Oracle® Cloud

What's New in Oracle Visual Builder Studio

25.04.1

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March 2025

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:

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 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. **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

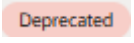
Area	Feature	Description
DevOps	Enhancements to build jobs	• Changes to **Oracle Deployment** build step The **Oracle Deployment** build step, previously its own step in a job's configuration, is now available as **Deploy** in the Visual Application and Application Extension menu under Add Step. Existing 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 is now the minimum version required 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.

Area	Feature	Description
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.
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.

Area	Feature	Description
	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.
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.

Area	Feature	Description
	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.
	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

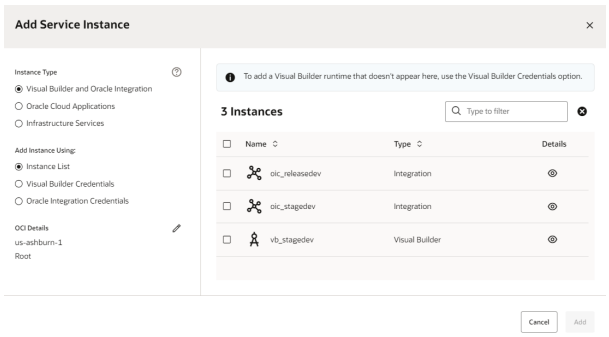
Area	Feature	Description
Extensions	CI/CD pipeline no longer the default for publishing page customizations	All new extensions created when you use the **Edit Page in Visual Builder Studio** option to customize an Oracle Cloud Application will deploy your changes immediately to the target Oracle Cloud 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.

Area	Feature	Description
	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.

Area	Feature	Description
		 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: • 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.

Area	Feature	Description
	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.

Area	Feature	Description
	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.
	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.

Area	Feature	Description
	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.
	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.

Area	Feature	Description
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.

Area	Feature	Description
	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. • 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

Area	Feature	Description
		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.

Release 24.10.1 - August 2024

Area	Feature	Description
DevOps	Email notification for pipeline approval	Pipeline approvers are now notified in email that an approval is awaiting their action. See Notify the Pipeline Approvers.

Release 24.10 - August 2024

Oracle is in the process of provisioning multiple instances of VB Studio for each Oracle Cloud Applications customer. New customers will see this configuration as soon as they are provisioned with Oracle Cloud Applications; existing customers are being migrated to the new landscape over the next several months. For more information, see Before You Begin in *Administering Visual Builder Studio*.

Area	Feature	Description
DevOps	Dark theme	You can now set a preferred color theme for VB Studio pages, switching them from the default light theme to a dark theme more suited for low-light conditions. Previously, this was only possible within the Designer. With this update, your environment's theme can now be set either from user preferences or the Designer and take effect for all pages in the user interface, including the Designer. See Set Your Preferred Color Theme.

Area	Feature	Description
	Merge requests	• Retarget a merge request You can retarget a merge request to a new target branch, which is useful when the original target branch has been moved, deleted, frozen, or locked down. See Retarget a Merge Request's Commits to Another Branch. • Set a merge request to Draft state Set a merge request to Draft state to indicate that it's not ready to be merged. When in Draft state, the merge action is blocked, notifications to reviewers are paused, and linked builds are prevented from automatically running. See Set a Merge Request to Draft State. • View a merge request's active reviewers When a reviewer adds a change or a comment, their icon in the Review Status section displays a badge representing that they are actively reviewing the merge request; the badge also displays their rejection or approval of the merge request. See Merge Branches and Close the Merge Request. • Customize editor for merge request comments The text formatting toolbar for merge request comments is enhanced to customize the content editor itself, so you can toggle line numbers on and off, change line wrapping, and show (or hide) the content editor's minimap. See Use the Toolbar to Work with Comments.
	Markup toolbar for wikis	A new toolbar that simplifies text/markup formatting is now available for wiki pages. Besides formatting, the toolbar provides options to customize the content editor itself, so you can toggle line numbers on and off, change line wrapping, and show (or hide) the content editor's minimap. See Use the Markup Toolbar.
	New software versions	The following new software versions are available for build executor templates: • Docker 26.1.1 or later on OL8 • Java SE 11.0.23, 17.0.11, 21.0.3, and 22.0.1 • Fn 0.6.33 on OL7 • SQLcl 24.2.0.1 or later See Software for Build Executor Templates.

Area	Feature	Description
Security	OAuth token authorization	When the Oracle Cloud Applications instance in your environment is not in the same identity domain as your VB Studio instance, you can now use OAuth 2.0 flows to secure programmatic access to the instance. While Basic authentication is still supported, you can set up OAuth from the Environments page to eliminate the use of passwords in service-to-service REST interactions. For extensions, you can also set up OAuth in the Deploy and Delete jobs used by the extension. To add the Oracle Cloud Applications instance using OAuth, you only need the base URL of the instance and user credentials. • To do this as an administrator, see Add an Oracle Cloud Applications Instance to an Environment and Add the Oracle Cloud Applications Production Instance to an Environment. • To do this as a developer, see Add an Oracle Cloud Applications Instance to a Visual Application for visual apps and Create or Renew OAuth Tokens to Deploy Your Extension for extensions. To set up OAuth in the Deploy and Delete jobs used by an extension: • For Deploy steps, see Create a Deployment Build Job and Create the Production Deployment Build Job. • For Delete steps, see Configure a Job to Delete an Extension.
Visual Applications	Opt-in for Core Pack components	Core Pack components, available under the **Early Access** category in the Components palette since 24.04, now require an opt-in if you want to use them in your application's pages. If you use these Core Pack components in your app, take note that Core Pack does not support theming at this time. The only way to theme your app is to roll back Core Pack usages in your app to Legacy components and re-implement your application. If you don't ever plan to theme your app, you can choose to enable Core Pack components in the Components palette for use in your app's pages. See Opt In to JET Core Pack Components.
	Option to select existing field for M:1 and 1:1 business object relationships	A new and improved editor is now available when you create many-to-one and one-to-one relationships between business objects. Besides other improvements, the editor gives you the option of creating a new field as the referenced key (default), or selecting an existing field of the correct type. See Create a Many-To-One or One-To-One Relationship. Many-to-many relationships continue to use the existing editor, now without the ability to change cardinality. A new **+ Many to Many Relationship** option is also added to a business object diagram's context menu.

Area	Feature	Description
Extensions	Extension lifecycle management	It's now possible to centrally manage published extensions using a new **Manage Extension Lifecycle** page. You can use this page to deploy a published extension to a new Oracle Cloud Applications instance, or delete it when no longer needed. See Manage Your Published Extensions. This functionality is also supported in Express mode. See Manage Your Published Extensions.
	Dependency enhancements	• Explore dependencies in other extensions within the same pillar It's now easy to explore extensions in the same pillar as your dependent extension. Previously, you'd have to install an extension to locate resources you might want to add to your extension, but now *all* extensions with extendable resources in the same pillar as your dependent extension show in the App UIs pane. You'll also see a similar view in the Services, Layouts, and Translations panes. See What Are Dependencies? • Remove an installed dependency You can now remove a dependency you installed. Simply hover over the installed dependency in the Dependencies pane and click  . See Add a Dependency.
	Global functions editor	If you define JavaScript modules as global functions, it's now much easier to manage the metadata in `functions.json`. Instead of updating the file's JSON, you can use a more intuitive interface to manage existing JS files (and functions) added to the file as well as create new JS files that contain global functions. See Manage Global Functions.

Area	Feature	Description
	Express mode enhancements	• List of custom pages You can now see pages that you've created grouped in a new section in the page navigator pane in Express mode. • Add/update dynamic container sections in the Properties pane In Express mode, you can now add, remove, and change the order of sections in dynamic containers directly in the Properties pane. See Control the Sections Displayed on the Page. • Default publishing When you use the **Edit Page in Visual Builder Studio** option to customize an Oracle Cloud Application page in Express mode for the first time (effectively creating a new repo), your changes are now directly published to your Oracle Cloud Applications instance, instead of going through the CI/CD pipeline. See Publish Your Changes. If you want to change this default setting, you'll need to switch to Advanced mode and update the **CI/CD Pipeline** setting in the Settings editor.
Common to Visual Applications and Extensions	General availability for business rules	Business rules, which control the logic that determines what's displayed on the page at runtime, are now available for all extensions as well as visual applications. For visual apps, see Use Business Rules With Your Rule Sets; for extensions, see Use Business Rules With Your Rule Sets. If you already work with business rules, you can now configure dynamic tables using a new type of business rule, called a Collection rule, which allows you to show or hide table columns when the dynamic table is first rendered. For visual apps, see Create a Business Rule for Tables; for extensions, see Create Business Rules for Tables. You can also now use two special types of nested business rules: If/Else rules and Switch rules. For visual apps, see Use Nested Rules; for extensions, see Use Nested Rules.

Area	Feature	Description
	Enhancements for JavaScript action chains	• Actions within custom code You can now drop an action between single line and block statements in custom code, functionality that can improve productivity. Additionally, you can also take advantage of code completion in a Code action's Properties pane. For visual apps, see Add a Code Action; for extensions, see Add a Code Action. • Shorthand syntax for variables, constants, functions in current scope When you create a new JavaScript action chain or add actions to an existing chain, the underlying code now uses shorthand syntax, by default, to retrieve the value of variables, constants, and functions defined in the current scope. So for a page, where previously the syntax was `$page.variables.myvar` or `$page.functions.myfunc`, you'll now see `$variables.myvar` or `$functions.myfunc` instead in your action chain. **Note:** The option to toggle between JSON and JavaScript action chains in the Action Chains tab is no longer available. This change does not impact existing JSON action chains, which you can continue to edit—but all new action chains default to JavaScript. Further, you can no longer create new tests for JSON action chains, though existing tests will continue to run.

Area	Feature	Description
	Option to create branch based on remote parent branch	When creating a branch based on a parent branch, you now have the option to pick which branch to use as the parent – either the local branch or the remote branch, if one exists. For visual apps, see Create or Switch a Branch; for extensions, see Create or Switch a Branch.
	Upgrade support for imported resources	Resources that are using an older set of runtime dependencies when your app is imported can now be made compatible with the app's current runtime version. For visual apps, see Upgrade Imported Resources; for extensions, see Migrate Imported Resources.
	Dependent fragment property for display	When curating fragment properties for display in the Properties pane, you can now use an item's **Dependent On** field in the Design Time tab to specify other items that this item depends on for its data. This way, when the fragment is used on a page or container, the dependent item won't show in the Properties pane until the other items have their value. For visual apps, see Section Fragment Properties for Display in the Properties Pane; for extensions, see Section Fragment Properties for Display in the Properties Pane.

24.10 Runtime Version

This release of VB Studio uses Oracle JET 16.1.*x* libraries and components. We recommend that you upgrade your VB Studio apps to this latest JET version, as well as to the 24.10 Visual Builder Runtime, to take advantage of the full spectrum of 24.10 features. JET 16.1.*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 16.1.*x*, go to the JET Release Notes and select **v16.1.0**.

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.

New Features in Oracle Visual Builder Add-in for Excel

The version of Oracle Visual Builder Add-in for Excel bundled in VB Studio 25.04 is 4.2. To see what's new in this release, go to the add-in's documentation page and click **4.2.0**.

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
DevOps	Java Cloud Service	With Oracle Java Cloud Service (JCS) reaching End of Life (EOL), support for JCS instances in VB Studio is deprecated. JCS support will be removed from the product in the upcoming release.	25.04 - Jan 2025	Planned for 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
	`oracle-deployment` YAML build step	The `oracle-deployment` YAML build step, used for extension, visual application, and JCS deployments, is deprecated. While existing YAML jobs with the `oracle-deployment` step will continue to work, the step will be removed in a future release. We recommend changing your `oracle-deployment` step to `application-ext-deployment` for extensions and `visual-app-deployment` for visual applications. While you can move to `jcs-deployment` to support existing JCS deployments, JCS support will be removed in the upcoming release. See What Is the Format for a YAML Job Configuration?	25.04 - Jan 2025	Planned for April 2025
	Data export to OCI Classic	OCI Classic Storage will be decommissioned in March 2025, at which time you will lose access to project data in storage. Exporting data to OCI Classic is no longer available, though you can still import data until March 2025. Consider moving your data to OCI Storage as soon as possible. See Export and Import Project Data.	25.01 - Oct 2024	Planned for March 2025

Area	Feature	Description	Notice of deprecation	End of support
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 will *not* be supported beyond JET 13. To be able to publish new versions of an Alta-based app beyond January 2024 (when JET 13 reaches End of Life), we strongly urge you to transition your app to use the Redwood theme. Starting with JET 14, only best-effort support will be available for Alta; no bug fixes or new features will be provided for Alta-only issues. To check the theme used by your web or mobile application, navigate to the application's Settings editor and look for the Theme field. If Theme is set to Alta, take time to redesign your app using the Redwood theme **before** support for the Alta theme ends.	22.01 - Dec 2021	Planned for 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

Area	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 2024

Area	Feature	Description	Notice of deprecation	End of support
	`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
	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

Area	Feature	Description	Notice of deprecation	End of support
	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 you create a new visual app, VB Studio automatically sets your runtime dependencies to the latest Visual Builder Runtime and JET versions. If you've already deployed (shared or published) an app, however, 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 run a published VB Studio application built on the current runtime version, and continue running it on the three previous versions. So for 25.04, for example, VB Studio supports not only the 25.04 runtime version, but also apps built with 25.01, 24.10, and 24.07. Once 25.07 comes out, however, support for the 24.07 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 at that time, you run the risk that newer browser versions will break your 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.
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 Web and Mobile Applications* 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*.

How Developer Cloud Service and VB Studio Differ?	Find out more:
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.

How Visual Builder and VB Studio Differ?	Find out more:
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.
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.

How Visual Builder and VB Studio Differ?	Find out more:
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.
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*.

Documentation Accessibility

For information about Oracle's commitment to accessibility, visit the Oracle Accessibility Program website at http://www.oracle.com/pls/topic/lookup?ctx=acc&id=docacc.

Access to Oracle Support

Oracle customers that have purchased support have access to electronic support through My Oracle Support. For information, visit http://www.oracle.com/pls/topic/lookup?ctx=acc&id=info or visit http://www.oracle.com/pls/topic/lookup?ctx=acc&id=trs if you are hearing impaired.

Oracle Cloud What's New in Oracle Visual Builder Studio, 25.04.1
G18160-03

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