Oracle® Cloud

Managing Data Using Oracle Visual Builder Add-in for Excel

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Contents

Preface

1   Introduction to Oracle Visual Builder Add-in for Excel

2   Install Oracle Visual Builder Add-in for Excel

3   Manage Data in Table Layouts

Preface

Managing Data Using the Oracle Visual Builder Add-in for Excel describes how to work with Excel workbooks to retrieve and modify a web application's business data and send modified data back to the application.

Topics:

- Audience
- Documentation Accessibility
- Diversity and Inclusion
- Related Resources
- Conventions

Audience

This document is intended for business users who work with data in Excel workbooks that integrate with enterprise applications using the Oracle Visual Builder Add-in for Excel.

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.

Diversity and Inclusion

Oracle is fully committed to diversity and inclusion. Oracle respects and values having a diverse workforce that increases thought leadership and innovation. As part of our initiative to build a more inclusive culture that positively impacts our employees, customers, and partners, we are working to remove insensitive terms from our products and documentation. We are also mindful of the necessity to maintain compatibility with our customers' existing technologies and the need to ensure continuity of service as Oracle's offerings and industry standards evolve. Because of these technical constraints, our effort to remove insensitive terms is ongoing and will take time and external cooperation.

Related Resources

For more information, see these Oracle resources:

- Oracle Public Cloud

  http://cloud.oracle.com

- About Oracle Visual Builder in *Developing Applications with Oracle Visual Builder*

- Create Layouts in an Excel Workbook in *Developing Integrated Spreadsheets Using Oracle Visual Builder Add-in for Excel* (for workbook developers)

Conventions

The following text conventions are used in this document:

Convention	Meaning
boldface	Boldface type indicates graphical user interface elements associated with an action, or terms defined in text or the glossary.
italic	Italic type indicates book titles, emphasis, or placeholder variables for which you supply particular values.
monospace	Monospace type indicates commands within a paragraph, URLs, code in examples, text that appears on the screen, or text that you enter.

1
Introduction to Oracle Visual Builder Add-in for Excel

Oracle Visual Builder Add-in for Excel integrates Excel spreadsheets with your web application to retrieve, analyze, and edit business data from the application. You download your data to an Excel spreadsheet, work with it, and upload your changes back to the service.

Key Concepts and Terms

Before you use this Excel add-in, it helps to become familiar with these key concepts, components, and terms.

Term	Description
Integrated workbook	An Excel workbook configured to work with one or more business objects.
Business object	A resource - like a purchase order or invoice - that has fields to hold your application's data. A business object includes a collection path, an item path, a set of fields, and other properties.
REST service	A REST-based web service that is associated with an Excel workbook.
Layout	A way to display a business object in an Excel worksheet. Each worksheet supports one of two layouts: Table or Form-over-Table. Layouts are created by workbook developers and are visible to data entry users in their workbooks.

Installation

Install the latest version of Oracle Visual Builder Add-in for Excel available from the Downloads page on Oracle.com.

Before you begin, ensure that your environment meets the requirements for installation. See Software Dependencies and Supported Platforms in *Developing Integrated Spreadsheets Using Oracle Visual Builder Add-in for Excel* for more details.

When you are ready, install the add-in, as described in Install Oracle Visual Builder Add-in for Excel.

Next Steps

After you install the Excel add-in, a new **Oracle Visual Builder** ribbon tab appears in Microsoft Excel. As a business user who performs data entry, you use the options in this ribbon tab to download and work with a web application's data exposed in a workbook. You can review, modify, and create data in the workbook, then upload your changes to the web application.

This image shows a worksheet that manages employees:

| | File | Home | Insert | Draw | Page Layout | Formulas | Data | Review | View | Help | Oracle Visual Builder | Tell me | | |

	A	B	C	D	E	F	G	H	I
1	Change	Status	Email*	First Name	Last Name*	Hire Date	Job Title	Salary	Manager Id
2		Update Succeeded	sphren@example.com	Sophie	Ren	2012-02-09	Manager	65,435.00	101
3		Update Succeeded	davbro@example.com	Dave	Brown	2017-07-04	Manager	28,000.00	102
4		Create Succeeded	jmcgahern@example.com	John	McGahern	2018-01-30	Accountant	19,000.00	
5	Update		jnayer@example.com	Julie	Nayer	2005-07-16	Member Technical Staff	3,200.00	120
6			sking@example.com	Steven	King	2003-06-17	Member Technical Staff	24,000.00	100
7			nkochhar@example.com	Neena	Kochhar	2005-09-21	Member Technical Staff	17,000.00	100

The user has updated two rows and created a new row with employee data. These changes have been successfully uploaded to the web application, as indicated by messages in the Status column. The user has also updated data in another row that has yet to be uploaded, as indicated by the `Update` message in the Change column.

2

Install Oracle Visual Builder Add-in for Excel

To install Oracle Visual Builder Add-in for Excel, download the Current User installer (`vbafe-installer-current-user.msi`) from the Oracle Downloads page and run the installer.

If any required software is missing, the installation terminates without installing the add-in. Refer to Software Dependencies in *Developing Integrated Spreadsheets Using Oracle Visual Builder Add-in for Excel* for details including information on how to check for and install required components. You can also refer to this topic for information on installing the Microsoft Edge WebView2 embedded browser. WebView2 is an optional Microsoft component and must be installed separately.

This installation is specific to the current Windows user profile. If multiple users on a Windows machine need the add-in, consider using the All Users installer instead. See Install Using the All Users Installer in *Developing Integrated Spreadsheets Using Oracle Visual Builder Add-in for Excel*.

Refer to the Installation section in *Developing Integrated Spreadsheets Using Oracle Visual Builder Add-in for Excel* for more information.

> **✎ Note:**
>
> Running both installers on the same machine is not recommended. If you do install the add-in using both installers, Excel loads the add-in installed in the Program Files folder ("All Users") and not the version in the current user's Windows profile ("Current User"). If you decide to switch the installation type, the best practice is to uninstall the previous add-in installation type first to avoid confusion.

1. Quit Excel before you begin installation.

2. Double-click the `vbafe-installer-current-user.msi` file that you downloaded previously to launch the installation wizard.

3. To install the add-in without the available developer tools, click **Developer Options** and select **Disabled**.

   > **💡 Tip:**
   >
   > If you need these tools after initial installation, re-run the installer, choose the option to repair your installation, and select **Enabled**.

4. Click **Install** to install the add-in.

   When the installation is complete, click **Close**.

5. Start Excel and open a new workbook.

   A new Oracle Visual Builder ribbon tab appears, with commands that help you download and manage data from a web application.
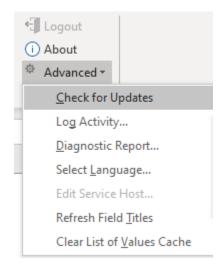
When you first run Excel after the current-user installation, you may be prompted to confirm the installation of the "Office customization". This prompt generally appears the first time for each profile and whenever the digital certificate (used to sign the add-in) is changed.

Check for Updates

It's a good idea to periodically check whether a newer version of the add-in is available for you to install. The latest version of the add-in is posted to the Downloads page.

1. From the Advanced drop-down in your existing installation, select **Check for Updates**.

2. If a newer version is available, when prompted to open the downloads page in your browser, click **Yes**.

3. Download the installer for the latest version, then install the update. Before you update, be sure to review best practices as described in the next section.

Upgrade to the Latest Version

To take advantage of all the latest Oracle Visual Builder Add-in for Excel features, make sure you are running an up-to-date version of the add-in. To upgrade to a new version, simply download and run the installer.

For recommendations on when you should upgrade, check the Upgrade Policy in *Developing Integrated Spreadsheets Using Oracle Visual Builder Add-in for Excel*.

You do not need to uninstall the previous version unless the installer instructs you to do so.

To ensure a clean upgrade, follow these instructions when upgrading your installation.

1. Before you upgrade the add-in:

   a. Upload any pending changes using the current add-in version.

   b. Save changes in open workbooks, then close Excel.

2. Run the installer for the new version and follow the instructions in the wizard. The installer automatically replaces the previous version with the new version.

3. After you upgrade:

   a. Launch Excel to complete any final installation steps.

   b. Open your integrated workbook.

   c. Clear any layouts of old data and download data again as required.

3

Manage Data in Table Layouts

In Microsoft Excel, select the **Oracle Visual Builder** tab to perform operations and work with data in a workbook.

For any given layout, you can:

- View existing rows

- Edit existing rows

- Create new rows

- Delete existing rows

- Perform actions on existing rows, for example, an "Approve" or "Reject" action for an Invoice business object. These kind of special actions can be performed on certain business objects depending on the context. For more information, see Perform Actions in a Table or Form-over-Table Layout.

> **Note:**
>
> Capabilities described in this guide may not be available for all integrated workbooks. A workbook's functionality depends on how it was configured and the capabilities that the web application provides.

If your action requires access to the web application, a Service Configuration window prompts you to enter the service host value. Ask your IT administrator for the correct value to provide here. Actions that require access to the web application include the Download Data and Upload Changes commands.

> **Note:**
>
> You can also access the Service Configuration window using **Edit Service Host** from the Advanced drop-down list.

General Guidelines

When working with data in the Excel workbook, remember the following guidelines:

- Never edit the Key column, the last column in the table.
- Avoid using the following Excel features with the add-in. The following is a sample list of Excel features that do not work well with the add-in. Other Excel features not listed may also not work well with the add-in.
  - Do not use the Protect Sheet or Protect Workbook features of Excel.
  - Do not attempt to re-arrange the layout of the integrated worksheet.
  - Do not use the Mark as Final command to make the Excel workbook read-only.
  - Do not delete anything from the integrated worksheet using Excel's delete features, including the Delete key.

You can remove all data from the workbook, including any pending changes that have not yet been uploaded to the REST service by clicking the **Clear** button.
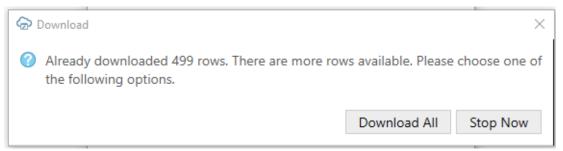
Download Data to the Workbook

Download data to the workbook using the **Download Data** button in the Oracle Visual Builder tab. The workbook prompts you for a user name and password the first time you connect to the web application.

If search options were configured for download, specify the value(s) to search on, as shown in the following example where data for the Sales department will be downloaded:

If the search returns lots of rows, confirm if you want to continue downloading more rows:

When download is complete, the add-in updates the table in the worksheet with data retrieved from the web application.

Edit Downloaded Data in the Workbook

Edit data downloaded to a workbook by modifying editable cells that contain the downloaded data.

The following image shows three examples where a user has edited data in the table. The Change column for the first row displays an `Update` message that indicates the user has updated this row with required and valid values. The Change column for the second row also displays an `Update` message, but its Status column displays an `Invalid` message and a red border appears around the Hire Date* column's cell to indicate that a value is required in that cell's field. Finally, in the third row, the user attempted to input `Software` in the field for Department. As `Software` is not a valid choice for this cell's list of values, a red border appears around this cell.

If a cell has a date format, you can enter a date by selecting the cell and choosing a date from the date picker pop-up window.

> **Note:**
>
> The date picker only sets the date in a date-time field. The time value is not changed.

If columns have an associated list of values, you can select a value in a search-and-select window. In this case, the Change column displays `Update`. Alternatively, enter one or more of the starting characters for other values, then click the Search icon to filter the values based on your input. The following composite image illustrates both these scenarios. For the latter scenario, the user entered `S` in the search box next to the Search icon to find all display values that start with `S` (`Sales Manager`, `Sales Representative`, and so on).

Manage Attachments

If your integrated workbook has an attachments table layout, you can upload and download attachments as well as perform standard create, edit, and delete functions.

Attachments are often associated with a parent business object. For example, an expense report may have one or more associated attachments representing receipts. For this reason, attachment table layouts are often a child layout in a hierarchy of layouts in a workbook. In our example, a form in a Form-over-Table may display the expense report header and the child table may list the associated attachments. Keep in mind that the attachment table could be located on a separate worksheet from its parent layout. See Manage Data in Form-over-Table Layouts and Manage Data for Layouts in a Dependent Hierarchy.

Oracle Visual Builder Add-in for Excel supports attachments of file, text, and web page types. Unknown attachment types are treated as file type attachments.

Upload Attachments

You can add URLs, as well as text and file type attachments, to attachment records and upload them to the REST service.

To upload a new or revised file or text attachment:

1. Select any field in a new or existing row to open the **Attachment** pop-up window.

2. From the pop-up window, click the **Upload** icon.

> **Note:**
>
> The **Upload** icon is disabled when you select a field in a new row if Create is not enabled for the table layout. It is also disabled for an existing row if Update is not enabled.

3. From the **Choose a File to Attach** dialog, navigate to the location where the file is saved.

4. Select the file and click **Open**.
   The local file path is displayed in the read-only **Local File Path** column. A link also appears in the pop-up. You can use this link to open the local file in the file's default program.

5. For new files, specify the attachment type in the **Type** field.
   The add-in recognizes `FILE`, `TEXT`, and `WEB_PAGE` as valid values for this column to represent file, text, and web page type attachments respectively. These values are case sensitive.

   The **Change** column for the row displays a `Create` or `Update` message. The attachment is now pending upload.

6. Click **Upload Changes** to upload the attachment.

To add or edit the URL for a web page:

1. Type the URL directly into the **Url** field for a new or existing row.

2. For new URLs, type `WEB_PAGE` in the **Type** field.
   The **Attachment** pop-up window is read-only in this case and provides a link for the current URL.

3. Click **Upload Changes** to upload the URL.

During upload:

- The attachment records are processed first without any attachment files. The upload of attachment records occurs just like any other table upload.

- For each successful row that has a pending file upload, the add-in attempts to upload the file. If the file can't be found or read, an error is reported for that row. If the upload of the given attachment record fails, the corresponding file upload is skipped.

- If the attachment record is marked for delete, any pending file change is ignored at upload time.

- If the business user does not upload changes from the layout, the new attachments are never sent to the service.

Download Attachments

To download an attachment:

1. Select any field in a row with a file or text attachment to open the **Attachment** pop-up window.

2. From the pop-up window, click the **Download** icon to download a local copy of the attachment.

3. In the **Save Attachment** dialog, navigate to where you want to save the file and click **Save**.
   After successful download, a link is provided in the attachment dialog to open the file in the default program.

Limitations

- The only supported attachment types are file, text, and web page. Unknown attachment types are treated as file type attachments. The values for the attachment type file to specify each type are "FILE", "TEXT", and "WEB_PAGE" respectively. These values are case sensitive.

- The UI may appear to freeze during download for large attachment files.

- Manually editing the file path in the Local File Path column is not supported. Use the Attachment pop-up to specify the local file location.

- For some services, create may fail for text-based attachments. Ensuring all required attachment fields, such as the `Title`, are present and resubmitting the record generally resolves this issue.

Understanding Data Validation

As you enter values in cells associated with layouts, the add-in validates the cell's content based on the business object field definition.

Validation occurs when you complete data entry in a cell; in other words, as soon as you enter or edit a value in a cell and move on to another cell or area. Validation also occurs at other key points:

- When a new row is added to the data table

- When the **Create Form Row** option is selected from the **Form Changes** menu

- At the beginning of an upload.

Typically, the add-in determines whether a cell's value is consistent with the expected data type. For example, you can't enter a word, say, `book`, in a field that expects a number like `2,000`. It also checks whether a required cell is missing a value and whether the value in a cell associated with a list of values is valid for that list. Required fields are designated by the workbook developer and must include a value for your changes to be uploaded successfully.

Understanding Read-Only Behavior

If a particular field is considered read-only, the add-in behaves as follows:

- It applies a "read-only" style to the corresponding cells to indicate that the value cannot be changed

- The cell's value is excluded from any subsequent upload to the web application

- The data entered by the user is not validated

- If the worksheet is enabled for worksheet protection (as specified by the workbook developer), any attempt to edit the cell results in a warning from Excel:

Create New Rows to Upload to the Web Application

Create new rows in the table using the **Insert Rows** option in the add-in's **Table Row Changes** menu or by using Excel options to insert a full row.

You can create new rows before or after downloading data to your workbook:

- To create new rows in a table with downloaded data, click **Table Row Changes** and select **Insert Rows**, or right-click and choose **Insert** from the Excel context menu (you can choose any Excel option to insert a row). You can create new rows either at the end of the data table or in the middle.

> **Tip:**
>
> To insert multiple rows, select cells from multiple rows, then select **Table Row Changes** > **Insert Rows**. The add-in will create multiple pending Create rows for you to fill out as needed, as shown here:
>
>

- To create several new rows without downloading data, if create is enabled for the Table, add values in the empty row that appears below the column headers. This empty row is known as the placeholder row:

Once you enter data in the placeholder row (for example, in the cell for First Name), the add-in automatically recognizes the row as a pending Create row. To insert more rows, select a cell in the first row after the table and select **Table Row Changes** > **Insert Rows**.

Any time a new row is created, it is validated for data entry. An `Invalid` message appears in the Status column if the row contains a cell where you are required to enter a value and are yet to do so, or you have entered an incorrect value (such as an unexpected data type). A red border also appears around the cell where a value is required or invalid. See Understanding Data Validation.

Delete Data from the Web Application

Mark rows for deletion from the web application using the **Mark for Delete** option in the **Table Row Changes** menu.

To mark a row for deletion from the service:

1. Select a cell in the table row that you want to delete from the web application. If you want to select a range of table rows to mark for deletion, hold down your keyboard's Shift key and select the first and last row in the range of table rows that you want to delete.

2. Click the **Table Row Changes** menu, then **Mark for Delete**.
    A `Delete` message appears in the Change column and the add-in changes the style applied to the data in the table rows, as shown in the following image where three rows in the table are marked for deletion:

3. Click **Upload Changes**.

4. When prompted to confirm pending deletions, click **Yes**.
    The add-in sends delete requests for each row that you marked for deletion. For each successful deletion, the corresponding Excel row is removed. If the deletion fails, the Excel row remains with an error message.

> **Tip:**
>
> If you change your mind about deleting one or more rows that you have marked for deletion, select the rows and select **Unmark Pending Changes** from the **Table Row Changes** menu. Use **Unmark Pending Changes** before you upload changes from the Excel workbook; the option does not work after the changes are uploaded.

Upload Changes to the REST Service

Once you complete the changes that you want to make, click the **Upload Changes** button to upload all the changes to the REST service.

The add-in performs all the requested operations, as seen in the Change column. Review the Status column to see which rows succeeded and failed. The Status column displays a `Create Failed` message or an `Update Failed` message in the cell of a row that the add-in failed to upload and the Table Row Status appears in Excel's task pane to provide additional information on the failure, as in the following example where a required value for Hire Date was not entered.

Enter a hire date and click **Upload Changes** to try and upload the modified data again.

Successfully deleted rows are removed from the Excel worksheet while failed attempts to delete a row result in the row remaining in the Excel worksheet. You can inspect the reason for the failure to delete in the status in Excel's task pane.

> **Note:**
>
> Some REST services may issue warning messages for successfully uploaded rows. These messages appear in Excel's task pane when the row is selected.

> 💡 **Tip:**
>
> If you change your mind about uploading changes for a particular row, select the row, then from the **Table Row Changes** menu, select **Unmark Pending Changes**. The add-in won't include the row when it sends other rows back to the service for update, creation, or deletion.

Clear Cache for a List of Values

Some fields may have associated choice lists, called **lists of values**. The choices for each list of values are fetched from the web application and stored locally (cached) in the workbook.

In some cases, the cached choices for a list of values may become stale or out of date. To start fresh with the latest values from the web application, select **Clear List of Values Cache** from the **Advanced** menu.

Data Consistency

The add-in helps prevent multiple users from overwriting each other's changes.

Consider this scenario:

1. User A downloads information from a business object into a table in their integrated workbook.

2. User B downloads the same information into a table in their integrated workbook, edits it, and uploads changes.

3. User A then edits the same information (downloaded in Step 1) and uploads the changes.

4. The add-in provides the service with the necessary information to prevent User A's changes from overwriting those changes made by User B. Instead, when the server detects such a change, its response allows the add-in to display an error message similar to the following for any such rows in the table:

   ```
   This row has been modified by another user. Please download before editing.
   ```

   If you see this message, you'll have to discard your changes by downloading the latest data and then redoing your changes as needed.

4

Manage Data in Form-over-Table Layouts

In addition to Table layouts, an Excel workbook can use a Form-over-Table layout, when a parent-child relationship exists in the business objects used by your web application. In this case, you can manage the parent object's data as part of a form and the child object's data in a table, both of which are available in a single worksheet.

View and Edit Data in a Form-over-Table Layout

Viewing and editing data in a Form-over-Table layout is similar in many ways to viewing and editing data in a Table layout.

For example, you use the **Download Data** button to download data from the Form-over-Table layout's business objects. Much like Table layouts, you may be prompted to do a search at the beginning of a download. Unlike a Table layout, however, the Form-over-Table displays the first row found from the search, plus all the children of that first parent row.

In some cases, you may be able to update the form fields in a Form-over-Table. The add-in performs data entry validation before it attempts to upload your updates. Ensure that you fix any data entry failures before you attempt to upload your changes. For a form field configured to use a list of values, the behavior is the same as described for the Table layout. That is, a search-and-select window appears when you select the form field. Read-only form fields cannot be edited (see Understanding Read-Only Behavior).

Create a Parent Row in a Form-over-Table Layout

If create is enabled for the form, you can select **Create Form Row** in the **Form Changes** menu to place the Form-over-Table layout in create mode. When you first click **Create Form Row**, all the form fields are blank and the child table has no rows, as shown here:

You can then enter form field values, even create new child table rows. All changes are marked as a pending create, until you click **Upload Changes**. The add-in validates the data before it attempts to upload updates; you must fix any data entry failures before the changes can be uploaded. If the upload of the form fails (applies to both Create and Update changes), the upload of the child table is skipped.

Delete a Parent Row in a Form-over-Table Layout

If delete is enabled for the form, you can use the **Delete Form Row** option in the **Form Changes** menu to delete the parent row in a Form-over-Table layout.

1. Click **Download Data** to download data from the layout's business objects.

2. If search is configured, search for the desired record.

3. In the **Form Changes** menu, select **Delete Form Row**.

You can only delete an existing form row (not a pending `Create` row).

4. When prompted to confirm the form row delete, click **Yes**.
   Once you confirm, the form row is immediately deleted (unlike a Mark for Delete action in a table that takes effect only during an upload).

5. Click **OK**.
   After the form row is deleted, your layout is cleared of data; the Status Viewer also indicates that no form row exists.

5

Perform Actions in a Table or Form-over-Table Layout

In addition to data entry operations such as edit, create, and delete described previously, some web applications define special operations, "custom actions", on particular business objects. For example, an expense report might define actions called "Approve" or "Reject" that can be performed on each expense report.

Click **Download Data** to download data to your worksheet, then update an action's cell values much as you would any other field's cell value. In the following Table layout, rows marked as `Reject` are those where the user has updated cell values corresponding to the Reason (Reject) and Notes (Reject) action columns.

	A	B	C	D	E	F	G	H	I
1	Change	Status	Expense Report Id*	Reporter*	Justification	Approver Id	Reason* (Reject)	Notes (Reject)	Rpt Status
2	Reject		15,001	Steven King	Conference		Other: contact approver	Details with manager	Pending
3	Reject		15,006	David Austin	Conference		Missing receipt		Pending
4	Reject		15,011	John Chen	Site visit		Exceeds budget guideline		Pending
5			15,016	Alexander Khoo	Oracle Open World				Pending
6			15,021	Matthew Weiss	Oracle Open World				Pending

When you add or update a value in an action cell first, the row is marked for that action in the Change column. Other cells in that row that don't involve actions are grayed out and cannot be edited. But if you add or update a value first in a cell that doesn't involve an action, the row is marked as an `Update` in the Change column and the action cells in that row are grayed out (as shown in the following image). In other words, the first action you perform on a row determines that row's pending action. See also Understanding Read-Only Behavior.

	A	B	C	D	E	F	G	H	I
1	Change	Status	Expense Report Id*	Reporter*	Justification	Approver Id	Reason* (Reject)	Notes (Reject)	Rpt Status
2	Reject		15,001	Steven King	Conference		Other: contact approver	Details with manager	Pending
3	Reject		15,006	David Austin	Conference		Missing receipt		Pending
4	Reject		15,011	John Chen	Site visit		Exceeds budget guideline		Pending
5	Update		15,016	Alexander Khoo	Site visit				Pending
6			15,021	Matthew Weiss	Oracle Open World				Pending

You can also mark rows for an action by selecting **Mark for Action** from the **Table Row Changes** menu. With this option, if only one action is defined, you'll be prompted to confirm. If more than one is defined, you'll be prompted to select from a list of available actions:

When a row is marked for an action, the action's fields also receive the same validation, as described in Understanding Data Validation.

The actions for these marked rows are performed during the next upload.

If you're working with a Form-over-Table layout, click **Download Data**, select **Perform Action** in the Form Changes menu, then follow the prompts to perform actions on a Form row, as shown here where you're prompted to select an action, then provide values for the action's fields:

An action can be performed only on an existing row (not on a pending `Create` row).

An action on a form takes effect immediately, unlike one in a table (where rows are marked for actions and the actions are performed later during an upload).

After uploading (for table rows) or performing an action (for the form), any result from the custom action returned by your REST service is displayed in the Status Viewer. For example, after invoking the custom action "Reject" on an Expense Report table row, the Status Viewer shows a confirmation code as the result:

Also, form row data is not automatically refreshed after an action is performed, even if the action was successful. Click **Download Data** again to refresh data in the form row.

6

Manage Data for Layouts in a Dependent Hierarchy

Sometimes business objects exist in a multi-level hierarchy. For example, a purchase order might contain a header and a set of lines. Each of these lines may contain one or more schedules each with one or more distributions. For such multi-level hierarchies, the add-in supports coordinated operations across multiple "dependent" layouts.

In a hierarchy of dependent layouts, the primary layout may be a Form-over-Table layout or a Table layout. If the workbook uses a Form-over-Table as the primary layout, the form displays the parent business object and the table, the child business object. If the workbook uses a Table as the primary layout, the table displays the parent business object.

In our example, the form displays the details of a purchase order and the table lists the associated lines for this purchase order.

Additional Table layouts, on separate worksheets, are based on descendant business objects, relative to the parent business object. For example, the first Table layout displays the grandchild business object (schedules, in our example), the next one displays the great-grandchild business object (distributions), and so on.

Each of these dependent layouts is linked to its direct parent layout. Check the Status Viewer for a given Table layout's parent.

When you click **Download Data**, **Upload Changes**, or **Clear** for a layout in a dependent hierarchy, the operation takes effect on all layouts in the hierarchy, starting with the primary layout, progressing to the next layout in the hierarchy, and continuing down until the last level in the hierarchy. When the operation is complete on all layouts in the hierarchy, the worksheet with the primary layout is made active again.

Download Data

During a download operation, all items for all rows from the parent layout are downloaded at each level. (Any search specifications, if configured, apply only to the primary layout.) For example, when Sheet 1 in your workbook contains Purchase Orders as the parent and Lines as the child (containing, say, 10 Lines) and Sheet 2 contains Schedules as the grandchild, the Schedules table is populated with all Schedule items for all Lines. If each of the 10 Lines had two Schedules, the Schedules table would download 20 Lines. With this download, you can update all Schedules and upload all the changes together.

Following a download, you can edit data much as you would in a Table or a Form-over-Table layout.

Create New Items

Create new items on the primary layout as you would for any Form-over-Table layout or Table layout. See Create a Parent Row in a Form-over-Table Layout and Create New Rows to Upload to the Web Application.

For Table layouts below the primary layout, you need to associate new items with the appropriate parent when you create them. For example, you'll need to specify the correct line for a new schedule and the correct schedule for a new distribution.

To ensure you can properly associate new items with the correct parent, the layout may include one or more columns from the parent layouts. For example, the distribution layout may contain columns for both Schedule Date and Schedule Id from the schedule layout.

Your third-level or deeper layouts may also include columns from "grandparent" or higher layouts. For example, the Distributions table may have columns from the grandparent layout (Lines) and the great-grandparent (Purchase Orders). These "ancestor" columns help you track the which child items belong to which parent, grandparent, and so on.

So, when you create a new row in the Distributions table, you'll need to enter valid values in the parent columns— Schedule Date and Schedule Id—to ensure the new distribution is associated with the right schedule.

The add-in then automatically populates any other ancestor columns, such as Line Id and Line Description, with the correct values. If the entered schedule values don't match an existing schedule, the add-in does not populate the other ancestor columns.

You must enter non-empty values in the parent columns that uniquely identify an item in the parent table. If, during upload, the entered schedule values don't match an existing schedule, creation of the item fails.

You can't enter values for grandparent and higher columns. These fields are read-only.

Upload Data

When updates are ready to be uploaded, the upload operation submits all pending changes across the hierarchy of layouts. Pending changes may include creation of new items, deletion and updating of existing items, and invocation of actions on items, depending on how the layouts are configured and what capabilities are supported by the business objects.

You can view details of the operation in the primary layout's Status Viewer, which shows results for the primary layout as well as a summary for each layout in the dependent hierarchy, as shown in this example for a download operation:

Click each dependent layout to view additional details of the operation.

7
Troubleshoot Excel Workbooks

If you experience issues with Oracle Visual Builder Add-in for Excel, follow the steps here to identify and resolve issues. If you still can't resolve your issue, contact Oracle Support.

- Review the documentation to make sure the desired operation is supported.
- Download and run the Client Health Check Tool.
- Make sure you're on a supported platform.
- Upgrade to the latest version of the add-in.
- Apply available Microsoft updates.
- Close all workbooks, exit Excel, and try again with simple steps.
- Generate an add-in log for review. See Logging. If you contact Oracle Support, you may be asked to provide this log.

> ⚠ **Caution:**
>
> Log files may include personal information from your computer including, but not limited to, the computer's name and your Windows profile name. Be sure to select the appropriate option when uploading files with personal information to a service request so that the file access can be restricted as needed.

Check Your Environment

Run the Client Health Check Tool to check if the desktop configuration and environment are suitable for Oracle Visual Builder Add-in for Excel and to resolve issues.

Download the latest version of the Client Health Check tool (`vbafe-health-check.exe`) from the Oracle Downloads page.

1. Run `vbafe-health-check.exe` and review the result for each examined item.

Select each failed item (❌) for more details, including the steps necessary to resolve the issue. If the add-in can resolve the issue, the **Fix Problems** button is enabled.

> **Note:**
>
> The Client Health Check also shows a warning (⚠) for any optional software that is missing. You don't have to install this software to use the add-in.

2. Click **Fix Problems** if available or follow the instructions to resolve the issue.

3. If Oracle Support requests a copy of the report:

    a. click **Save Report As...** and choose a name and location for the report.

    b. Review the report and remove any sensitive information.

    c. Send the report to Oracle Support.

Apply Microsoft Updates

When troubleshooting issues with Oracle Visual Builder Add-in for Excel, we recommend first applying all pending Windows, Office, and Internet Explorer updates before reproducing the issue. A Microsoft patch may resolve your problem.

1. From the Windows Start menu, select **Settings**, **Update & Security**, and then **Windows Update**.

2. If updates are available on the Windows Update page, review the updates and click **Install Now**.

> **Note:**
>
> The details of applying Windows updates can vary from version to version and also according to your company's IT policy. Check with your system administrator for assistance, if needed.

3. If you are using Internet Explorer (IE) version 10 or earlier, upgrade to version 11 now.

   The add-in may use Internet Explorer for some of its functionality. Microsoft only supports Internet Explorer version 11 on the platforms that the add-in supports. See Embedded Browser Notes.

Re-Enable Oracle Visual Builder Add-in for Excel

If your add-in becomes disabled and you are unable to use the client health check tool, you can re-enable Oracle Visual Builder Add-in for Excel through Microsoft Excel.

1. In Excel, click **File** > **Options** > **Add-Ins**.

2. Select **COM Add-ins** in the Manage drop-down list and click **Go**.

3. Clear the **Oracle Visual Builder Add-in for Excel** check box and click **OK**.

4. Restart Excel.

5. Enable the add-in by repeating the steps and instead selecting the **Oracle Visual Builder Add-in for Excel** check box from the **Add-ins available** list in the COM Add-ins
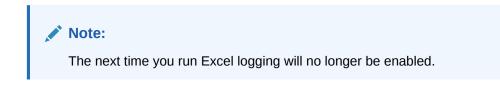
dialog.

Logging

When reporting an issue about the add-in, generate a detailed log file that captures the steps that lead to the problem you want to report.

The log file that you generate captures information about steps during an Excel session.

1. In Excel, click the **Oracle Visual Builder** tab.

2. Select **Log Activity** from the Advanced drop-down list to specify a directory location and file name for the log file. This starts the logging session.

3. Repeat the steps that lead to the issue.

4. Exit Excel completely to stop the logging session and before you access the log file.

> **✎ Note:**
>
> The next time you run Excel logging will no longer be enabled.

> **⚠ Caution:**
>
> Log files may include personal information from the user's computer including, but not limited to, the computer's name and the end user's Windows profile name. Be sure to select the appropriate option when uploading files with personal information to a service request so that file access can be restricted as needed.

8

Internationalization

Oracle Visual Builder Add-in for Excel is available in various languages. It automatically detects the user's preferred language from Microsoft Excel and uses that language where possible.

When using the add-in, you work with:

- Labels visible on the Oracle Visual Builder ribbon and in various windows displayed by the add-in. These labels, known as the **add-in labels**, are owned by the add-in and are localized.

- Labels visible as column headers and field labels are known as **business object field titles**. .

> **Note:**
>
> Because business object field titles are owned by the service, contact the service owner for any missing translations or languages.

Change the Add-in's Language

You can change the language that the Excel add-in uses.

1. In Excel, click the **Oracle Visual Builder** tab.

2. Choose **Select Language** from the Advanced drop-down.

3. In the Add-in Language drop-down list that appears, select the language you want to use. The drop-down list displays the languages that the add-in supports.

4. Click **OK**.

5. Restart Excel to make your changes take effect.

The add-in's user interface elements (**Download Data** and so on) now use the language you selected. If the selected language uses a right-to-left writing system, the add-in's user interface elements appear in right-to-left mode. The language that Excel uses remains

unchanged, as does the format used for dates, times, and numbers. See Excel or Windows options to change Excel's language and formats for dates, times, and numbers. See also Natural Language Support in *Developing Integrated Spreadsheets Using Oracle Visual Builder Add-in for Excel*.

The language that you choose for the add-in language is stored in a local file in the Windows user profile. You can select the **Use Excel's Language Setting** option in the Add-in Language drop-down list to remove this setting for the current user.

Refresh All Field Titles

In some cases, you might be able to refresh all field titles.

Here's an example of when to reset field titles: Imagine you've received an invoices workbook with English as the current language, so all field titles are in English. Now, if you are a data entry user based in France who has Windows and Excel configured for French, you can reset the field titles to see field titles in French as well.

1. In Excel, click the **Oracle Visual Builder** tab.

2. Choose **Refresh Field Titles** from the Advanced drop-down.

3. In the Field Titles window, click **Yes**.

> **Note:**
>
> A given service may or may not have translations for the requested language. For any missing translations, contact the owner of the service.