Visualization
by Perforce

RELEASE NOTES

December 2022

Visualization for C++®
Version 7.1

Introduction

These *Release Notes* highlight the changes for the following versions of Views:

Views version 7.1 changes

Important Announcements

Please read the following important announcements for Views version 7.1.

Patch process has been changed

From version 7.1 onward, patch releases use the same installers as the main release version and contain everything needed to use Views. It is possible to install a patch over the main release or previous patch. ABI and API compatibility will still be intact.

New Features

The following new features have been added to Views version 7.1.

Views Installer Keys

The Views installation process now requires installer keys to install Views and its products. Contact license@perforce.com to request a download of Views 7.1 and your product specific installation keys. See the Views Quick Start Guide for detailed instructions and how to provide your installer keys during installation.

Control Handling of Shortcut Keys on Popup Menus

By default, shortcut key sequences are not handled when a pop-up menu is displayed. To change this behavior the environment variable **ILVGREEDYACCELERATORS** can be used. Set the variable to "ON" to turn on the behavior.

Graph Layout and Charts Components Moved to Separate Packages

The graph_layout and charts components were moved to separate packages in cmake for consistency with other components. The `find_package(graph_layout)` and `find_package(charts)` `cmake` commands can be used to import the `graph_layout` and charts targets in `cmake` projects.

Resource Class Definition Location Change

The resource class definitions for the following classes were moved to their respective header files in include/ilviews/base/resources:

`IlvResource, IlvLineStyle, IlvColor, IlvFont, IlvCursor, IlvPattern, IlvPalette, IlvPushClip`

Platform Changes

In addition to the great new features, Views continues to move forward in its support of operating systems and compilers including the added support for Visual Studio 2022, Windows 11, and Solaris SPARC. See the Views 7.1 Platform Guide for complete details on the supported platforms.

Third-Party Software Updates

Views' use of zlib, libpng, libjpeg, openjpeg, and libtiff were all updated to the latest versions as part of the Views 7.1 release.

Third-party library updates

The following third-party libraries used by Views were updated in this release to avoid any known security vulnerabilities in previous versions.

- **libpng** — Updated to version 1.6.37.
- **libjpg** — Updated to version 9d.

Bug Fixes and Performance Improvements

Numerous bug fixes and performance improvements have been made to Views in this release.

New Ports

No new ports are added in this release.

API Changes

Views 7.1 includes a number of API and library changes. While most changes are minor and do not impact your use of the Views APIs, some of these changes do require you to update your API and change the way you link your Views application. Review the set of class member, removed classes, added classes, and hierarchy changes to understand the changes to the API.

To help Views developers port to Views 7.1 the following summary of key library updates and API changes are highlighted. Developers porting to Views 7.1 may be impacted by these changes.

- Views 7.1 library updates
- Views 7.1 API Porting Suggestions
- Removed classes
- Added classes
- Hierarchy changes
- Class members changes

Views 7.1 library updates

There are no library updates in this release.

Views 7.1 API Porting Suggestions

There are no porting suggestions in this release.

Removed classes

No classes have been removed in this release.

Added classes

No classes have been added in this release.

Hierarchy changes

There are no changes to hierarchy in this release.

Class members changes

The following class members have been changed.

IlvDvActionProcessor	IlvDvBarNameListener	IlvDvGraphicHolderFilter
IlvDvInterface	IlvEventStruct	IlvGanttSubNodeHook
IlvManagerRectangle	IlvNavigationInteractor	IlvPSPrinter
IlvPalette	IlvPrinter	IlvPrinterPreview
IlvSDODbmsFactory	IlvTable	IlvWindowsPrinter
_IlvCurveParser		

IlvDvActionProcessor
Added:

```
virtual ~IlvDvActionProcessor () = default
```

IlvDvBarNameListener
 Added:

```
virtual ~IlvDvBarNameListener () = default
```

IlvDvGraphicHolderFilter
Added:

```
virtual ~IlvDvGraphicHolderFilter () = default
```


IlvDvInterface
Added:

```
virtual ~IlvDvInterface () = default
```


IlvEventStruct
Added:

```
virtual ~IlvEventStruct () = default
```


IlvGanttSubNodeHook
Added:

```
virtual ~IlvGanttSubNodeHook () = default
```


IlvManagerRectangle
Removed:

```
DeclareLazyTypeInfoRO ()
```

Added:

```
DeclareLazyTypeInfo ()
```


IlvNavigationInteractor
Added:

```
IlvNavigationInteractor (const IlvNavigationInteractor &) = delete
```

Added:

```
IlvNavigationInteractor & operator= (const IlvNavigationInteractor &) = delete
```


IlvPSPrinter
Added:

```
virtual void internalEnd ()
```


IlvPalette
Changed from:

```
IlvPalette (IlvDisplay *, IlvColor *, IlvColor *, IlvFont *, IlvPattern *, IlvColorPattern *,
        IlvLineStyle *, IlUShort, IlBoolean, IlvFillStyle, IlvArcMode = IlvArcPie, IlvFillRule
```

```
                = IlvEvenOddRule, IlvIntensity = ( (IlvIntensity) -1) , IlvAntialiasingMode =
                IlvDefaultAntialiasingMode, IlvGradientPattern * = 0)
```

Changed to:

```
    IlvPalette (IlvDisplay *, IlvColor *, IlvColor *, IlvFont *, IlvPattern *, IlvColorPattern *,
                IlvLineStyle *, IlUShort, IlBoolean, IlvFillStyle, IlvArcMode = IlvArcPie, IlvFillRule
                = IlvEvenOddRule, IlvIntensity = IlvFullIntensity, IlvAntialiasingMode =
                IlvDefaultAntialiasingMode, IlvGradientPattern * = 0)
```

IlvPrinter
Added:

```
    virtual void internalEnd () = 0
```

IlvPrinterPreview
Added:

```
     virtual void internalEnd ()
```

IlvSDODbmsFactory
Added:

```
    virtual ~IlvSDODbmsFactory () = default
```

IlvTable
Added:

```
    virtual ~IlvTable () = default
```

IlvWindowsPrinter
Added:

```
    virtual void internalEnd ()
```

_IlvCurveParser
Added:

```
    virtual ~_IlvCurveParser () = default
```

Updated Features

- Port Updates
- Other Updates

Port Updates
No ports have been updates in this release.

Other Updates

The following features have been updated in Views version 7.1.

Library linking updates

In Views 7.1, you now need to explicitly specify all the libraries you need to link with. The previous process for linking to libraries, using `#pragma comment(lib, <name>)`, made it difficult to control build dependencies and what actually gets linked.

Scrolling with mouse wheel in Views application on Linux from an X server

Support for mouse wheel events is now switched on by default. The default configuration is Button4 on WheelUp and Button5 on WheelDown.

For X servers generating on Button5 WheelUp and Button4 on WheelDown, the environment variable `ILVEMULATEMOUSEWHEEL` or the resource `EmulateMouseWheel` must be `up5down4` or `reversed`.

For switching support for mouse wheel events off, the value can be either `false`, `no`, or `off`.

Bug Fixes

The following bug fixes have been made:

- VIEWS-13938: [XFT] Font metrics in Views are not consistent with the documentation.
- VIEWS-17294: Purify reports invalid writes of size 1 when deleting a hidden modal view.
- VIEWS-18205: Loading an ILV file containing a prototype with an empty name crashes the Studio.
- VIEWS-18446: The inertia timer of the `IlvNavigationInteractor` causes a crash.
- VIEWS-18467: Crash reported in `vsbinter.cpp` due to division by zero error.
- VIEWS-18536: Views Studio crashes upon choosing a font.
- VIEWS-18711: Views Studio crashes while opening a proto library file.
- VIEWS-18884: Unable to dynamically load `ilvxft` and `ilvcairo` with Views.
- VIEWS-19227: [Unix] In Views, switch on mouse wheel support by default and add a way to switch it off.
- VIEWS-19837: Fixed issue with handling single-byte and multi-byte strings in `IlPathName` that leads to failures in loading Views libraries.

Removed Features

No features have been removed in this release.

Known Limitations

There are no known limitations in this release.