Oracle® Cloud

What's New in Oracle Visual Builder Studio

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New Features in Oracle Visual Builder Studio

Here's an overview of new features and enhancements added recently to Oracle Visual Builder Studio (VB Studio).

Topics:

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As soon as new and changed features become available, VB Studio instances are upgraded in the data centers where Oracle Cloud services are hosted. You don't need to request an upgrade to be able to use the new features—they come to you automatically.

Release 26.01 - January 2026

NOTE: This is a maintenance release addressing critical issues to improve customer rollouts of Redwood applications and security/infrastructure updates.

Area	Feature	Description
	New software versions	The following new software versions are available for build executor templates: • Fn version 0.6.47 (OL7) • Firefox version ESR 128.14.0 (OL7) • Firefox version ESR 140.5.0 (OL8) • Node.js Driver for Oracle Database version 6.10.0 • OCIcli version 3.62.0 (OL7) • OCIcli version 3.71.0 (OL8) • Oracle Instant Client version 21.20.0.0.0 • Git version 2.43.7 (OL8) • Oracle JET Command-line Interface 19.0.0 • SQLcl version 25.4.0.0 (OL8) • SQLcl version 25.2.2.0 (OL7) • Oracle Analytics (OAC) version 8.7.0.0.0 • Java SE: latest versions – Java 21 - 21.0.9 – Java 17 - 17.0.17 – Java 11 - 11.0.29 – Java 8 - 1.8.0_471 See Software for Build Executor Templates.

New experience in Oracle Cloud Console

VB Studio is part of a major update to the Oracle Cloud Console. The new experience includes intuitive designs across the Console to enhance usability and consistency, with significant updates to resource list pages, resource details pages, and resource creation workflows. You'll see the improved UI, for example, when you work with VB Studio instances in the Cloud Console, or when you add and modify users in Oracle Cloud Infrastructure (OCI) Identity and Access Management. Learn more about the new Console experience.
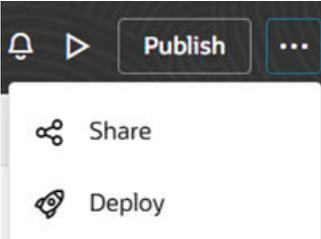
Release 25.10 - July 2025

Some new VB Studio features can't be used until you've upgraded your Visual Builder Runtime and/or Server. See 25.10 Feature Dependencies for more information.

Area	Feature	Description
Identity and Access Control	Option to delete credentials on the Manage Extension Lifecycle page	When working with extensions, you now have the ability to delete the credentials that let you work with an Oracle Cloud Applications instance from the Manage Extension Lifecycle page. This means you can authenticate with the Manage Extension Lifecycle page as a *different* Oracle Cloud Applications user—perhaps someone who has the privileges to deploy and delete extensions. Or, maybe your existing credentials no longer work and you need to start again. See Manage Your Published Extensions.

Area	Feature	Description
	User profile synchronized with OCI IAM	The User Preferences Profile tab is now read-only. User details, such as display name and email address, are managed exclusively in OCI Identity and Access Management, accessible from the Oracle Cloud Console. Changes you make in OCI Identity and Access Management reflect on the read-only Profile tab within 24 hours. See Update Your Display Name and Update Your Email Address.
Security	Token-based authentication for SonarQube plug-in	Token-based authentication is now available for the SonarQube plug-in. See Create and Manage the PreDefined SonarQube Server Connection.
DevOps	Option to download merge request data	You can use the Java Client API to download merge request data based on custom searches you've created. See Manage Merge Requests.
	Pipelines	• Pipelines list sorting New sorting options let you sort the pipelines list by name or restricted status. See Protect Your Pipeline: Restrict Who Can Start It Manually or Edit Its Configuration. • Pipeline approval The pipeline approver notification email now includes a direct link to the pipeline's Approval Details dialog. See Notify the Pipeline Approvers.
	Project management	• Project membership requests You can now manage project membership requests using the new Requests list on the Project Home page's Team tab. See Manage Project Membership Requests. • Comments for project approval Project approvers can now add a comment when approving or denying a membership request. See Request Membership in a Project You Can't Access. • Project announcements through email Project announcements are now emailed to project members, unless they've opted out from the Notifications tab on their User Preferences page. See Manage Announcements and Configure Your Global Email Notifications.
	New software versions	The following new software versions are available for build executor templates: • OCIcli version 3.56.0 (OL8) • Oracle Instant Client version 21.18.0.0.0 • Oracle JET Command-line Interface 18.1.0 • SQLcl version 25.1.0.0 (OL8) Additionally, Oracle Analytics Client (OAC) tools are now available in the the build executor software catalog. See Software for Build Executor Templates.
	Reserved Public IP for Docker VMs	You can now select a Reserved Public IP to assign to a Docker deployment VM. You can also assign one or more images to a Docker VM. See Add Docker Deployment VMs.
	Build, NPM, Maven artifacts in project export/import	You can now include a project's Build, NPM, and Maven artifacts when exporting and importing project data. See Export and Import Project Data.

Area	Feature	Description
Visual Applications	Changed upgrade policy	We've expanded the number of runtime versions supported by a visual application from three to four, so you can now publish an app built on the current runtime version and continue developing it in the Designer for the previous four versions. In other words, when updating an app in the Designer, its runtime libraries are supported for about a year, after which you'll be prompted to upgrade. See Upgrade Policy.
	Default for publishing visual apps from new workspaces changed	Changes to a visual application created from a new workspace are now deployed *immediately* to the target Visual Builder instance, instead of through the CI/CD pipeline. This way, you can quickly see your changes on your target instance without having to wait for build executors to start. See What Happens When You Share and Deploy Visual Applications? When you create a project using the Visual Application template, however, your application continues to use the CI/CD pipeline until you manually change the Enable CI/CD Pipeline switch in the visual application's Settings editor. See Enable or Disable the CI/CD Pipeline for Deployments.
	Global functions in a visual application	If your application routinely uses similar JavaScript functions to transform or manipulate data, you can now extract those functions as global functions and reuse them in pages (fragments or any other container). See Add JavaScript Modules As Global Functions.
	Business object improvements	• UI changes for business objects In an effort to streamline configuration, a business object's definition now features two new tabs: a Relationships tab for creating and managing relationships, and a Settings tab for configuring general settings and application setup data. The Overview tab, which previously contained these settings, has been removed. Likewise, endpoint settings that were previously under the Overview tab are now in a distinct Settings tab. See View, Create, and Edit Business Object Relationships, Manage Business Object Settings, and Access a Business Object's Resource APIs and Endpoints. • Relationship between business objects based on DB tables It's now possible to create relationships between business objects based on DB tables. When you first create a parent business object, then a child, their relationship is automatically created. For other scenarios, you can create relationships either manually or by adding a referenced field. See Create a Relationship Between Business Objects Based on a DB Table.
Extensions	New project from deployed extension	You can now import an extension's source files into a new project from any environment where it's currently deployed. This is helpful, say, if a project was deleted in VB Studio, but you still need to work on the extension. See How Do I Recover My Extension After Deleting the Project?
	Subcategory display for CX extensions	When an extension in the Customer Experience (CX) pillar is assigned a subcategory using the **Extension Pillar Subcategory** option in the Settings editor, all extensions in that subcategory now show in the Navigator on the App UIs and Dependencies panes, as well as in the Layouts, Services, and Translations panes. See What Are Dependencies? and Add a Dependency.

Area	Feature	Description
	Usability improvements	We've made some usability improvements for previewing and sharing an extension: • When previewing your App UI, the message indicating that the application is being prepared for preview now appears as a notification instead of a pop-up. See Preview Your App UI. • When sharing your App UI, you now share the extension *and* copy the deployment URL with a single click, instead of using separate actions in the Share Application Extension dialog. This way, you won't copy the URL without actually sharing the extension. See Share Your App UI. These changes also take effect in Express mode. See Preview and Share Your Changes.
	Default for publishing page customizations from new workspaces changed	Starting with version 25.01.1, extensions created when you use the **Edit Page in Visual Builder Studio** option to customize an Oracle Cloud Application were configured to deploy changes directly to the target Oracle Cloud Applications instance, bypassing the CI/CD pipeline. With this release, this default behavior also applies to extensions created from a new workspace. See Enable or Disable the CI/CD Pipeline for Publishing.
	Simplified upgrade process in Express mode	In Express mode, it's now easier to upgrade your extension to the most recent version of the Oracle Cloud Application. See Respond to the "Time to Upgrade" Pop-up.
Common to Visual Applications and Extensions	Option to directly deploy from a branch in remote repo	You can now deploy extensions and visual applications directly from a branch in the remote repository. You'll typically do this, for example, if your extension or visual application was deleted from an Oracle Cloud Applications or a Visual Builder instance and you want to restore it. This is also convenient if a merge request was approved and merged, but a CI/CD pipeline doesn't exist to automatically deploy those changes to the target instance. Note that **Deploy** and **Publish** are distinct actions in the Designer: • Click **Publish** to merge new changes in your workspace to a remote branch, and then deploy those changes to your target instance. • Click **Deploy** if your changes already exist in the remote branch, and now you want to deploy those changes directly to your target instance. For visual apps, see Deploy Changes From the Remote Branch; for extensions, see Deploy Changes From the Remote Branch. This functionality is also available in Express mode: see Deploy Your Published Changes.

Area	Feature	Description
	Option to create CI/CD pipeline in Settings editor	When you publish your extension or visual application, you select a remote branch to merge your changes to, and then deploy from. If the remote branch doesn't have a CI/CD pipeline, you can now create one directly from the Settings editor by selecting the branch and then clicking **Create CI/CD Pipeline**. For visual apps, see Enable or Disable the CI/CD Pipeline for Deployments; for extensions, see Enable or Disable the CI/CD Pipeline for Publishing.
	Improvements to dynamic components	We've made some improvements to dynamic components: • You can now use a layout property to control how grouped fields are rendered in dynamic forms. Use this property to specify whether a group is collapsed by default or not collapsible at all. For visual apps, see Group Fields in Dynamic Form Layouts; for extensions, see Group Fields in Dynamic Form Layouts. • When you open a layout in the rule set editor, you can now access a status indicator to see how quickly the list of available fields is fetched from the service. For visual apps, see Create a Layout for a Dynamic Table or Form; for extensions, see Create a Layout in a Rule Set. • When you add a new rule to a dynamic container, all available container sections are now added by default. You can then remove any sections you don't want to include in the container. For visual apps, see Add a Dynamic Container to a Page; for extensions, see Configure a Dynamic Container. This update is also available in Express mode: see Control the Sections Displayed on the Page.
	Improvements to business rules	You can now edit a business rule to delete expressions used in the condition builder and when overriding the Value property. After removing a condition written as an expression, you can use the basic condition builder to create a condition. For visual apps, see Build Advanced Expressions; for extensions, see Build Advanced Expressions. This update is also available in Express mode: see Build Advanced Expressions.
	UI changes for backends, service connections	Settings that were previously found on the Overview tab for a backend, service connection, and endpoint, have been moved into a new **Settings** tab. As a result, the Overview tab has been removed. For visual apps, see Manage Backends in Your Visual Application and Edit a Service Connection; for extensions, see What Are Backends? and Edit a Service Connection.
	Other enhancements	• New Media & Files category The Components palette now includes a **Media & Files** category, which features the Camera and File Picker components. • New audit severity for showstopper errors A new **Stopper** severity has been added in the Audits pane to identify showstopper errors that may cause your app to break at runtime. For visual apps, see Audit Application Code; for extensions, see Debug and Audit Your Code. • New option for `vb-process-local` Grunt command A new `additional-locales` for the `vb-process-local` Grunt command now allows you to specify additional locales supported by an application. See Grunt Task - vb-process-local.

25.10 Feature Dependencies

This release of VB Studio uses Oracle JET 18.1.*x* libraries and components. We recommend that you upgrade your VB Studio apps to this latest JET version, as well as to the 25.10 Visual Builder Runtime, to take advantage of the full spectrum of 25.10 features. JET 18.1.*x* is primarily a bug fix release, but it does include some visual and behavior changes. To see a list of what's new in JET 18.1.*x*, go to the JET Release Notes and select **v18.1.0**.

Some VB Studio features also require the latest version of the Visual Builder server, which provides capabilities to host your app's business objects and their data through an embedded database, and manages access to external REST endpoints through the REST service proxy. You'll get the latest server version automatically when Oracle upgrades your Visual Builder server based on the upgrade window you chose for your instance.

Here's the feature that requires VB Runtime/Server:

Feature	Description	Runtime	Server	Minimum Version Required
Custom login page for visual applications	You can now create custom login pages to replace the default login page, providing a more tailored login experience for your users. Use the new Login Form and Forgot Password Form components to build your own login page, or start with sample login pages that embed a Redwood-themed login flow within the default application shell and require minimal configuration. See Create Your Own Login Pages.	✓	✓	25.10.0

You can upgrade to the latest JET and Visual Builder Runtime versions from your app's Settings editor. See Manage Runtime Dependencies for Visual Applications.

Release 25.07 - April 2025

Area	Feature	Description
DevOps	Project membership	Project owners now have the option to change the membership role when granting others access to their projects. See Request Membership in a Project You Can't Access.
	Instance-related changes in an environment	The Add Service Instance dialog in an environment has been updated so that Oracle Visual Builder and Oracle Integration instances are now listed separately. Also, region and compartment selections are now retained. See Set Up an Environment and Add an Oracle Integration Instance to an Environment.
	Wiki diff editor changes	The Wiki diff editor now shows only the changed portions of pages by default, but you can also show the unchanged portions. Also, a new 10-second processing timeout has been added for large files, with the option to retry with a longer 30-second timeout. See View a Wiki Page's History and Compare Versions.

Area	Feature	Description
	Merge request enhancements	• New merge request comment links You can use color-coded links in a merge request's Review Status box to quickly navigate to reviewer comments. See Navigate Multiple Comments. • Related merge requests Related merge requests are listed on the Conversation tab for a merge request. Merge requests are listed as related if they link to the same issue. See Open a Merge Request.
	Build job enhancements	• Option to resubmit a job with the same parameters A new Resubmit option in the Job History list allows you to resubmit a build job using its original parameters. See Create and Manage Jobs. • New lock icons New icons in the jobs list on the Job Protection page indicate private jobs, private jobs you can edit, and private jobs you can run but not edit. Similarly, icons have been added on the Pipelines page to indicate protected pipelines, and protected pipelines you can run but not edit. See Configure Job Protection Settings and Protect Your Pipeline: Restrict Who Can Start It Manually or Edit Its Configuration. • Jobs list sorting New sorting options in the jobs list on the Job Protection page enable you to sort by name or private job. See Configure Job Protection Settings.
	Option to duplicate a pipeline	You can now create a duplicate of an existing pipeline when creating a new pipeline. See Create and Manage Pipelines.
	Option to keep VM executors updated with latest OS image	When adding a VM executor, you can now keep it updated with the latest OS image. Previously, VM executors were only updated during scheduled quarterly maintenance. With the new **Keep updated with the latest OS image** option, VB Studio checks nightly for new OS versions from OCI and automatically updates any affected VMs. See Add and Manage VM Build Executors.
	New software versions	The following new software versions are available for build executor templates: • GraalVM EE version 23.0.7 for Java 17.0.14 • Java 1.8.0_441, 11.0.26, 17.0.14, 21.0.6, and 23.0.2 See Software for Build Executor Templates.
	How-to info on cleaning an external repo	Before pushing an external Git repository to VB Studio, you can now follow a cleanup process to remove or migrate large files using Git Large File Storage (LFS). This helps ensure your repository stays within the 50-MB object size limit and avoids performance issues. See Clean an External Repository Before Pushing it to a Project.
Visual Applications	Option to bypass CI/CD pipelines for deployment	You can now deploy your visual application directly to the Visual Builder instance in the environment associated with your workspace, without using CI/CD pipelines. CI/CD pipelines provide flexibility—for example, you can configure a pipeline to deploy dependent artifacts to the target environment in parallel, run builds on a specified schedule, or discard old builds and artifacts—but if all you want is to quickly deploy your application to its target environment, you can opt to disable pipelines. See Enable or Disable the CI/CD Pipeline for Deployments.

Area	Feature	Description
	Resource optimization by default	The process of sharing or deploying your visual application now automatically optimizes application resources to improve performance; previously, you had to choose to optimize your application. Optimization minifies resources such as stylesheets and HTML and JSON files, and creates RequireJS bundles in an embedded build server.
		By default, *all* application resources (except images) continue to be included in an optimized resources bundle, but you can define your own configuration to include and exclude resources as before. The schema used in `build.json`, however, has changed. See Customize Optimization. Also, if you use Grunt tasks to optimize your application, you must migrate your customizations from `Gruntfile.js` into `build.json` as the default optimization configuration will not include your custom configuration. See How to Migrate gruntFile.js Configuration Into build.json.
		While optimization is recommended to improve your application's performance, you have the option to temporarily disable optimization, say to troubleshoot file access issues that occur because of optimizing your application. See Suppress Optimization.
Extensions	Resource optimization	The process of sharing or deploying your extension now automatically optimizes all your extension's resources to improve performance. Optimization minifies resources such as stylesheets and HTML and JSON files, and creates RequireJS bundles in an embedded build server.
		By default, *all* extension resources are included in an optimized resources bundle, but you can customize this configuration to include and exclude resources. See Customize Optimization. If you use Grunt tasks to optimize your extension, you must migrate your customizations from `Gruntfile.js` into `build.json` to make sure your customizations can take effect. See How to Migrate gruntFile.js Configuration Into build.json.
		Optimization is recommended to improve your App UI's performance, but you have the option to temporarily disable optimization, say to troubleshoot file access issues that occur because of optimizing your extension. See Suppress Optimization.
	Built-in label for rules in dependencies	The business rules and validations editors now use a "Built-in" label for rules defined in dependencies. For Advanced mode, see What are Business Rules?; for Express mode, see What are Business Rules?
	New editors in Properties pane	The Properties pane has been improved to allow access to more editors:
		• Business rule editors now embedded in the Designer
		The editor tabs for business rules and validations have been removed, with the editors now embedded into the Designer and accessible from the Properties pane.
		• New rule-based property editor
		In some pages, you can now use a Page Properties editor to create rules and conditions to conditionally set the value of page properties. For Advanced mode, see Set Property Values Using Rules; for Express mode, see Set Property Values Using Rules.
Common to Visual Applications and Extensions	Faster project creation	We've made several improvements to make the process of creating a project much faster. Project creation, which previously took the longest, is now significantly faster, helping you to quickly get started on designing and developing pages in the Designer.

Area	Feature	Description
	Left navigator personalization	It's now possible for administrators to personalize the VB Studio navigation bar for the entire organization or just a few projects, so users can navigate to menu items that they frequently use more easily and remove those that clutter their work environment. At a minimum, you can always hide menu items just for yourself. See Configure the Left Navigator. With this update, projects created when you use the **Edit Page in Visual Builder Studio** option to customize Oracle Cloud Applications, by default, show only the Organization, Project Home, Workspaces, Git, Merge Requests, Builds, Environments, and Project Administration items in Advanced Mode. See Configure an Oracle Cloud Application.
	Workspace refresh	VB Studio now notifies you to refresh your workspace when teammates publish changes to your project's Git repo, allowing you to keep your workspace up-to-date with everyone's changes. A refresh notification is triggered, by default, when someone merges changes to the repo's `main` branch, but you can control the target branch for notifications from the Settings editor. For visual apps, see Refresh Your Workspace; for extensions, see Refresh Your Workspace. This functionality also takes effect in Express mode: see Refresh Your Source Files.
	Enhancements to the Publish process	When you publish your extension or visual application, you're no longer limited to merging your changes to your project's `main` branch in the remote Git repository. Instead, you can now use the Publish dialog to select any remote branch to merge your changes to, and then deploy from. This lets you more easily isolate and validate just your work in the target environment. You also now have the ability to specify the name for the new working branch that VB Studio creates and switches your workspace to, after a publish. This means you can specify branch names that might be more meaningful to you than the suggested ones. For visual apps, see Deploy a Visual Application in VB Studio Through CI/CD Pipelines and Deploy a Visual Application Without CI/CD Pipelines; for extensions, see Publish Your Changes Through CI/CD Pipelines and Publish Your Changes Without CI/CD Pipelines.
	Improvements to business rules	• Error notifications in business rules editor Business rule editors now display a notification in the status bar to highlight errors that occur when connecting to a service. From the status bar, you can view details about service connection errors, as well as performance issues when fetching data from services. For visual apps, see Resolve the "Loading Completed with Errors" Message; for extensions, see Resolve the "Loading Completed with Errors" Message. • Condition builder operator for regular expressions The condition builder now includes Match and Not Match operators for JavaScript regular expression values. For visual apps, see Set Conditions for a Rule; for extensions, see Set Conditions for a Rule. The new operators are also available in Express mode: see Set Conditions for a Rule.

Area	Feature	Description
	Improved dynamic container editor	The editor for customizing dynamic containers now allows you to add, remove, and change the order of sections directly in the Properties pane when the container has only one rule. For containers with multiple rules, you can open the embedded editor from the Properties pane. For visual apps, see Add a Dynamic Container to a Page; for extensions, in Advanced mode, see Add a Dynamic Container to a Page.
		The editor is also available for extensions in Express mode: see Control the Sections Displayed on the Page.
	Action chain enhancements	• Auto-populate response data for Call REST action mocks

Under "Action chain enhancements":

- Auto-populate response data for Call REST action mocks

  When testing a Call REST action in a chain, VB Studio now automatically sends a request, captures the response, and populates the mock action. All you need to do is enter the required parameters. Previously, the only way to populate mocks for a Call REST action was to manually make a REST call using the Endpoint tab.

  For visual apps, see Test Action Chains and Create a Test for a Test Case; for extensions, see Test Action Chains and Create a Test for a Test Case.

- Usability improvements for Run in Parallel, If/Else, Try/Catch, and Switch actions

  - Run in Parallel: You can add an empty block at the bottom by right-clicking the top-level If node. You can also add an empty block at a specific position by right-clicking any block. For visual apps, see Add a Run In Parallel Action; for extensions, see Add a Run In Parallel Action.
  - Else-If: You can add an empty If or Else-If block at the bottom by right-clicking the top-level If node. Also, you can add an empty Else block before or after an Else-If block, and add an empty Else block before an Else block. For visual apps, see Add an If Action; for extensions, see Add an If Action.
  - Try/Catch: If you accidentally delete a Catch or Finally node in Code view, you can add it back in Design view by right-clicking a Catch node (to add a Finally node) or a Finally node (to add a Catch node). For visual apps, see Add a Try-Catch Action; for extensions, see Add a Try-Catch Action.
  - Switch: You can add an empty case at the bottom by right-clicking the top-level Switch node. You can also add an empty case at a specific position by right-clicking an existing case. See Add a Switch Action; for extensions, see Add a Switch Action.

  Additionally for all four actions, we've changed the drop-zone to a more targeted drop-line when you drag an action onto the canvas.

Area	Feature	Description
	Fragment enhancements	• Support to automatically create fragment variables as constants in a container When marking variable or constant input parameters in a fragment to be automatically created in the container that uses the fragment, you can choose to switch one for the other in the container—a constant for a variable, or a variable for a constant—using a new **Create As** property. This property is useful when fragments accept page-level properties as input parameters whose values are expressions evaluated within the scope of the page. For example, say a fragment defines a `title` variable whose value is passed from a page based on an expression. If the `title` is unlikely to change, you can switch the fragment variable to be created as a constant on the page. For visual apps, see Automatically Create and Wire a Fragment Variable on Its Container; for extensions, see Automatically Create and Wire a Fragment Variable on Its Container. • Support for `vbDataProviderNotification` events The `vbDataProviderNotification` lifecycle event, triggered by data providers to notify users of errors that occur when something goes wrong during an implicit fetch, is now supported in a fragment. You can use this event to display an error message, for example, when a service data provider makes a REST call to fetch data, but times out for whatever reason. For visual apps, see Define Actions and Events in Fragments; for extensions, see Define Actions and Events in Fragments.
	Git diff editor changes	The Git diff editor now shows only the changed portions of pages by default, but you can also show the unchanged portions. Also, a new 10-second processing timeout has been added for large files, with an option to retry with a longer 30-second timeout. For visual apps, see Other File Management Commands; for extensions, see Other File Management Commands.
	Other enhancements	• Improved notifications for in-progress tasks We've improved notifications to help you better track the status of in-progress tasks. Instead of multiple notifications for related tasks that need some time to complete, you now see a progress bar indicating that the task is running in the background. For visual apps, see Tour the Designer; for extensions, see What Is the Designer? You'll also see this notification in Express mode: see What Is the Designer? • Help icon with label, description for page input parameters When marking a variable as an input parameter, you can now enter a label and a description to show a ⑦ icon on the Page Input Parameters dialog and improve user experience. Page users can then click the icon to get a more meaningful identifier and some context on how best to set the parameter's value. For visual apps, see Enable Variables as Input Parameters; for extensions, see Enable Variables as Input Parameters.

25.07 Runtime Version

This release of VB Studio uses Oracle JET 18.0.*x* libraries and components. We recommend that you upgrade your VB Studio apps to this latest JET version, as well as to the 25.07 Visual Builder Runtime, to take advantage of the full spectrum of 25.07 features. Significant updates in JET 18.0.*x* include the ability to drag and drop nodes between NBox cells and other JET elements such as List View, as well as drill-down support for Gantt charts. To see a list of what's new in JET 18.0.*x*, go to the JET Release Notes and select **v18.0.0**.

You can upgrade to the latest JET and Visual Builder Runtime versions from your app's Settings editor. See Manage Runtime Dependencies for Visual Applications.

Release 25.04.1 - March 2025

Area	Feature	Description
Extensions	New workspace restriction for Oracle Cloud App instances using Basic Auth/OAuth	You can no longer create workspaces with environments where the Oracle Cloud Applications instance is connected to the VB Studio instance via Basic Auth or three-legged OAuth. This means only environments with the Oracle Cloud Application instance added via Identity Domain as an IDCS resource will be available for selection when creating a workspace. See Create an Extension.
		This restriction also applies when you use the **Edit Page in Visual Builder Studio** option to customize Oracle Cloud Applications. If a workspace is tied to an environment that uses Basic Auth or three-legged OAuth, a new environment with the Oracle Cloud Application instance added as an IDCS resource is created and the existing workspace is switched to use the new environment. See Configure an Oracle Cloud Application.
		By using an environment where the Oracle Cloud Application instance is connected as an IDCS resource, VB Studio can make REST calls against the Oracle Cloud Application instance using the identity of the logged-in user to load application pages in the Page Designer, load the Business Rules editor, or preview changes. This allows the user editing an Oracle Cloud Application page to perform the necessary functionality in VB Studio based on their assigned roles or privileges. If the instance was connected using Basic Auth or OAuth, REST calls against the Oracle Cloud Application instance would use the identity of the user whose credentials were used to create the connection—instead of the user editing the Oracle Cloud Application page—and, in some cases, fail to deliver the intended outcome.
		> (i) **Note**
>
> This change does not affect Oracle Cloud Application environments with Basic Auth or three-legged OAuth that are used as CI/CD deployment targets.

Release 25.04 - January 2025

Area	Feature	Description
DevOps	Enhancements to build jobs	• Changes to **Oracle Deployment** build step The **Oracle Deployment** build step, previously its own step in a job's configuration, is now available as **Deploy** in the Visual Application and Application Extension menu under Add Step. Existing jobs that use Oracle Deployment will be automatically converted to use the new Deploy step. See Deploy and Manage Your Applications. As a part of this update, the `oracle-deployment` build step in YAML templates is deprecated. We recommend that you update your existing YAML job configuration for this change. See Deprecated Features. • Options for multiple jobs You can now select and update multiple build jobs. You can also manage email notifications for multiple jobs. See Create and Manage Jobs. • Option to export, import, delete Oracle Integration projects You can now configure build jobs to export, import, or delete Oracle Integration projects. See Manage Oracle Integration Projects.
	Ability to copy branch protection rules	When creating a branch protection rule, you can now copy an existing rule in another branch. See Protect a Branch.
	PAR URL to connect to OCI Object Storage	When exporting or importing project data, you now have the option to connect to an OCI Object Storage bucket using a pre-authenticated request URL, which is simpler than using OCI credentials. See Export to and Import from an OCI Object Storage Bucket, Export Project Data to an OCI Object Storage Bucket Using a PAR URL, and Import Project Data from an OCI Object Storage Bucket Using a PAR URL.
	Environment events in Recent Activities	The Recent Activities feed on the Project Home page now displays messages when environments are created or deleted, and when new service instances are added to or removed from environments. See Set Up an Environment.

Area	Feature	Description
	New software versions	

> ⓘ **Note**
>
> The Maven version required on build executors has been upgraded to Maven 3.9.9. This update introduces changes that may potentially break your Maven builds. See the "Potentially Breaking Core Changes" section in the Maven 3.9.9 release notes (https://maven.apache.org/docs/3.9.9/release-notes.html) for the list of changes which may require updates to your `pom.xml` files before your build will succeed.

The following new software versions are available for build executor templates:
- Ant 1.10.11 on OL7
- Firefox ESR 128.5.1 or later on OL8, ESR 128.4.0 or later on OL7
- Fn 0.6.36 (OL7 only)
- GraalVM EE version 23.0.6 for Java 17.0.13
- Java 1.8.0_431, 11.0.25, 17.0.13, 21.0.5, and 23.0.1
- Node.js driver for Oracle Database 6.7.1 or later
- OCIcli 3.51.1 or later
- Oracle Instant Client 21.16.0.0.0 or later
- Oracle JET Command-line Interface 17.1.0 or later
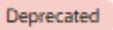- SQLcl 24.3.2.0 or later

See Software for Build Executor Templates.

Additionally, Node.js 20 and 22 are the only supported versions for packaging extensions and visual applications. The **System Default OL7 for Visual Builder** VM build executor template has also been updated to use Node.js 20. See Create and Manage Build Executor Templates.

Area	Feature	Description
	Merge request enhancements	• Option to reapply all or some commits When you reapply merge request changes, you can now choose to reapply all commits or only the merged changes. Further, when a merge request is reapplied, linked issues from the original merge request are now retained. See Reapply a Merge Request's Commits to a New Branch. • Option to close multiple merge requests You can now select and close multiple merge requests. Also, status icons have been added to help you manage merge requests. See Manage Merge Requests. • Option to resolve and close inline comments It's now easier to resolve and close inline comments in code. See Manage Inline Comments. • Updates for CLI merge requests If you omit push options when pushing updates to a branch without a merge request, the command output now includes the command format to create a merge request, along with a link to the New Merge Request UI wizard for the branch. Also, if a merge request already exists, you don't need to specify the target branch when adding an issue or a reviewer (-o mr.target can be omitted). See Create a Merge Request from the Command Line.
Security	OAuth support in Visual Application build steps	OAuth is now supported within **Visual Application** build steps, so you can configure OAuth tokens to deploy, lock/unlock, roll back, and undeploy—as well as export/import—a visual application. See: • Configure the Deployment Job • Configure a Job to Lock, Unlock, or Roll Back a Deployed Visual Application • Configure a Job to Undeploy a Visual Application • Configure a Job to Import Data to or Export Data from a Visual Application
	OAuth for publishing visual apps from the Designer	With OAuth support in Visual Application build steps, setting up OAuth in a pipeline's Deploy job means OAuth tokens are used when the visual application is deployed via the Publish action in the Designer. As part of this setup, you'll need to authorize the OAuth connection to your environment's target Visual Builder instance. It's recommended that an administrator complete this authorization when configuring the Deploy job for OAuth. See Configure the Deployment Job and Create a Production Deployment Build Job. If authorization is not done as part of initial configuration, developers can do this during the publishing process, if they have the credentials required to connect and deploy to the environment's Visual Builder instance. See Deploy a Visual Application.
Visual Applications	Region, compartment selection for Visual Application project template	When creating a project for visual applications via the Visual Application template, new Region and Compartment fields in the New Project wizard display Visual Builder instances based on your location, but you can change these values to select an instance from another region or compartment. See Create a Project Using the Visual Application Template.

Area	Feature	Description
Extensions	Workspace changes for Oracle Cloud App instances with Basic Auth/OAuth	When you use the **Edit Page in Visual Builder Studio** option to customize Oracle Cloud Applications, if your Oracle Cloud Applications instance is connected to your VB Studio instance in the same identity domain via Basic Auth or three-legged OAuth, VB Studio won't create a workspace or open an existing workspace associated with that environment. Instead, a new environment with the Oracle Cloud Applications instance added as an IDCS resource is created for you and associated with either a new or existing workspace. See Configure an Oracle Cloud Application.
	Option to change root folder	When creating an extension, you now have the option to change the default root folder under which the extension is hosted in the Git repo. See Create an Extension.
	Enhanced extension lifecycle management	It's now possible to add a new environment directly from the Manage Extension Lifecycle page. See Manage Your Published Extensions. This functionality is also supported in Express mode. See Manage Your Published Extensions. In addition, the Manage Extension Lifecycle page now lists more extension details, such as the extension's extension ID, App UIs, dependencies, and version history. With this enhanced level of detail, the Deployments tab on the Environments page has been deprecated for extensions, and instead points directly to the Manage Extension Lifecycle page. See View Your Deployments.
	Unique shared URLs for changes in separate branches	You can now share distinct URLs with your reviewers for changes in separate branches to get feedback on the changes in each branch. So if you're working on `branch_A` and share your changes with a reviewer, you can switch to `branch_B` while waiting for feedback, make changes to a new set of pages, and share an entirely new URL with these changes alone. See Share Your App UI.
	Subcategories for CX pillar	If you work with applications in the CX Pillar, you can assign your extension to the CX Sales, CX Service, or CX Marketing subcategories to provide a more granular grouping. See Establish Extension-Level Settings.
	Duplicating built-in business rules	You can now duplicate built-in business rules and validation rules in the business rules editors. For Advanced mode, see Create a Rule For Forms; for Express mode, see Create a Rule For Forms.
	Option to edit layouts directly in Properties pane	When the rule set for a dynamic table or form has only one rule, you can now update the component's layout directly in the Properties pane, to add and remove fields and change the order the fields are displayed in the component. For Advanced mode, see Edit a Component's Layout in the Properties Pane; for Express mode, see Configuring the Fields Displayed in the Component.
	Git actions no longer supported in Express mode	The option to perform Git actions (such as switching to a different branch) is no longer supported in Express mode. Because the Express mode is designed for business users, all Git operations now require you to switch to Advanced mode. See Create or Switch a Branch.

Area	Feature	Description
Common to Visual Applications and Extensions	Notifications	A new 🔔 icon in the header now brings up a Notifications panel, where you can view notifications received over the past two days. Use the Notifications panel to easily access all your notifications, especially those that automatically clear after five seconds in the bottom right corner. When you've got unread notifications, the Notifications icon will be badged based on the type of notification received. For visual apps, see Tour the Designer; for extensions, see What Is the Designer? This functionality is also supported in Express mode: see What Is the Designer?
	Option to undo changes committed to Git repo	It's now possible to undo changes committed to your project's Git repo by reverting one or more commits from the repository's history. Reverting can help you undo commits that perhaps introduced a bug, or back out changes that were accidentally merged to your repository's branch. For visual apps, see Revert Commits; for extensions, see Revert Commits.
	Enhancements for fields in a Layout	• Set precedence to override a field's user-specified value You can now use a field property to specify the precedence given to field value input by a user that overrides a field's calculated value. For visual apps, see Specify How a User Input Overrides a Field Value; for extensions, see Specify How a User Input Overrides a Field Value. • Map dynamic form field to global field template If you implemented a global field template for a dynamic form, you can now use the **Layout Discriminant** property in a layout's Fields tab to choose the global field template that must be applied to a field. For visual apps, see Map a Field to a Global Field Template; for extensions, see Map a Field to a Global Field Template.
	Ability to override child field properties in business rules	When editing business rules, you can now quickly override the properties of all child fields of regions and object fields, instead of setting the property for each child field individually. For visual apps, see Override Field Properties in a Form; for extensions, see Set Properties For Form Fields.

Area	Feature	Description
	Other enhancements	• Create types from variable objects
		If your variable uses an object or array as its type, you can now use the **Create Type** option in the variable's context menu to create a type based on the existing structure of the variable right from the Variables editor. You can also do this for object types on the Types editor. For visual apps, see Create Variables and Create a Custom Object or Array Type; for extensions, see Create Variables and Create a Custom Object or Array Type.
		• Test pages in Live view even without context
		When your page doesn't render in Live view because it's missing context (say, data stored in flow-level variables), you can now provide a mock value in an action chain to allow the page to display correctly. For visual apps, see Preview a Visual Application; for extensions, see Preview Your App UI.
		• Check a component's details for availability in Components palette
		It's now easy to identify why a component installed from the Components Exchange doesn't show in the Components palette: Just open the component in the Navigator's Components pane to view its details in the canvas area, then look for the **VB Characteristics** field. Additionally, deprecated components are now badged for easier identification. For visual apps, see Get Components from the Component Exchange; for extensions, see Install a Web Component from Component Exchange.

25.04 Runtime Version

This release of VB Studio uses Oracle JET 17.1.*x* libraries and components. We recommend that you upgrade your VB Studio apps to this latest JET version, as well as to the 25.04 Visual Builder Runtime, to take advantage of the full spectrum of 25.04 features. To see a list of what's new in JET 17.1.*x*, go to the JET Release Notes and select **v17.1.0**.

You can upgrade to the latest JET and Visual Builder Runtime versions from your app's Settings editor. See Manage Runtime Dependencies for Visual Applications.

Release 25.01.1 - November 2024

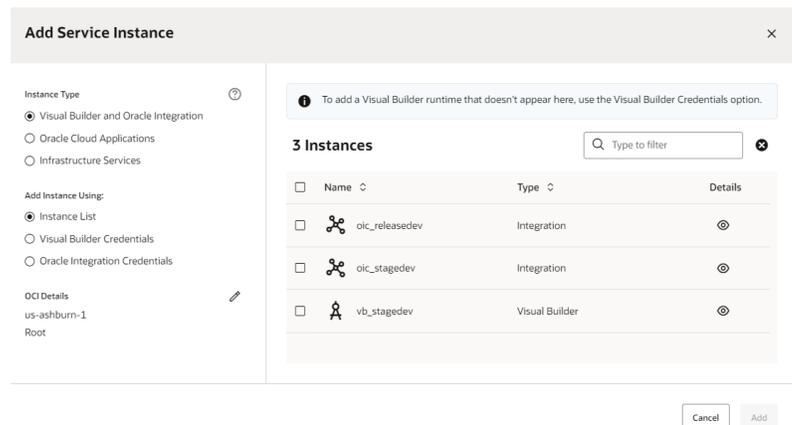| Area	Feature	Description
Extensions	CI/CD pipeline no longer the default for publishing page customizations	All new extensions created when you use the **Edit Page in Visual Builder Studio** option to customize an Oracle Cloud Application will deploy your changes immediately to the target Oracle Cloud Applications instance, instead of using the CI/CD pipeline. This way, you can quickly see your changes on your target instance without having to wait for build executors to start. See Configure an Oracle Cloud Application. Existing extensions will continue to use the CI/CD pipeline until you manually change the **CI/CD Pipeline** switch in the extension's Settings editor. See Enable or Disable the CI/CD Pipeline for Publishing.

Release 25.01 - October 2024

Area	Feature	Description
DevOps	Merge request updates	• Ability to reopen a merge request
		Closed merge requests can now be reopened. See Reopen a Closed Merge Request
		• New CLI options for creating a merge request
		Three new command-line options for creating a merge request are now available: `mr.summary` to add a summary about the request, `mr.description` to add a description of the request, and `mr.issue` to link issues to the request. See Create a Merge Request from the Command Line.
		• Usability enhancements for merge request email notifications
		Some enhancements were made to merge request email notifications to make them easier to consume. For example, to facilitate grouping by subject in your inbox, emails for a single merge request now share the same subject line. And in an effort to reduce email clutter, only three people are now notified whenever a reviewer is added to or removed from a merge request: the merge request author, the person who made the change, and the person who was added or removed. See Merge Request Email Notifications.
	Builds and pipelines	• Queued, started, and completed details for build jobs
		You can now view the date and time a build job was queued, started, and completed by hovering over the Started column's value in the Job Build History section. This information is also available when you drill down to the Build Details page. See View a Job's Build History, View a Job's History by User Name, and View A Build's Details.
		• Enable/disable option for pipelines
		The Pipelines Overview List Actions menu and the Pipeline Details page now include Enable and Disable options. See Create and Manage Pipelines.
	Recent Activities feed on the Organization page	A Recent Activities feed is now available in a new **Activities** tab on the Organization page. Organization administrators can track key project changes, such as when projects were deleted and by whom. See Access Visual Builder Studio from the Oracle Cloud Home Page.

Area	Feature	Description
	Visual Builder and Integration instances as OCI resources	Oracle Visual Builder and Oracle Integration instances that you can add to an environment are now tied to your OCI account and are considered OCI resources. Previously, these instances were IDCS resources. With this change, your VB Studio instance must now be authorized to access these instances (which can also include Oracle Integration 3), so they become available to add within an environment. See Authorize VB Studio to Access Visual Builder and Integration Instances.

> ⓘ **Note**
>
> This change does not impact existing environments with IDCS resources. You can continue to use these environments, but if you're creating a new environment, only the Visual Builder and Integration instances that are linked to your OCI account will be available to add to the environment.

To reflect this change, the Add Service Instance dialog's **Identity Domain** option is now renamed as **Instance List**. More importantly, the Visual Builder and Integration instances you see in the Instance List can be from the same identity domain as your VB Studio instance or a different one. Previously, the Identity Domain view only showed instances from the same identity domain. If you don't see your instances, you're likely missing a policy statement for the OCI compartment used by your VB Studio instance and should add it in.

Now, instead of using the **Visual Builder Credentials** option to select an instance from a different identity domain, you simply select an instance connected to your OCI account in the Instance List. VB Studio automatically detects whether your instance is in the same or different identity domain and triggers the appropriate workflow to secure the connection:

Area	Feature	Description
		• If the instance uses the same identity domain as your VB Studio instance, a two-legged OAuth connection secures programmatic access to the instance using the identity of the user signed in to VB Studio. • If the instance uses a different identity domain than your VB Studio instance, a three-legged OAuth connection, which additionally involves IDCS authorization, secures programmatic access to the instance using the identity of a user who can connect to the instance. (See also "OAuth for Visual Builder and Integration instances" in the Security section below.) Once Visual Builder and Integration instances linked to an OCI account are added to an environment, you'll notice these instances labeled as "Visual Builder" or "Integration", a marker that they are now considered distinct resources. This means you can now add one of each instance type to an environment, where previously you could only add either Visual Builder or Integration. See Set Up an Environment.
	More options for an issue's status	Three new statuses have been added for issues: `In Progress`, `In Code Review`, and `Awaiting Third Party`. See Issue Statuses.
	Search by Build Property for Maven, NPM registries	You can now search the Maven and NPM registries using a new **Search By Build Property** under advanced options. See Search Artifacts and Browse and Search Packages in Your Project's NPM Registry.
	New software versions	The following new software versions are available for build executor templates: • Git 2.43.5 or later on OL8 • Git LFS 3.4.1 on OL8 • Java 1.8.0_421, 11.0.24, 17.0.12, 21.0.4, and 22.0.2 • Node.js Driver 6.6.0 or later • Node.js 22.6.0 and 20.17.0 • Grunt CLI 1.5.0 • OCLcli 3.46.0 or later • Oracle Instant Client 21.14.0.0.0 or later • Oracle JET CLI 17.0.0 or later • Podman 4.9.4 or later See Software for Build Executor Templates.
Security	OAuth for Visual Builder and Integration instance connections	When creating an environment with Visual Builder and Integration instances from your OCI account in the Add Service Instance dialog, you can now use three-legged OAuth flows to secure programmatic access to the instance. While Basic authentication is still supported—except in the case of Oracle Integration 3 instances where OAuth is the only authentication method—it's recommended that you use OAuth when setting up your environments to eliminate the use of passwords in service-to-service REST interactions. See Set Up an Environment. Additionally, you can set up OAuth in build jobs that use Oracle Integration steps to move integrations, packages, and lookups between Oracle Integration instances. See Manage Integrations, Manage Integration Packages, Manage Integration Lookups, and Manage Oracle Integration Connections.

Area	Feature	Description
	OAuth for publishing extensions via CI/CD pipeline	OAuth support, added last release to an extension's Deploy job, is now extended to allow OAuth tokens when publishing changes via a CI/CD pipeline. With OAuth set up in the pipeline's Deploy job, you'll need to authorize the OAuth connection to your environment's target Oracle Cloud Applications instance. As an administrator, it's recommended that you complete this authorization when configuring the Deploy job for OAuth. See Create a Deployment Build Job and Create the Production Deployment Build Job.
		When this is not done as part of initial configuration, developers can do this during the publishing process if they have the credentials required to connect and deploy to the instance. See Publish Your Extension. If the OAuth token used to authorize the connection expires, you'll need to enter the required credentials to renew the token when you click **Publish**.
		While the ability to set up OAuth in a job is only available in Advanced mode, the setup takes effect in Express mode when the extension uses CI/CD pipelines for deployment. As a result, Express mode users may also be prompted to re-authorize the connection (simply by signing in to their environment) if the OAuth token has expired. See Publish Your Changes.
	Write access for NPM and Maven registries	When establishing a connection to your project's NPM or Maven registries with token-based authentication, you can now opt for write access as well as just read. See Configure Your Connection to the Project's NPM Registry and Set Up and Populate Your settings.xml File.
Extensions	Distinct repo/workspaces for extensions in a pillar	When you use the **Edit Page in Visual Builder Studio** option to customize Oracle Cloud Applications, distinct repositories and workspaces are now created for every pillar you're extending. So if you're customizing pages that belong to an extension in the HCM and SCM pillars, you'll have one repo for all HCM changes and another for all SCM changes in a project. This way, you can isolate changes in the same pillar to one repository and workspace in a project. See Configure an Oracle Cloud Application.
	Application Extension template removed	The Application Extension template, featured in the Templates step of the New Project wizard, is no longer available. While you can derive the same functionality by creating an empty project, an environment that points to your Oracle Cloud Applications instance, and a workspace, the best practice is to use the **Edit Page in Visual Builder Studio** option in your Oracle Cloud Applications instance. This workflow automatically creates a project for your extension that includes all the required artifacts, such as a Git repository that contains the extension's source code, an environment that points to a Development instance where your Oracle Cloud Application is running, and default build jobs that package and deploy the extension's artifact to your target instance. See Create a Simple Extension or Configure an Oracle Cloud Application.

Area	Feature	Description
	Base Oracle Cloud Application removed	The **Base Oracle Cloud Application** drop-down list, shown in the New Application Extension dialog when trying to create a new extension from the Workspaces page, is no longer available. This option allowed you to select the extension whose App UIs are installed as dependencies for your extension when *creating* an App UI, but users typically add multiple extensions as dependencies when *developing* the App UI. It's simpler, therefore, to add the dependencies you actually need when working on the App UI, rather than having dependencies you may or may not use added when creating the App UI. With this change, an extension created from the Workspaces page now uses the Unified Application as the base app. Once the extension is created, you can add dependencies when you actually begin to extend an Oracle Cloud Application's pages from within the Designer. For details on how to add dependencies, see Add a Dependency.
	Changed dependency view for extensions in Other pillar	When displaying an extension's dependencies by pillar, uncategorized extensions show under **Other** only when one or more extensions from this pillar are added as a dependency. Further, only these explicitly added extensions show as dependencies (instead of all dependencies showing for other pillars, except CX). See What Are Dependencies? and Add a Dependency.
	Pillar setting at extension level	The Pillar setting has been moved to the extension level from the App UI level. While the setting still shows in an App UI's settings, its value is inherited from the extension and is now read only. See Establish Extension-Level Settings and Establish App UI Settings.
	Improvements for custom root pages	• Custom root pages across extensions You can now share a custom root page across extensions by adding the ID of the extension where the custom root page is defined, along with the root page ID. • Expression support It's now possible to use expressions to identify your root page; this is useful when you've defined multiple root pages (say, one for anonymous users and another for authenticated users) and want to switch between the two. See Brand Your App UI with a Custom Root Page.
	Updates for global functions	• Support for optional parameters If you define JavaScript modules as global functions, you can now define an optional parameter by setting its Default Value in the Functions editor. The Default Value field corresponds to `defaultValue` in the parameter's definition in `functions.json`. • Display names for functions, parameters Global functions have their own function and parameter names defined in `functions.json`. These labels are now displayed in the Functions editor, as well as in the Call Function action in the Action Chains editor. See Manage Global Functions.
	Simplified editing of fragment input parameters	You can now easily set the input parameters for fragments used in dynamic components. The input parameters are listed in the Properties pane when the dynamic component using the fragment has only one rule. For Advanced mode, see Change the Value of an Extendable Constant; for Express mode, see Work With Page Properties.

Area	Feature	Description
	Ability to set page properties in Express mode	You can now use a dialog to enter a page's input parameters in Express mode. You can open the dialog box from a button in the header. The button is badged when the page requires an input parameter. See Other Views of the Designer.
Common to Visual Applications and Extensions	Action Chain enhancements	• Support to call JavaScript action chain from a JSON action chain To help ease the transition to JavaScript-based action chains, you can now call JavaScript actions from your existing JSON actions. For visual apps, see Add a Call Action Chain Action; for extensions, see Add a Call Action Chain Action. • Ability to reset dirty data status of specific variables A new **Variables to Reset** property in the Reset Dirty Data Status action now allows you to reset the `dirty` status of only the variables you want. For visual apps, see Add a Reset Dirty Data Status Action; for extensions, see Add a Reset Dirty Data Status Action. • Coverage tab for action chain tests The Tests footer now includes a Coverage tab to display the average coverage of all tests, along with the number of failed and not-run tests, for the visual application or extension, as well as each of its web apps or App UIs, flows, and pages. For visual apps, see Use the Tests Footer in a Visual Application; for extensions, see Use the Tests Footer in Your App UI. • Ability to search your action chain diagram The Action Chains editor in Design mode now has a search box at the top of the canvas to help you find text within your action chain. For visual apps, see Create Action Chains in Design Mode; for extensions, see Create Action Chains in Design Mode.
	Merge request description	The Publish dialog now provides a Merge Request Description field, so you can describe everything in the MR, not just a single commit. For visual apps, see Deploy a Visual Application; for extensions, see Publish Your Extension.
	Scratch to new repo: Option to disable build jobs and pipeline creation	When you push changes in a scratch repository to a brand new repository, VB Studio by default creates packaging and deploy jobs and adds them to a CI/CD pipeline. You now have the option to *not* create these build jobs and pipelines. For visual apps, see Push a Scratch Repository to a Git Repository; for extensions, see Push a Scratch Repository to a Git Repository.

Area	Feature	Description
	Support for autowiring fragment events on the parent container	Fragments propagate values to the parent container (like a page or a dynamic container) through custom events—but this requires some manual configuration. Now you can use a new **Auto Wire Event ID** property to automatically wire the event to the fragment's parent container. So when you try to create an event listener on the container where the fragment is used, you'll see the autowired event listed under Fragment Events on the parent container, allowing you to simply select the event and link it to an action chain. Autowiring fragment events is especially useful in the context of extensions. Where previously you might have had to define event listeners on the base parent container as well as the extended parent container, autowiring allows the event listener on the parent container to be invoked whenever the event is fired on the fragment, whether on the base parent container, the extended parent container, or both. For visual apps, see Automatically Wire a Fragment's Custom Event to the Parent Container; for extensions, see Automatically Wire a Fragment's Custom Event to the Parent Container.
	Opt for asynchronous event handling	You now have the option to enable asynchronous event handling for components such as editable tables that accept asynchronous event listeners. Async event handling allows the component that fired the event to cancel it asynchronously, if needed—but this functionality is *not* enabled by default, so you must explicitly enable this behavior for your event listeners. For visual apps, see Enable Asynchronous Handling for Component Events; for extensions, see Enable Asynchronous Handling for Component Events.
	Improvements to business rules	• Business rule templates You can now create business rule templates to help users when they create business rules. By providing templates, a user can create a rule from a template and modify it as needed, instead of starting with an empty rule. A template can provide examples of how to configure business rules, for example, how to specify rule conditions, how to write advanced expressions, or how to override properties. Templates themselves are not evaluated. For visual apps, see Create Templates for Business Rules; for extensions, see Create Templates for Business Rules. • Improved condition builder The condition builder for business rules and validations has been improved to support additional operators. The operators drop-down list now includes "is null", "is not null", "includes", and "does not include". You can now also create conditions that compare the criterion's value to another field's value by selecting a field in the value drop-down list. For visual apps, see Set Conditions for a Rule; for extensions, see Set Conditions for a Rule. • Support for adding messages to read only and required fields You can now include a message text when you set a field to Read Only or Required in a business rule. The message is displayed in the form when the rule is applied. For visual apps, see Override Field Properties in a Form; for extensions, see Override Field Properties in a Form.

Area	Feature	Description
	Other enhancements	• List of Values drop-down in Page Input Parameters dialog
		It's now possible to display a list of values retrieved from a service (like a REST endpoint) for an input parameter by adding `@dt` metadata to the variable's JSON and setting `subtype` to `lov`. For visual apps, see Enable Variables as Input Parameters; for extensions, see Enable Variables as Input Parameters.
		• Support for the new oj-if component
		With JET 17.0.*x* introduced in this release, you can now use the `oj-if` component to conditionally show or hide components in your pages. This component is similar to the `oj-bind-if` component, but unlike `oj-bind-if` where the element is not removed from the DOM after bindings are applied, `oj-if` stays in the DOM and can therefore directly be used as the slot content of a custom element. If you want to conditionally render the content of a slot or if you want the element to stay in the DOM, `oj-if` is recommended over `oj-bind-if`. For visual apps, see Use Conditions to Show or Hide Components; for extensions, see Use Conditions to Show or Hide Components.

> ⓘ **Note**
>
> This functionality requires JET 17.*x*, or Oracle Cloud Applications 25A (with JET 17.*x*) or later for extensions.

Area	Feature	Description
		• Core Pack component versions for quick start fields
		If you've enabled Core Pack components in your visual app, you can now choose the Core Pack component version for a field when using quick starts such as the Add Create Page, Add Edit Page, and Add Details Page. This option is also available in extensions, where the Core Pack version is automatically selected as the component for a field if the component's Legacy version was superseded by the Core Pack version. If the Legacy and Core Pack versions are both available, you can choose to use the Core Pack version. For visual apps, see Use the Create Page Quick Start, Use the Add Edit Page Quick Start, and Use the Add Detail Page Quick Start; for extensions, see Work With Core Pack Components.
		• Improved breadcrumbs to view component children, siblings
		You can now use breadcrumbs in the Page Designer to switch to a component's sibling in the page hierarchy. You can also view its children by hovering over **...** at the end of the breadcrumb trail. For visual apps, see Use the Page Designer; for extensions, see Use the Page Designer.

25.01 Runtime Version

This release of VB Studio uses Oracle JET 17.0.*x* libraries and components. We recommend that you upgrade your VB Studio apps to this latest JET version, as well as to the 25.01 Visual Builder Runtime, to take advantage of the full spectrum of 25.01 features. JET 17.0.*x* includes the ability to resize multiple table columns, as well as

visual and behavior changes for other components. To see a list of what's new in JET 17.0.*x*, go to the JET Release Notes and select **v17.0.0**.

You can upgrade to the latest JET and Visual Builder Runtime versions from your app's Settings editor. See Manage Runtime Dependencies for Visual Applications.

New Features in Oracle Visual Builder Add-in for Excel

The version of Oracle Visual Builder Add-in for Excel bundled in VB Studio 25.10 is 4.4. To see what's new in this release, go to the add-in's documentation page and click **4.4.0**.

Supported Browsers

Visual Builder Studio supports the latest version of Google Chrome and Microsoft Edge running on Mac OS X and Windows. Other browsers and platforms are not supported.

Applications created using Visual Builder Studio can run on any browser supported by Oracle JET. For details, see What platforms are supported by Oracle JET?

JavaScript must be enabled for the browser.

Deprecated Features

Take note of features that have been deprecated and are no longer supported in VB Studio:

Area	Feature	Description	Notice of deprecation	End of support
Dev Ops	LDAP	Oracle LDAP is no longer supported in VB Studio, and has been replaced with IDCS. This means that basic authentication will no longer work, and LDAP/Beehive groups and mailing lists are no longer supported. Groups based on Beehive LDAP groups have been converted to locally defined VB Studio groups, and are no longer kept in sync with the corporate identity system. New users requesting OIM access to ALM should use the IDCS OIM entitlement, and not the LDAP entitlement (which will eventually be removed).	25.04 - Jan 2025	25.10 - July 2025
	Java Cloud Service	With Oracle Java Cloud Service (JCS) reaching End of Life (EOL), JCS instances are no longer supported in VB Studio.	25.04 - Jan 2025	25.07 - April 2025
	Docker 19.03.11 or later on OL7	Support for Docker 19.03.11 or later on OL7 is now deprecated. Docker 19.x will be removed from the product in a future release.	25.04 - Jan 2025	25.04 - Jan 2025

Area	Feature	Description	Notice of deprecation	End of support
	`oracle-deployment` YAML build step	The `oracle-deployment` YAML build step, used for extension, visual application, and JCS deployments, has been removed. Use the `application-ext-deployment` step for extensions and the `visual-app-deployment` step for visual applications. See What Is the Format for a YAML Job Configuration? With JCS instances no longer supported in VB Studio, the `jcs-deployment` step is also removed.	25.04 - Jan 2025	25.10 - July 2025
	Data export to OCI Classic	With OCI Classic Storage decommissioned in March 2025, access to project data in storage is no longer available. Support for exporting data to OCI Classic has also been removed.	25.01 - Oct 2024	25.07 - April 2025
Visual Applications	Alta theme	Apps created on VB Studio version 20.07 or earlier were created with Oracle JET's Alta theme as the base theme. The Alta theme was deprecated in JET 10 and support was dropped in JET 14. With the release of JET 18 (bundled with VB Studio 25.07), the ability to create new custom themes with Alta as the base theme has been removed. Further, all CSS and SCSS files will be removed from JET distributions starting with JET 21. To check the theme used by your application, navigate to the application's Settings editor and look for the Theme field. If Theme is set to Alta, redesign your app using the Redwood theme. You will not be able to move to the latest runtime version until you transition your app to use the Redwood theme.	22.01 - Dec 2021	Jan 2024
	Custom enumeration type	The ability to create a custom type that defines a list of enumeration values is now deprecated. Instead of creating an enumerated list as a type, you can create a variable, then use the **Subtype** option in the variable's **Design Time** tab to define your enumerated list. See Create Variables.	24.07 - April 2024	24.10 - July 2024

Are a	Feature	Description	Notice of deprecation	End of support
	Delegate Authentication for backends and service connections	The **Delegate Authentication** option used for backends and service connections in a web app is deprecated. This option, when used with the **Enable implicit grant for Service Connections** option (which has been deprecated since 24.01), enabled a direct Implicit OAuth flow with IDCS for Oracle Cloud Application REST APIs when a service connection used by the web app was configured for Delegate Authentication. Implicit OAuth is no longer a recommended option. In other scenarios, Delegate Authentication behaves the same as the **Oracle Cloud Account** option, with the Visual Builder Proxy enabled.	25.10 - July 2025	Planned for November 2026

If your existing apps use **Delegate Authentication**, take action as follows:

1. Update the backend or service connection's server configuration in your visual application:

   a. Change any backends or service connections that use **Delegate Authentication** to **Oracle Cloud Account** authentication.

   b. If the REST API doesn't support CORS, change the Connection Type to **Always use proxy, irrespective of CORS support**; otherwise, leave the configuration as is.

2. Test the service connection from the **Test** tab to identify any issues.

3. Open the web app's **Settings** editor, then deselect the **Enable implicit grant for Service Connections** option in the **Security** tab if necessary.

4. Test the web app to make sure the service connection doesn't have any issues.

No action is needed if your web apps don't have backends/service connections set to **Delegate Authentication**.

Are a	Feature	Description	Notice of deprecation	End of support

	Implicit grant for backends and service connections	The **Enable implicit grant for Service Connections** option used for backends and service connections in a web app has been deprecated. The change does not impact existing apps that enable this option—though it won't be available for new web apps starting from June 2024. If your existing web apps use the **Enable implicit grant for Service Connections** option, we recommend updating them.
		
		The **Enable implicit grant for Service Connections** option was used in conjunction with the **Delegate Authentication** setting found in a backend or service connection's server configuration. It enabled a direct Implicit OAuth flow with IDCS for Oracle Cloud Application REST APIs when a service connection used by the web app was configured for Delegate Authentication. Implicit OAuth is no longer a recommended option. If your existing apps use this option, take action as follows:
		
		1. Update the backend or service connection's server configuration in your visual application:
		  a. Change any backends or service connections that use **Delegate Authentication** to **Oracle Cloud Account** authentication.
		  b. If the REST API doesn't support CORS, change the Connection Type to **Always use proxy, irrespective of CORS support**; otherwise, leave the configuration as is.
		2. Test the service connection from the **Test** tab to identify any issues.
		3. Open the web app's **Settings** editor, then deselect the **Enable implicit grant for Service Connections** option in the **Security** tab.
		4. Test the web app to make sure the service connection doesn't have any issues.
		
		No action is needed if your web apps don't have **Enable implicit grant for Service Connections** enabled and if none of your backends/service connections are set to **Delegate Authentication**.
			24.01 - Nov 2023	Planned for November 2026

	`transform` behavior type for custom events	The `transform` behavior type for custom events is deprecated and replaced by the new `tranformPayload` behavior type. The change does not impact existing apps with events configured to use the `transform` type, but the new `tranformPayload` type addresses issues with invoking event listeners in the correct order. Where possible, users are encouraged to switch to the new behavior type.	24.01 - Nov 2023	24.01 - Nov 2023
	Mobile apps	Mobile applications have reached End of Life (EOL) and are no longer supported. To be able to use your mobile apps, including PWA-enabled ones, you must convert your mobile app as a web app and deploy it as a PWA for use on mobile devices. See Convert a Mobile App to a Web PWA.	23.04 - Feb 2023	24.10 - Oct 2024

Area	Feature	Description	Notice of deprecation	End of support
	Hybrid mobile apps and Apache Cordova custom plugin	Functionality relating to hybrid mobile applications (deprecated since April 2021) has been removed from the product. This means that the use of build configurations to build native `.ipa` and `.apk` files for distribution to iOS and Android devices—as well as the Cordova custom plug-in option—are no longer available. You can no longer create new hybrid mobile apps or new build profiles for existing apps; build configurations for existing apps will be ignored. For apps that target mobile devices, enabling PWA support is the recommended approach for distribution.	21.07 - April 2021	23.07 - April 2023
	Select One component	The Select One (oj-select-one) component, deprecated since JET 8.1.0, has been removed from the Components palette and is visible only if you select the **Show Deprecated** option. Switch instead to Select Single (oj-select-single).	22.04 - Feb 2022	N/A
	Oracle SaaS R13 Light Theme	The Oracle SaaS R13 Light Theme application template has been deprecated, although we will continue to support it until version 22.01 reaches End of Life (EOL). See Updating an Oracle SaaS application template for more information.	22.01 - Dec 2021	N/A
	`navigateToPageAction` action	The `navigateToPageAction` action is deprecated in 21.07. When you upgrade your app to version 21.10 or later, any existing action chains that use `navigateToPageAction` are automatically migrated to `navigateAction` (introduced in 21.07).	21.07 - May 2021	N/A
	Internet Explorer 11	Visual Builder runtime has deprecated the use of Internet Explorer 11 since 19.4.3. Users who try to access a deployed Visual Builder application from Internet Explorer will see a deprecation warning. Starting with 21.04, Oracle Support will no longer address issues pertaining to Internet Explorer 11.	19.4.3 - Aug 2020	21.04 - Feb 2021
	Processes in VB Studio	The following Process-related features are deprecated: • Register deployed processes • Use of Process actions in action chains • Support for Process code snippets • Process-related quick starts You can still use these features if you're using an Oracle Integration Generation 2 runtime instance in your environment, but as you plan the transition to Oracle Integration 3, you should leverage service connections instead to interact with Process. To leverage OCI Process Automation (Oracle Integration 3) in your application, create an OCI Process Automation backend based on your instance, then create service connections for the REST APIs you want to use in your visual application. See Connect to Oracle Process Automation APIs for more information.	24.04 - Feb 2024	Not available in Oracle Integration 3 and beyond

Upgrade Policy

When VB Studio is upgraded to a new release, any new visual apps you create automatically use the latest Visual Builder Runtime and JET dependencies. However,

apps created in earlier releases are not automatically updated—it's up to you to decide when to upgrade, as long as you do so within a certain time period.

As a general rule, you can *publish* a VB Studio application on the current runtime version, and continue to *develop* it on the four previous runtime versions. Published apps can run indefinitely, but when working on apps in the Designer, you must consider support for the app's original runtime version. So for 25.10, for example, VB Studio supports not only the 25.10 runtime version, but also apps built with 25.07, 25.04, 25.01, and 24.10. Once 26.01 comes out, support for the 24.10 runtime version will drop off, so we'll ask you to upgrade those apps before you can work on them in the Designer. If you choose not to upgrade and republish, you run the risk that newer browser versions will break your published app. You also won't be able to take advantage of any important security and performance improvements. For all of these reasons, we encourage you to build time into your development cycle to keep abreast of current changes, and to make sure you upgrade your app (you should version it first) **before** support for your current runtime version expires.

See Manage Runtime Dependencies for Visual Applications for details on how to upgrade.

Getting Oriented

VB Studio brings you all the functionality previously available with Oracle Developer Cloud Service. You also get the ability to build web and mobile applications in the Visual Builder Designer, as well as to extend certain Oracle Cloud Applications to customize the UI for your business needs.

VB Studio offers end-to-end functionality for your development team, from planning releases and managing development backlog, to hosting source code in Git, to designing, building, testing, and deploying cloud-native applications to your Oracle Cloud Applications and Oracle Cloud instances.

For Former Developer Cloud Service Users

If you were a Developer Cloud Service user, the following table will help you understand the primary differences between Developer Cloud Service and VB Studio:

How Developer Cloud Service and VB Studio Differ?	Find out more:
You don't need to migrate your Developer Cloud Service projects. A VB Studio instance replaces your Developer Cloud Service instance, and you can continue to use your existing projects and corresponding DevCS features just as they are, without any impact to you.	*Using Oracle Developer Cloud Service* has been restructured and rewritten for VB Studio and is now called *Managing Your Development Process with Visual Builder Studio*. If you're an administrator, you'll want to check out *Administering Visual Builder Studio* as well.

How Developer Cloud Service and VB Studio Differ?	Find out more:
VB Studio comes equipped with the Designer, a graphical user interface that enables you to develop web and mobile apps using components from the Oracle JavaScript Extension Toolkit (JET). To test these applications, or to release them for production, you must deploy the apps to a separate Visual Builder instance, which serves as the runtime environment. Of course, you can still use VB Studio to build apps with a third-party IDE or code editor and use VB Studio as the code repository, just as you did with DevCS. You can also use VB Studio to test, deploy, and maintain those apps throughout their lifecycles—nothing's changed there.	*Building Responsive Applications with Visual Builder Studio* explains how to use the VB Studio Designer to build web and mobile apps.
If you purchased Oracle Cloud Applications subscriptions that have front ends built with JET components, you can also use the VB Studio Designer to extend those apps to customize them for your business needs.	See *Extending Oracle Cloud Applications*.
Developer Cloud Service used tags to associate service instances with environments. In VB Studio, you'll need to add service instances again to environments, because the service instances associated with the environments were removed as part of the upgrade. The environments themselves were not removed, just the service instances associated with them.	For information about how to add a service instance to an environment, see *Manage an Environment*.

For Former Visual Builder Users

In VB Studio, you still use the Designer to create your visual applications, but the infrastructure surrounding that process has changed significantly, as described here:

How Visual Builder and VB Studio Differ?	Find out more:
In VB Studio, you and your team belong to an *organization*. Within that organization are *projects*, which help to organize the work for a given endeavor. A project contains a Git repository, where your source code is stored, along with build jobs that package up your app's artifacts and deploy them to the target environment. Each project also contains tools to help you manage your visual application's lifecycle, like an Agile board, issue tracker, team wikis, and more.	What Is Oracle Visual Builder Studio?
Whereas Visual Builder used to contain the runtime environment where you could test and deploy your visual applications, VB Studio requires you to have a separate Visual Builder instance to serve as your runtime environment, and to establish communication between the two services. VB Studio manages the runtime environment instances that serve as your development, test, and production environments in the Environments page. Within the Environments page, you can view the status of the various service instances that have been added to your environment.	If you're an administrator, see Set Up VB Studio for Developing Visual Applications to find out how to hook up your runtime to VB Studio. If you're an app developer, see Share, Publish, and Deploy Visual Applications.
Your work in the Designer now takes place in a *workspace*, which is an entirely private area within a project that only you can access. The workspace brings together everything you need to build your visual app: a private branch within the Git repository and a VB Studio environment that points to your Visual Builder runtime instance.	If you're an app developer, see Create Visual Applications in VB Studio.

How Visual Builder and VB Studio Differ?	Find out more:
If you want others to collaborate with you in developing your project's apps, your project owner will need to add them to the project and you'll need to commit your workspace to a branch in a Git repository that is shared with these project members. To facilitate collaboration, the Designer in VB Studio includes built-in support for Git with a Git menu in the toolbar that accesses the Git commands you're likely to use most frequently (Pull and Push, for example). There's also a new navigator tab (Git Panel) that provides a view to uncommitted changes in your workspace, and tools to resolve issues when your changes conflict with other changes in the Git repository branch that you want to commit to.	If you're a project owner, see Add and Manage Project Users. If you're an app developer, see Manage Your Visual Applications With Git.
In Visual Builder, the Stage and Publish actions were key parts of your development cycle. In VB Studio, however, you use **Share** to share your application with others for testing purposes, and **Publish** to push your changes from your local Git repository to the master branch of your remote repository (that is, the project's version) and deploy it to the Visual Builder runtime environment.	If you're an app developer, see Share a Visual Application and Manage Deployed Visual Applications.
For business objects, VB Studio maintains one database schema per workspace. As a best practice, we recommend that you use the same workspace and branch to create and edit business objects in a visual application.	See Work with Business Objects.
VB Studio provides the following options to manage your visual application's business object data: • Menu options to import and export data. You access these options from the Visual Applications tab for the deployed visual application in the Environments page • Build jobs to import and export business object data	See Manage Business Object Data During Development.

How Visual Builder and VB Studio Differ?	Find out more:
You can use the visual applications you built in Visual Builder within VB Studio by importing them, then performing a few post-import tasks.	See Learn About Migrating to Oracle Visual Builder Studio.
VB Studio manages connections to backend services differently to Visual Builder, where a Visual Builder administrator added these services to the Tenant Settings page. In VB Studio, the steps to create a connection depend on the backend service. If your visual applications need to access REST services from an Oracle Cloud Applications catalog, you add the Oracle Cloud Applications instance to the runtime environment. If the Visual Builder instance that you use in your environment is provided by Oracle Integration, visual applications in VB Studio inherit the catalog of Integration and Process backend services.	See Manage Backend Services in Your Visual Application.

How Visual Builder and VB Studio Differ?	Find out more:
The `grunt-vb-build` NPM package includes tasks to build visual applications that you develop in VB Studio and deploy to a Visual Builder runtime instance: • The `vb-process-local` task processes the sources of the visual application that you cloned from VB Studio's Git repository to your local Git repository for usage in the Visual Builder runtime instance. The `vb-process-local` task replaces variables and placeholders in `index.html`, downloads libraries from the Component Exchange, and so on. The archive that the `vb-process-local` task produces does not include absolute links to the Visual Builder runtime instance. • The `vb-credentials` task transfers the credentials (service connection information and mobile build configurations) from secure storage in VB Studio to the target Visual Builder runtime instance. • The `vb-deploy` task deploys the environment-independent artifact that the `vb-process-local` task produced to the target Visual Builder runtime instance and inserts environment-specific information, such as URLs and Oracle Identity Cloud Service information. The `vb-deploy` task also produces native mobile packages, if your visual application includes mobile applications.	If you want to use the Grunt tasks described here to build and deploy a visual application to a Visual Builder runtime instance, see Build and Deploy Your Application.

How Visual Builder and VB Studio Differ?	Find out more:
Although you'll now do almost all the administration tasks for your visual applications in VB Studio, someone with administrator privileges for the Visual Builder runtime needs to sign in to the Visual Builder runtime to do certain tasks. Examples include configuration changes to connect your Visual Builder runtime to an Oracle DB instance with more space, or to configure a custom domain if users access an application deployed on the Visual Builder runtime from a custom app URL.	If you're a Visual Builder runtime administrator, sign in to the Visual Builder runtime to complete the following tasks, that are described in *Administering Oracle Visual Builder Generation 2* . • Access Instance Settings • Configure Security Options for Applications • Set Page Messages for Access Denied Errors • Allow Other Domains Access to Services • Switch to Your Own Oracle DB Instance • Reset an Expired Password or ATP Wallet for Your Oracle DB Instance • Manage Self-signed Certificates • Configure Support for a Custom Domain

Extending Oracle Cloud Applications

If Oracle built your Oracle Cloud Application using Oracle JET, you can extend that app to customize it for your business needs. You can also create your own pages and page flows based on the Redwood theme, and deploy them alongside Oracle apps in your Oracle Cloud Applications instance.

To find out if you have such an app, see if you have an **Edit Page in Visual Builder Studio** option in your Oracle Cloud Application's edit menu. If you do, click it to jump over to VB Studio and start creating your extension. To help you along the way, have a look at What Do You Want to Do in VB Studio?

Like everything built in VB Studio, the source code for your extension is stored within a project's Git repository, and you work on your own branch of that repo in the context of your own private *workspace*.