out groups, static suppression groups, and dynamic

		suppression groups.
	Import Alarms	Import alarm data from an Excel spreadsheet.
	Export Alarms	Export alarm data to an Excel spreadsheet.
	Produce Reports	Produce an alarm list, alarm rationalization report, and advanced alarming report.

Vizop User Guide A4, version 0.6

For feedback and questions, please [contact xSeriCon](#).

P5 Project Manager

On this page	More information
● Purpose of the Project Manager ● Project settings ● Working with team members ● About Autosave	● What is Vizop? ● Vizop concepts

Purpose of the Project Manager

The Project Manager gives you control over settings affecting the whole project. From here, you can also save the project to file, and close it.

Project Settings

Basic Settings

In the Project Manager, you can set a short title, description and project number. These will be shown on other pages and in reports.

Edit Number

The Project Manager shows the current edit number. This number increments every time you edit any of the data in the project. When you produce a report or export from the project, the current edit number will be included. This provides a simple way to confirm whether a report or export matches the latest state of the project. To reset the edit number to zero, click the “Reset” button.

Autosave

You can switch autosave on and off. We recommend you keep it switched on. See below for more information on autosave.

Save Project to File

Click the “Save and download” button to create a project file. The file will be placed in the Downloads folder in your local computer.

Even if you are using autosave to manage your normal project file saving, we recommend you use this function to manually save and download a copy of the project as a backup at the end of your session.

The project file is in XML. It is human-readable and designed to make it easy to interchange data with other apps. [Contact xSeriCon](#) if you need details of the file structure.

Working with Team Members

On the right hand side of this page, you can create and edit team members. This provides a way to keep track of who participated at each stage of the PHA.

On this page, you can:

- Create a new team member: click “Add”. The new team member is added at the end of the list.
- View and edit the team members assigned to each PHA. Use the dropdown box at the top to select which PHA to view. Use the checkboxes in the last column to assign team members.
- Select and deselect team members: click in the “#” column of the team member to select/deselect.
- Change the selection, reorder team members, assign team members to a PHA, or delete team members from the project: select some team members, then choose a function from the “Action” dropdown box at the top right.

About Autosave

When autosave is switched on, Vizop will automatically save every edit into a recovery file. The file is named “Project autosave” followed by a timestamp, and is located in a folder named “Vizop” (Windows) or “.Vizop” (MacOS, Linux) in your home directory (e.g. “My Documents” in Windows).

When Vizop starts, it checks for any autosave files, and invites you to open them. This provides a quick way of returning to the last project you were working on. Autosave files are not deleted automatically; you can delete them manually from the Welcome screen.

We recommend you keep autosave switched on all the time. If you have a problem during a Vizop session, such as a browser crash or power loss, you will be able to recover all your work from the autosave file when you restart. However, you should still save the project manually from time to time, as a backup.

Vizop User Guide P5, version 0.6

For feedback and questions, please [contact xSeriCon](#).

P7 Risk and Priority Matrix Manager

On this page	More information
● Purpose of the Risk and Priority Matrix Manager ● About the Risk Matrix ● About the Priority Matrix ● Exporting a matrix ● Importing a matrix	● What is Vizop? ● Vizop concepts

Purpose of the Risk and Priority Matrix Manager

The Risk and Priority Matrix Manager allows you to import and export the Risk Matrix (used for risk ranking in HAZOP) and the Priority Matrix (used to assign alarm priorities). Currently, Vizop allows only one Risk Matrix and one Priority Matrix per project.

About the Risk Matrix

The Risk Matrix is used to determine qualitative risk rankings in HAZOP.

It defines categories for the severity and frequency (likelihood or probability) of an undesired event. Each severity/frequency combination is assigned a risk level in a table.

There is a separate risk level table for each risk receptor: People, Environment, Assets and Reputation. These risk receptors are fixed and cannot be changed in this version of Vizop.

About the Priority Matrix

The Priority Matrix is used to determine alarm priorities during [Alarm Rationalization](#).

It defines categories for the severity of the consequence if there is no response to an alarm, and the response time available when the alarm sounds. Each severity/response time combination is assigned a priority level in a table.

Exporting a Matrix

You can export the current Risk Matrix or Priority Matrix as an Excel file. This can be used as a template for importing a revised matrix back into the project.

Importing a Matrix

You can import a revised Risk Matrix or Priority Matrix into the project from an Excel file.

Follow these steps:

1. Obtain an existing matrix in an Excel file to use as a template. You can get the template file by exporting the current matrix (see above). The template file will contain more than one worksheet.
2. Edit the matrix in a suitable app, such as Microsoft Excel, according to your project requirements. You can add and delete likelihood/urgency and severity categories as required. The names of your risk categories (such as High, Medium and Low) must be defined on the 'General' worksheet, optionally with background colours. Do not edit any cells with purple background.
3. Do a trial import: select the matrix file you edited, then click "Trial import". Vizop will then check to see if the file can be used to import your matrix, but it will not change the existing matrix in your project. A message will appear in the box on the right, explaining any problems with the matrix file.
4. If the trial import was successful, click "Import to project". This will change the matrix in the project to match the matrix in the import file.

Discrepancy Handling During Import

When importing a matrix, Vizop will try to match the names of existing categories with imported ones. If the project contains any items in HAZOP or the alarm list with categories that don't match the imported categories, the risk ranking/priority settings for those items will be set to undefined. As a result, you may need to reapply some risk ranking and alarm priorities.

Vizop User Guide P7, version 0.6

For feedback and questions, please [contact xSeriCon](#).

H1 HAZOP Manager

On this page	More information
● Purpose of the HAZOP Manager ● Managing HAZOPs in the project ● Setting up the selected HAZOP ● Naming conventions	● What is HAZOP? ● What is Vizop? ● Vizop concepts

Purpose of the HAZOP Manager

The HAZOP Manager allows you to create a Hazard and Operability (HAZOP) study within the project. HAZOP is one of the different kinds of Process Hazards Analysis (PHA) supported by Vizop. You can also use Vizop's HAZOP facility for related kinds of PHA such as Hazard Identification (HAZID), Control Systems HAZOP (CHAZOP), and What-If.

In the HAZOP Manager, you can set basic parameters of the HAZOP, duplicate the HAZOP, or delete it. You can set the names of various HAZOP-related terms used in Vizop—for example, you can rename 'HAZOP' to 'CHAZOP' to suit the type of study you are executing.

Managing HAZOPs in the Project

In the left hand side of this page, you can:

- Add a new HAZOP study: click the "Add HAZOP" button above the table of HAZOPs.
- Duplicate the selected HAZOP study: click "Duplicate". This will duplicate the entire HAZOP including all nodes, deviations, causes, consequences, safeguards, risk ranking, and annotations.
- Delete the selected HAZOP study: click "Delete". If the selected HAZOP is the only PHA in the project, this will have no effect, as each Vizop project must contain at least one PHA.

In the HAZOP table, you can select a HAZOP to work with by clicking anywhere in the row. Only one HAZOP can be selected at a time.

Setting up the Selected HAZOP

Basic parameters of the selected HAZOP are shown in the right hand side of this page. You can edit the following parameters:

- Name: a short name such as "Unit 100 Upgrade".
- Description: this could include the scope of work, project phase, battery limits, operating conditions, methodology and assumptions.

- Status: an indicator to help you keep track of progress when you have multiple PHAs in the project.
- Start date: The date of the kickoff meeting or first workshop day.
- Use risk ranking: whether you want to risk-rank each scenario by assigning likelihood and severity in the HAZOP worksheet. When you switch risk ranking off, risk ranking is no longer visible, but any risk ranking you have already entered is still stored and reappears when you switch risk ranking on again. Risk ranking uses the [HAZOP risk matrix](#).
- Use cause groups: In HAZOP, study elements are typically arranged in a hierarchy including deviations, causes, consequences, and safeguards. When you switch cause groups on, Vizop includes another hierarchy layer between deviations and causes; the default name of this layer is cause groups, but you can change this (see below). Cause groups can be useful when performing HAZOP with different sets of conditions such as startup and normal operation, or online operation and regeneration for a gas dryer. They can also be helpful when performing HAZID and CHAZOP studies.

Naming Conventions

You can set the names of various HAZOP-related terms used in Vizop—for example, you can rename ‘HAZOP’ to ‘CHAZOP’ to suit the type of study you are executing. Naming conventions affect only the selected HAZOP.

To change naming conventions, click “Naming Conventions” at the top of the HAZOP Manager page. In the slide-out side panel, type the new names of any terms you wish to change. You should set the singular and plural names, and the ‘any number’ name (used by Vizop when referring to one or many instances of an element). English names should start with a lower-case letter (except for abbreviations). When finished, click “Close” at the bottom of the side panel.

Blank names can’t be used; if you enter a blank name, Vizop will revert to the previous name.

Vizop User Guide H1, version 0.6

For feedback and questions, please [contact xSeriCon](#).

H6 HAZOP Worksheet Page

On this page	More information
● Purpose of the HAZOP worksheet page ● Working with nodes and deviations ● Using the HAZOP worksheet ● Working with annotations	● What is HAZOP? ● What is Vizop? ● Vizop concepts

Purpose of the HAZOP worksheet page

This page allows you to create and edit HAZOP deviations, and then populate and edit the HAZOP worksheet for each node. You can also add and edit annotations such as action items and hold items.

Working with Nodes and Deviations

To access this page, you must create a HAZOP study on the HAZOP Manager page, and populate it with at least one node on the Node List page.

On the HAZOP Worksheet page, select the node you want to work with, using the dropdown box at the top of the page.

Next, create one or more deviations such as 'No flow' by clicking the '+' button in the deviation area at the top right. You can also:

- Navigate among deviations using the Deviation dropdown box and the left/right arrow buttons.
- Rename the current deviation using the pencil button.
- Move the current deviation up/down in the node using the up/down arrow buttons.
- Delete the current deviation using the trash can button. All daughter elements (cause groups, causes, consequences and safeguards) in the deviation will also be deleted.

Using the HAZOP worksheet

The worksheet shows columns according to the options selected in the HAZOP Manager page. Go to that page if you want to switch on/off the Cause Groups and risk ranking columns.

Unlike other HAZOP apps, Vizop doesn't show a column for action items. Instead, these are handled as annotations—see below.

Cause groups, causes, consequences and safeguards are handled in a hierarchy. This means, for example, that you need to create a cause first, before a consequence can be added. To create an element such as a cause, click the '+' button in the row above.

You can also use commands in the element's burger menu to:

- Move the element up or down (reorder elements in the same host, e.g. reorder consequences in a cause);
- Move the element to another host (e.g. move a consequence to another cause);
- Delete the element.

The terms used for elements such as causes and consequences can be customized on the HAZOP Manager page, using the 'Naming Conventions' button at the top.

Working with Annotations

In Vizop, action items, and other types of information linked to HAZOP elements, are known as 'annotations'. The following types of annotation are predefined in Vizop:

- Action items—recommendations developed during the study, for further attention and closeout outside the study.
- Parking lot items—issues raised during the study that don't directly relate to the study, but need to be captured for potential investigation.
- Hold items—points where further information is awaited to complete the study.
- Assumptions—underlying data used to develop the outcomes of the study, especially for data that is not clearly stated in the input documents. A typical example is the manning level of the plant, or the availability of an external power source.
- Interfacing items—issues relating to interactions between one HAZOP scope and another.
- Comments—any other information the team wishes to document in the study report.

Annotations are associated with one or more HAZOP elements (such as causes). To create or edit an annotation, click the note button  next to the element. A side panel will appear. In the side panel, you can:

- Select which type of annotation you want to create or view;
- Enter details of a new annotation;
- View existing annotations of the selected type—you can use the left and right buttons to move among annotations;
- Change the annotation from one type to another—select the new annotation type from the dropdown box at the top. This will affect the annotation in all elements to which it is attached.)

- Delete an annotation from the element using the trash can button. This will remove it from the current element, but leave it attached to any other elements using the same annotation.
- Attach an existing annotation to the element you are working with (see below).

Note about creating annotations

If an element already contains one type of annotation, and you want to create another annotation of a different type: click '+' to create the new annotation first, and then change its type using the dropdown box at the top of the annotation panel. If you select the new type first, Vizop will change the type of the old annotation.

To close the annotation panel, click on 'Finished' at the bottom of the panel.

In the worksheet, a number indicator  appears alongside each element that has attached annotations.

You can also work with annotations using the Annotations List page.

Attaching an Existing Annotation to an Element

Follow these steps to attach an existing annotation to a new element:

1. To the left of the new element, click the annotation button . The annotation panel appears.
2. In the lower section of the panel, find the annotation you want to attach. You can use the 'This node/This HAZOP' switch, annotation type dropdown box, and text filter to quickly find the required item.
3. Click on the required annotation to select it.
4. Click 'Attach' above the table of annotations.
5. Vizop will create and attach a **copy** of the selected annotation. If you prefer to link the exact same annotation to both the old and new elements, click the 'Link' button that appears when you attach the annotation.

Vizop User Guide H6, version 0.6

For feedback and questions, please [contact xSeriCon](#).

H9 HAZOP Reports Page

On this page	More information
● Purpose of the HAZOP Reports page ● Producing the alarm reports	● What is HAZOP? ● What is Vizop? ● Vizop concepts

Purpose of the HAZOP Reports page

This page allows you to generate reports for the HAZOP. The reports are generated as Excel files, preformatted for easy insertion into a Word report with A4 page size.

The following types of report are supported:

- Node list: This contains a list of nodes in the HAZOP.
- HAZOP worksheet: This contains the complete worksheet for all nodes, including annotations. The worksheet is formatted for A4 landscape orientation.
- Annotations list: This details all annotations in the project. This is useful for producing an action items (recommendations) list.

Producing the HAZOP Reports

To produce the reports, select the tab for the type of report you require. Then click the 'Produce report' button. The report will appear in your Downloads folder.

Vizop User Guide H9, version 0.6

For feedback and questions, please [contact xSeriCon](#).

R1 Alarm Rationalization Manager Page

On this page	More information
● Purpose of the Alarm Rationalization Manager page ● Managing Alarm Rationalizations in the project ● Working with nodes and deviations ● Using the HAZOP worksheet ● Working with annotations	● What is Alarm Rationalization? ● What is Vizop? ● Vizop concepts

Purpose of the Alarm Rationalization Manager page

The Alarm Rationalization Manager allows you to create an [Alarm Rationalization](#) (AR) study within the project.

In the Alarm Rationalization Manager, you can set basic parameters of the AR, duplicate the AR, or delete it. You can set the names of various AR-related terms used in Vizop—for example, you can rename ‘dynamic suppression’ to ‘flood suppression’ to suit the nomenclature of the project owner. You can also define alarm classifications, and see the distribution of alarm priorities.

Managing Alarm Rationalizations in the Project

In the left hand side of this page, you can:

- Add a new AR study: click the “Add Alarm Rationalization” button above the table of ARs.
- Duplicate the selected AR study: click “Duplicate”. This will duplicate the entire AR, including [advanced alarming](#) groups.
- Delete the selected AR study: click “Delete”. If the selected AR is the only PHA in the project, this will have no effect, as each Vizop project must contain at least one PHA.

In the AR table, you can select an AR to work with by clicking anywhere in the row. Only one AR can be selected at a time.

Setting up the Selected Alarm Rationalization

Basic parameters of the selected AR are shown in the right hand side of this page. You can edit the following parameters:

- Name: a short name such as “Unit 100 Upgrade”.
- Description: this could include the scope of work, project phase, types of alarms included, and assumptions.
- Status: an indicator to help you keep track of progress when you have multiple PHAs in the project.
- Start date: The date of the kickoff meeting or first workshop day.

Alarm Classifications

Each alarm can be assigned to one or more classifications. These are typically used to define alarms that are safety critical, or detect environmental incidents, and may therefore require more frequent testing.

On the right hand side of this page, you can:

- Create new classifications: go to the bottom of the existing classifications table, and type a name in the text box provided.
- Edit the name and description of existing classifications.
- Delete a classification: click on the corresponding trash can button.

Naming Conventions

You can set the names of various AR-related terms used in Vizop—for example, you can rename ‘dynamic suppression’ to ‘flood suppression’ to suit the project owner’s nomenclature. Naming conventions affect only the selected AR.

To change naming conventions, click “Naming Conventions” at the top of the Alarm Rationalization Manager page. In the slide-out side panel, type the new names of any terms you wish to change. You should set the singular and plural names, and the ‘any number’ name (used by Vizop when referring to one or many instances of an element). English names should start with a lower-case letter (except for abbreviations). When finished, click “Close” at the bottom of the side panel.

Blank names can’t be used; if you enter a blank name, Vizop will revert to the previous name.

Vizop User Guide R1, version 0.7

For feedback and questions, please [contact xSeriCon](#).

R2 Alarm List Page

On this page	More information
● Purpose of the Alarm List page ● Selecting alarms in the list ● Filtering alarms in the list	● What is Alarm Rationalization? ● What is Vizop? ● Vizop concepts

Purpose of the Alarm List page

This page allows you to view all the alarms in the project.

The easiest way to get alarms into the project, for viewing in the Alarm List, is to [import them](#) from a spreadsheet.

The sixth column of the alarm list is a 'free' column that can show many different parameters. Use the dropdown box in the table header to select the parameter to view.

On this page, you can also:

- Select alarms for processing on the [Alarm Detail](#) page;
- Filter the alarm list, for easier searching;
- Create a new alarm: click the 'New alarm' button at the bottom left of this page. The new alarm will be added to the bottom of the alarm list;
- Delete alarms: select the alarms to delete. Then, in the 'Action' dropdown at the bottom left, select 'Delete selected alarms'. If a filter is applied, only alarms that are both filtered and selected will be deleted.

Selecting Alarms in the List

To select one alarm, click anywhere in the row containing the alarm.

To select multiple alarms, use Shift + click or Ctrl + click (on MacOS: Cmd + click).

Filtering Alarms in the List

If there are a large number of alarms in the list, the list may be easier to manage if you apply a filter.

You can use the boxes on the left side of this page to filter on any or all of:

- Text (in any of the following fields: Alarm tag, Instrument tag, Equipment, Description, Alarm text, Justification, Spare 1-4, Remarks). The matching is case-insensitive, so 'pah' also matches 'PAH'. You can use wildcards: "?" represents a single character, and "*" represents any number of characters. For example, "P?H" matches "PAH", and "P*H" matches "PH", "PAH", and "PDAH".

- Process area

- P&ID number

- Priority level assigned to the alarm

- Alarm rationalization status

To reset the filter, click 'Clear filter'.

Vizop User Guide R2, version 0.6

For feedback and questions, please [contact xSeriCon](#).

R3 Alarm Detail Page

On this page	More information
● Purpose of the Alarm Detail page ● Alarm parameters ● Copying alarm parameters to one alarm ● Bulk editing multiple alarms at once	● What is Alarm Rationalization? ● What is Vizop? ● Vizop concepts

Purpose of the Alarm Detail page

This page allows you to edit all parameters of an alarm. Only alarms filtered in the [Alarm List](#) will be shown. Two alarms will be shown side by side (unless you filtered only one alarm in the [Alarm List](#)).

You can also:

- Create a new alarm: click 'New alarm' at the top of the alarm display area;
- Delete an alarm: click the trash can button at the top of the alarm display area;
- Copy parameters from one alarm to others (see below).

Alarm Parameters

The parameters for each alarm are divided into 3 tabs: Identity, Operation, and Tuning. The table below explains all the alarm parameters shown on this page.

Tab	Parameter name	Meaning
Identity	Status	The alarm rationalization (AR) status of the alarm. Use this to keep track of progress through the AR study.
	Alarm tag	The unique tag number of the alarm in the control system.
	Discrete	If the alarm is triggered by a discrete (digital) signal (such as a limit switch with only 2 positions, or a fault indication in the control system), set the alarm to discrete. Otherwise, the alarm is 'analog', meaning that it activates when a continuous variable exceeds a defined threshold.
	Instrument tag	The unique tag number of the sensor that generates the signal on which the alarm is based. One instrument can generate multiple alarms, such as high, low, and bad

		process variable (PV).
	Orientation	Whether the alarm is high or low. For discrete alarms, a high alarm is triggered when the sensor generates a logic 1 signal.
	Process area	The physical area of the plant in which the sensor resides.
	Description	A description of the signal measured, or the design intent of the alarm.
	Equipment	The equipment (name and/or tag number) to which the alarm relates—for example, a vessel or pump.
	Alarm text	The prompt text that appears on the Human-Machine Interface (HMI) of the control system when the alarm is triggered.
	P&ID	The name and/or number of the Piping and Instrument Diagram (P&ID) showing the alarm sensor.
	Enabled	Whether the alarm is enabled in the control system. If it is not enabled, it will not sound and will not generate log events.
	Classifications	Which classifications the alarm belongs to. Normally each alarm should belong to at least one classification.
	Spare 1 to Spare 4	Free text fields for any purpose. These can be useful for capturing information generated by the control system (such as I/O address), or for filtering.
	Remarks	A free text field for any purpose.
Operation	Causes and consequences	Causes are the initiating events that are expected to cause the alarm to trigger. For example, inadvertent closure of a valve may lead to a low flow alarm, so the valve closure is a cause. Consequences are the direct outcome expected to result if there is no response to the alarm. For example, inadvertent closure of a valve may lead to a downstream pump tripping, so the pump trip is a consequence. You can assign primary and secondary causes and consequences. Primary causes are those for which the alarm is designed; secondary causes are those for which the alarm may sound, but it is not specifically intended to detect those causes. Vizop allows you to separate primary and secondary events so that you can focus on primary events when assigning corrective actions, priorities, and classifications.

		To create a new cause or consequence, type in the text box marked 'Type a new item'. To edit an existing cause or consequence, type in the text box showing the existing item. To delete a cause or consequence, click the trash can button next to it.
	Confirmation	A description of how the operator can check that the alarm is not a false alarm, i.e. what other measurements can be cross-checked. Normally, you can enter instrument tag numbers here.
	Operator response	The recommended action that the operator should take in response to the primary causes of the alarm.
	Response time available	How much time is available from when the alarm triggers until the consequence is inevitable. This field is provided to enable the AR team to demonstrate they have confirmed enough response time is available.
	Response time required	How much time is required for the operator to complete the alarm response. This value is used to determine the alarm priority.
	Severity	The severity level of the primary consequences. This value is used to determine the alarm priority.
	Priority from matrix	The alarm priority, based on the response time required and severity. This value is looked up automatically from the Alarm Priority Matrix .
	Priority override	The alarm priority defined manually. If this is defined, the priority override will be shown in the Alarm List, and used for statistical calculations.
	Justification	An explanation of why the priority was set manually instead of using the value from the Alarm Priority Matrix.
Tuning	Threshold	If the alarm is set to Discrete, Threshold can be set to Low or High, meaning that the alarm will trigger on logic 0 or 1 respectively. Otherwise, the threshold is the analog value at which the alarm will trigger.
	Unit	The unit of measure used for the threshold (if the alarm is not discrete), and optionally for the deadband.

	On delay (sec)	The time from when the threshold is reached until the alarm sounds. This is to reduce the number of fleeting alarms (alarms that sound for a short time and then cancel).
	Off delay (sec)	While the alarm is activated, the off delay is the time from when the threshold is no longer reached until the system cancels the alarm.
	PV averaging (sec)	When comparing an analog value to the threshold, the alarm system uses a moving average value of the measured variable. PV averaging defines the averaging duration. This is to reduce the number of chattering alarms (alarms that sound repeatedly)
	Deadband	For analog alarms, when the measured variable passes back through the threshold value, the alarm will be cancelled when it reaches a value of threshold – deadband (for high alarms) or threshold + deadband (for low alarms). This is to reduce the number of chattering alarms (alarms that sound repeatedly). A switch is provided to select whether the deadband is defined in terms of the unit of measure, or percentage of instrument span. The deadband applies only to analog alarms, so it is not shown for discrete alarms.
	Shelving allowed	Whether the user is allowed to shelve this alarm. Shelving is a 'snooze button' that silences the alarm for a defined period, typically 12 hours.
	Eclipsed by	When high and high-high (or low and low-low) alarms are defined on the same measurement, it is common practice to suppress the first alarm when the second one activates. This is known as eclipsing. This field allows you to define whether this alarm can be eclipsed, and which alarm will eclipse it. When you first set the checkbox to checked, Vizop will try to guess which alarm to select in the dropdown box. You can override the selection if required.

Copying Alarm Parameters to One Alarm

To copy one row of alarm parameters from the left side alarm to the right side, click the '>' button on the respective row.

To copy all parameters in one tab from the left to the right, click the 'Copy all' button. The alarm tag, instrument tag and eclipsing will not be copied, as they are specific to each alarm.

Bulk Editing Multiple Alarms at Once

To copy parameters to all currently filtered alarms, use the Bulk Edit function. This is activated using the switch at the top right of the screen. You can then use the '>' and 'Copy all' buttons to copy values to all filtered alarms.

When bulk editing is active, the right side of the screen shows the value for all filtered alarms. If the value of a parameter is not the same for all filtered alarms, the value is shown as 'Various' (or ☐ for checkboxes).

Vizop User Guide R3, version 0.6

For feedback and questions, please [contact xSeriCon](#).

R4 Advanced Alarming Page

On this page	More information
● Purpose of the Advanced Alarming page ● Working with advanced alarming groups	● What is Alarm Rationalization? ● What is Vizop? ● Vizop concepts

Purpose of the Advanced Alarming page

In order to reduce the number of unhelpful active alarms, it is common practice to define groups of alarms that will be suppressed under certain conditions. This is known as Advanced Alarming. Vizop supports the following types of advanced alarming technique:

- Static suppression
- Dynamic suppression (also known as flood suppression)
- First-out groups
- [Shelving](#)
- [Eclipsing](#)

The Advanced Alarming page allows you to define alarm groups for static suppression, dynamic suppression and first-out groups. Shelving and eclipsing are handled on the [Alarm Detail](#) page.

You can produce a report of advanced alarming groups in the [Alarm Reports](#) page.

You can change the terms used for advanced alarming techniques on the [Alarm Rationalization Manager](#) page.

Working with Advanced Alarming Groups

To define an advanced alarming group, select the tab for the type of technique you need.

Click 'New group' to create the group.

You can then set the following parameters for the group:

- Status: This is to help you keep track of your progress through the study.
- Name: A short name for the group, such as 'Pump 10-P-100A not in service'.
- Enabled: Whether the advanced alarming is enabled for this group. If disabled, the alarms will not be suppressed automatically.

- Description: A description of the purpose and function of the group.
- Activation delay: The time, in seconds, from when the group's activation conditions are met, until the alarms are suppressed.
- Time limit: When the alarms are suppressed by this group, they will remain suppressed until the group's conditions are no longer met, or this time expires. This is typically set to 4~12 hours (14,400~43,200 seconds).
- Conditions for activating this group: A list of conditions which must all be met for the alarms in the group to be suppressed—for example, 'Pump 10-P-100A status is Not Running'. Conditions are not shown for first-out groups, because the condition is that at least one of the alarms in the group is triggered.
- Alarms in this group: Use this field to define the alarms in the suppression group. Select the required alarm in the dropdown box, then click '+'. The dropdown box shows only alarms filtered in the [Alarm List](#).

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R5 Import Alarms Page

On this page	More information
● Purpose of the Import Alarms page ● Preparing the alarm import file ● Importing alarms to the project	● What is Alarm Rationalization? ● What is Vizop? ● Vizop concepts

Purpose of the Import Alarms page

This page allows you to import alarms to your project from an Excel spreadsheet.

As well as populating the initial alarm list, this function is also useful when you need to perform bulk edits on many alarms. For this, it is often easiest to export to Excel, edit using Excel's functions, and then re-import to Vizop.

Preparing the Alarm Import File

The import file must be an Excel spreadsheet (.xlsx). The easiest way to prepare the file is to export an empty alarm list from Vizop using the [Export Alarms](#) page, and then edit it.

The requirements for the import file are:

- The file can contain multiple worksheets. All worksheets will be scanned to search for importable alarms. Any unrecognised worksheets will be ignored.
- Each worksheet must contain no empty rows or columns in the block of importable data. Vizop will stop scanning a worksheet when it finds an empty row or column.
- The first row or second row must contain column headers. Values from each column will be imported to the project if the column headers match the names in the following table, in English. Spaces, symbols and upper/lower case are ignored; for example, ALARM+TAG will be accepted as a match for Alarm tag. The columns can be in any order.
- The only required column is Alarm tag. All others are optional.
- No duplicate alarm tag values are allowed.

Alarm tag	Any text. The alarm tag must contain a % symbol as a placeholder for the orientation, if there are multiple Threshold value columns. See Threshold value in this table.
Instrument tag	Any text.

Orientation	Any of: HH, high high, H, high, L, low, LL, low low, DEV, deviation. The orientation is ignored if it is included in the Threshold value column; see Threshold value in this table.
Process area	Any text.
Equipment	Any text.
Description	Any text.
Alarm text	Any text.
P&ID number	Any text.
Causes – primary	Any text. Each cause/consequence must be on a separate line in the cell. If any line starts with a number and optional dot, the number and dot will be removed; for example, “1. Pump stops” or “1 Pump stops” will be imported as “Pump stops”. The worksheet can contain multiple columns named, for example, ‘Causes – primary – HH’, with an orientation suffix (HH in this example). This allows you to import causes and consequences for each orientation, when multiple orientations are defined on one row. See Threshold value.
Causes – secondary	
Consequences – primary	
Consequences – secondary	
Operator action	Any text.
Confirmation	Any text.
Response time available	The name or abbreviation of a response time category, as defined in the Alarm Priority Matrix . A typical category name is ‘Urgent’. Case-insensitive.
Response time required	
Severity	The name or abbreviation of a severity category, as defined in the Alarm Priority Matrix . A typical category name is ‘Moderate’. Case-insensitive.
Is discrete	Any of: True, False, Yes, No, 1, 0 (in English, case-insensitive). An unrecognised value, BLANK or <NULL> is treated as False.
Threshold value	This can be provided in one or many columns. If the worksheet contains only one Threshold value column, Vizop will import one alarm from each row, assigning the orientation defined in the row. Alternatively, the worksheet can contain multiple columns named, for example, ‘Threshold value LL’ and ‘Threshold value HH’. These will be imported as separate alarms (if threshold values are defined), with the orientation matching the suffix given (in this example, low low and high high). The alarm tag must contain a %

	symbol, which will be replaced with each of the orientations found in the threshold value headers (e.g. LL and HH). The suffix after 'Threshold value' can be any recognised orientation (see Orientation in this table). For discrete alarms/orientations, the threshold value should be set to any of: True, False, Yes, No, 1, 0 (in English, case-insensitive). A blank or unrecognised value, BLANK or <NULL> is treated as True. For analog alarms/orientations, the threshold value will be parsed as a decimal number, or in scientific notation in the format 1.23E±4.
Unit of measure	Any text.
On delay	An integer value.
Off delay	An integer value.
PV averaging	An integer value.
Deadband value	A decimal value.
Deadband unit	The English word Unit (means: "use the unit of measure"). Any other nonblank value, or an empty cell, means "use the percentage of span".
Priority override	The name of an alarm priority, as defined in the Alarm Priority Matrix . A typical priority name is 'Low'. Case-insensitive.
Priority override justification	Any text.
Classifications	The names of one or more alarm classifications , separated by commas. Case-insensitive.
Is enabled	Any of: True, False, Yes, No, 1, 0 (in English, case-insensitive). An unrecognised value, BLANK or <NULL> is treated as True.
Shelving allowed	Any of: True, False, Yes, No, 1, 0 (in English, case-insensitive). An unrecognised value, BLANK or <NULL> is treated as False.
Eclipsed by	An alarm tag. If the alarm tag doesn't match an alarm in the project (including imported alarms), or matches more than one alarm, eclipsing is unset.
Status	Any one of the following (without the quote marks): "Not started", "Imported", "In progress", "On hold", "Has open issues", "Finished, for review", "Completed", "Copied and not edited". You can also use the following English short names: NotStarted, Imported, InProgress, Hold, OpenIssues, ForReview, Completed, Copied.

	BLANK or <NULL> has no effect in this column, because every alarm must have a defined status. If this alarm is newly imported, and the Status cell is blank, "Imported" status will be assigned.
Spare 1	Any text.
Spare 2	Any text.
Spare 3	Any text.
Spare 4	Any text.
Remarks	Any text.

Notes on alarm import

- The alarm list in any worksheet will not be imported if any duplicate alarm tags are found in the worksheet.
- If the alarm tag matches an existing alarm in the project (after substituting % where applicable), the parameters of the existing alarm will be overwritten. Otherwise, one or more new alarm(s) will be created for the tag.

If any cell is empty:

- When importing a new alarm, a default value will be inserted.
- When updating an existing alarm, the existing parameter value will be left unchanged.

When updating an existing alarm, a text cell with value BLANK or <NULL> will be treated as a command to delete the existing value (except where noted in the table above).

Importing Alarms to the Project

After preparing the Excel file, you can do a trial import. This will not affect the data in your project.

Select the file by dragging it from your file manager into the file box, or click 'Select file to import alarms from'. Then click 'Trial import'. The results of the trial are shown in the box on the right.

Before performing the actual import, we recommend you backup the project to file using the 'Save project' command in the burger menu at the top right of the screen.

When ready, import the alarms using the 'Import to project' button. The results of the import are shown in the box on the right.

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R6 Export Alarms Page

On this page	More information
● Purpose of the Export Alarms page ● Exporting alarms	● What is Alarm Rationalization? ● What is Vizop? ● Vizop concepts

Purpose of the Export Alarms page

This page allows you to export alarms from your project to an Excel spreadsheet. The spreadsheet is in the required format for re-import using the [Import Alarms](#) page.

As well as transferring alarm data to the control system, this function is also useful when you need to perform bulk edits on many alarms. For this, it is often easiest to export to Excel, edit using Excel's functions, and then re-import to Vizop.

Exporting Alarms

If you want to limit the export to certain alarms only, filter the alarms in the [Alarm List](#), then select 'Filtered alarms' on the Export Alarms page. Otherwise, select 'All alarms in this project'.

Click 'Produce and download alarm list'. The resulting file will appear in your Downloads folder.

Vizop User Guide R6, version 0.6

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R8 Alarm Reports Page

On this page	More information
● Purpose of the Alarm Reports page ● Producing the alarm reports	● What is Alarm Rationalization? ● What is Vizop? ● Vizop concepts

Purpose of the Alarm Reports page

This page allows you to generate reports for an [Alarm Rationalization](#) (AR). The reports are generated as Excel files, preformatted for easy insertion into a Word report with A4 page size.

The following types of report are supported:

- Alarm rationalization report: This contains a summary of the project, including alarm counts and priority distribution.
- Advanced alarming report: This contains details of [advanced alarming](#) groups defined in the AR.

Producing the Alarm Reports

To produce the reports, click 'Produce alarm rationalization report' or 'Produce advanced alarming report'. The reports will appear in your Downloads folder.

Vizop User Guide R8, version 0.6

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