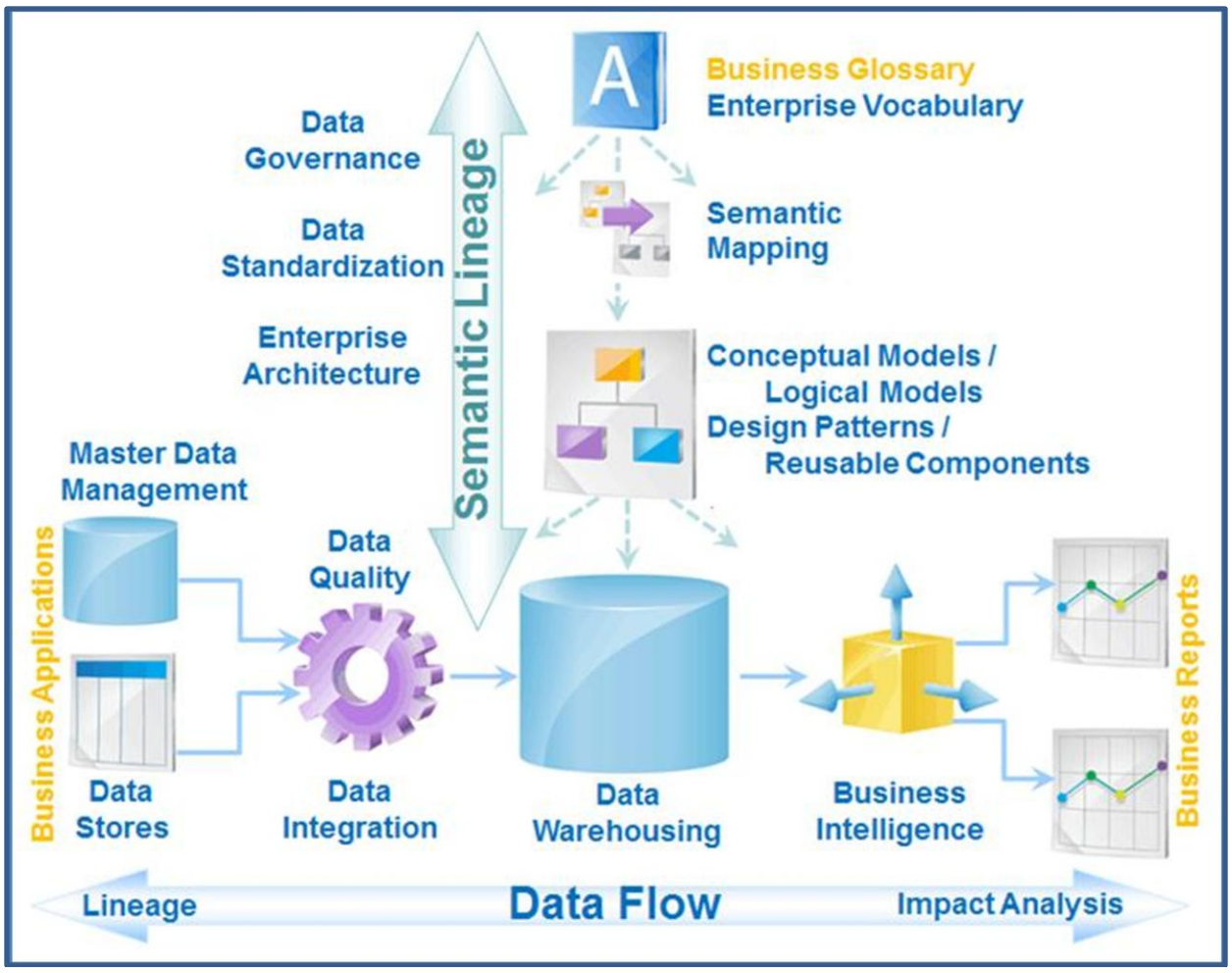
Table of Contents

Metadata Explorer Overview

The need for more sophisticated and precise metadata management is a growing concern for most large organizations. Nearly all components that comprise modern information technology, from CASE tools, ETL engines, Warehouses, BI, EAI environments, as well as metadata repositories, contain, and often derive their processing from, metadata. The metadata for these environments is distributed and duplicated, often times active, and generally represented in a variety of methodologies, depending upon the underlying technology they represent.



The Oracle Metadata Management (OMM) provides a strikingly expansive set of capabilities in many facets of metadata management, including:

- Data Governance
- Metadata annotation and labeling
- Metadata comparison, integration, and mapping
- Version and configuration management
- Data life cycle related metadata management
- Lineage and impact analysis
- Enterprise architecture development, management and deployment.

At the heart of the Oracle Metadata Management (OMM) is its Repository which contains Repository Objects such as Models and Mappings which are organized in Folders. Models can be harvested from any External Metadata model or External Metadata Repository for Databases, Data Modeling (DM), Data Warehouse (DW), Data Integration (DI) and Business Intelligence (BI) tools. A particular type of Repostory Object called Configuration can connect (metadata stitching) Models and Mappings together to represent the Enterprise Architecture (EA) to be analyzed, including full support for data flow lineage and impact analysis, as well as semantic lineage definitions.

Disclaimer

Oracle Metadata Management (OMM) solutions includes two products: Oracle Metadata Management for Oracle Business Intelligence and Oracle Enterprise Metadata Management. Each of these products provides a subset of a full Metadata Management (MM) solution as described below. Therefore, some sections of this help documentation may not apply to the Oracle Metadata Management (OMM) solutions.

User Feedback, Collaboration and Review

Provides an environment where Oracle Metadata Management (OMM) models may be reviewed and/or approved by users with the appropriate permission. These tools allow one to add Comments (notes) and Labels to individual objects, such as Tables and Columns. The comments may also be synchronized with the External Metadata (where supported in the External Metadata tool user interface) outside Oracle Metadata Management (OMM)

User Interface

User Interface General Concepts

Placement of Action Icons

There are some basic rules regarding the layout of the user interface which provides consistency and ease of navigation. In particular, action icons (e.g., Search or View Reports) are organized into two categories:

- Actions which relate to the panel overall (e.g., model or configuration)
- Actions which apply to a selected metadata element within the panel (e.g., a table or column in a model)

and placed accordingly in the UI:

- Overall panel icons are placed on the right hand side of the header for the panel
- Selected metadata element icons are placed on the left in the tool bar for the panel (underneath the header).

Standard graphical navigation tool bar

Lineage overview, lineage traces and model diagrams are highly graphical results, and thus a standard graphical navigation bar (see the diagram visualization or graphical lineage UI) is used consistently throughout Oracle Metadata Management (OMM) for navigating within these graphical presentations.

- You may quickly navigate around the diagram using the Overview, which may be collapsed. Expand or collapse using the Overview () icon.
  - You may click anywhere inside the Overview pane.
  - One may also drag the display area rectangle around the Overview panning the diagram
  - You may resize the display area rectangle inside the Overview pane by dragging the bottom right corner.
  - You may even resize the Overview pane itself by dragging the bottom right corner.
- Zoom in and out using the slider control:  .
- Zoom out completely by clicking on the Fit Contents  icon.
- Drag the cursor anywhere within the diagram to bring portions off screen into the current graphical context.

Use on tablet or touch device

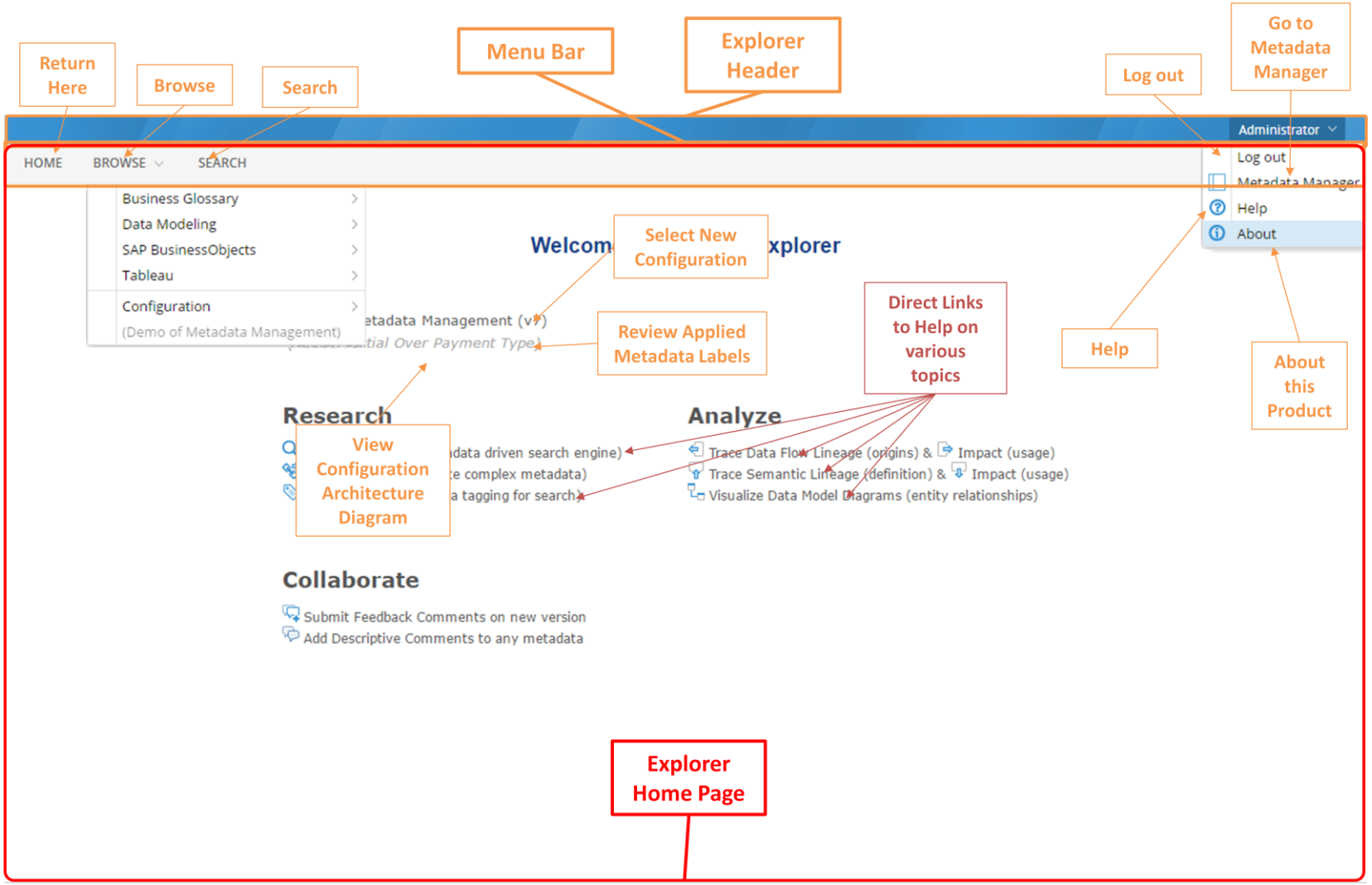
The Metadata Explorer UI works well on tablets or touch screen type device. In fact, there are no context (right-click) menus but instead action icons which act on the selected item.

Sharing URLs

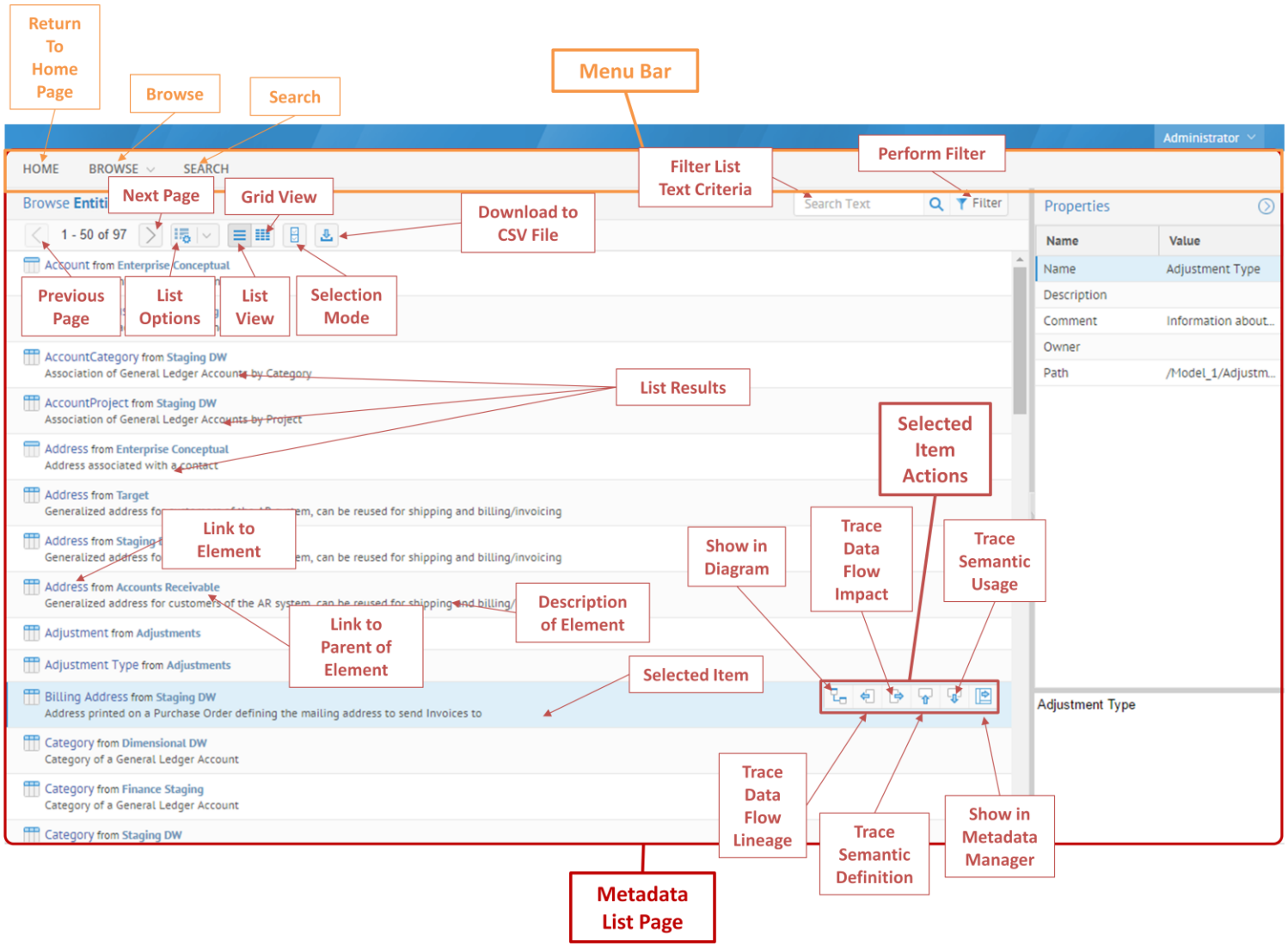
Unlike the Metadata Manager UI, in the Metadata Explorer UI the URL that the browser displays for a given page is the one to use for sharing. This is a "live" link and will work even as new versions of the models are imported and included in a given Configuration.

User Interface Components

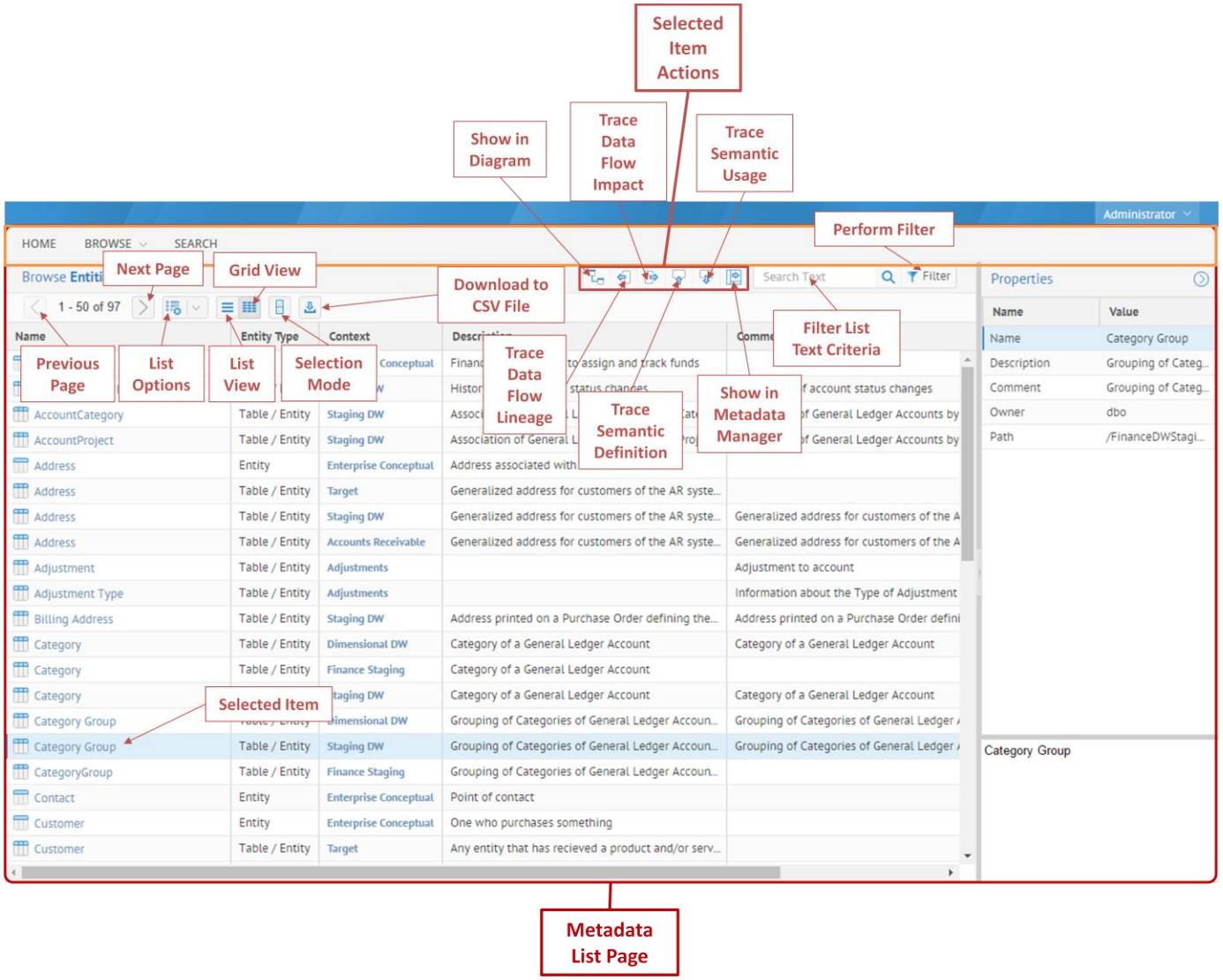
Top Banner with Global Menus



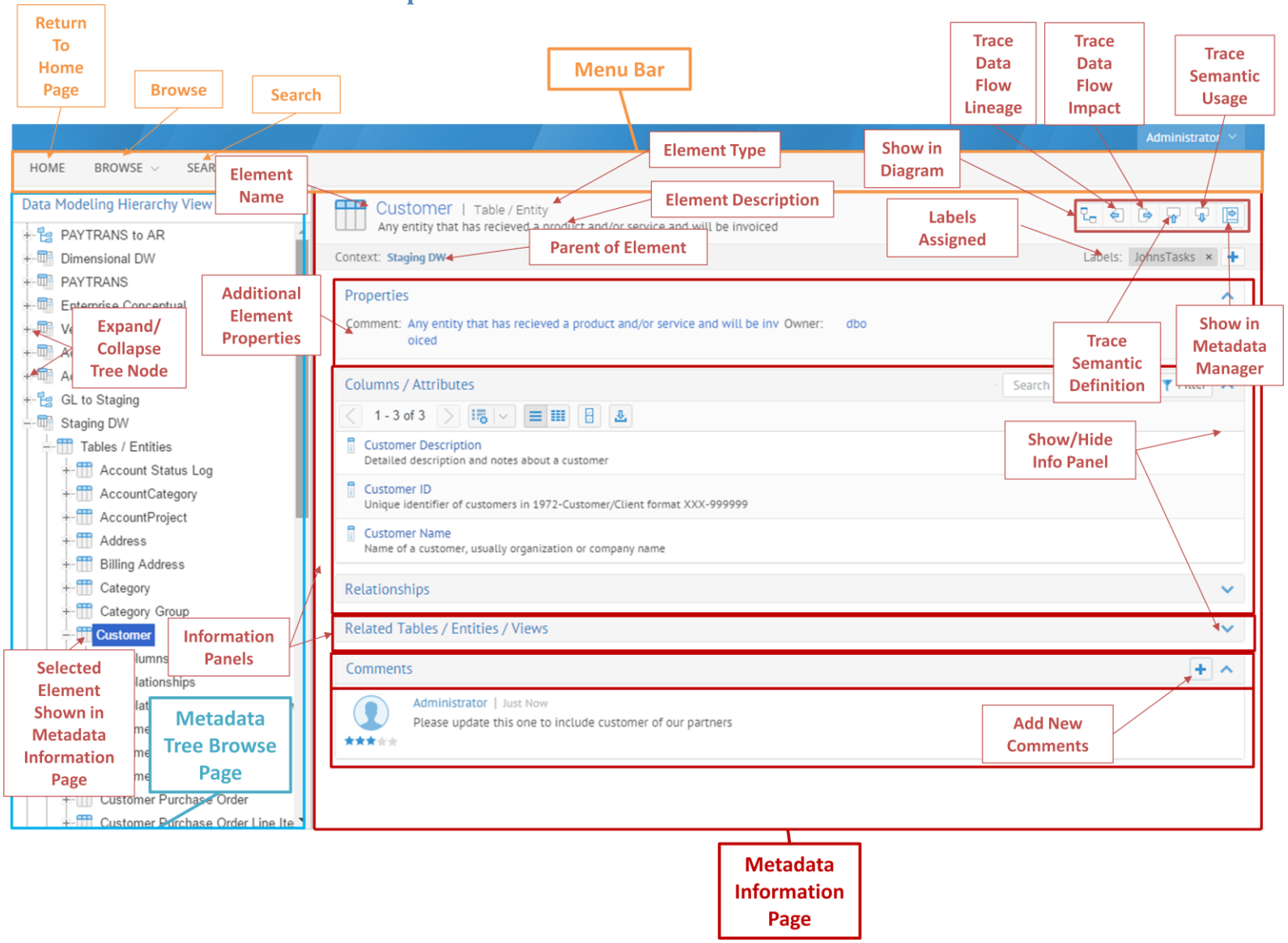
Metadata List User Interface Components



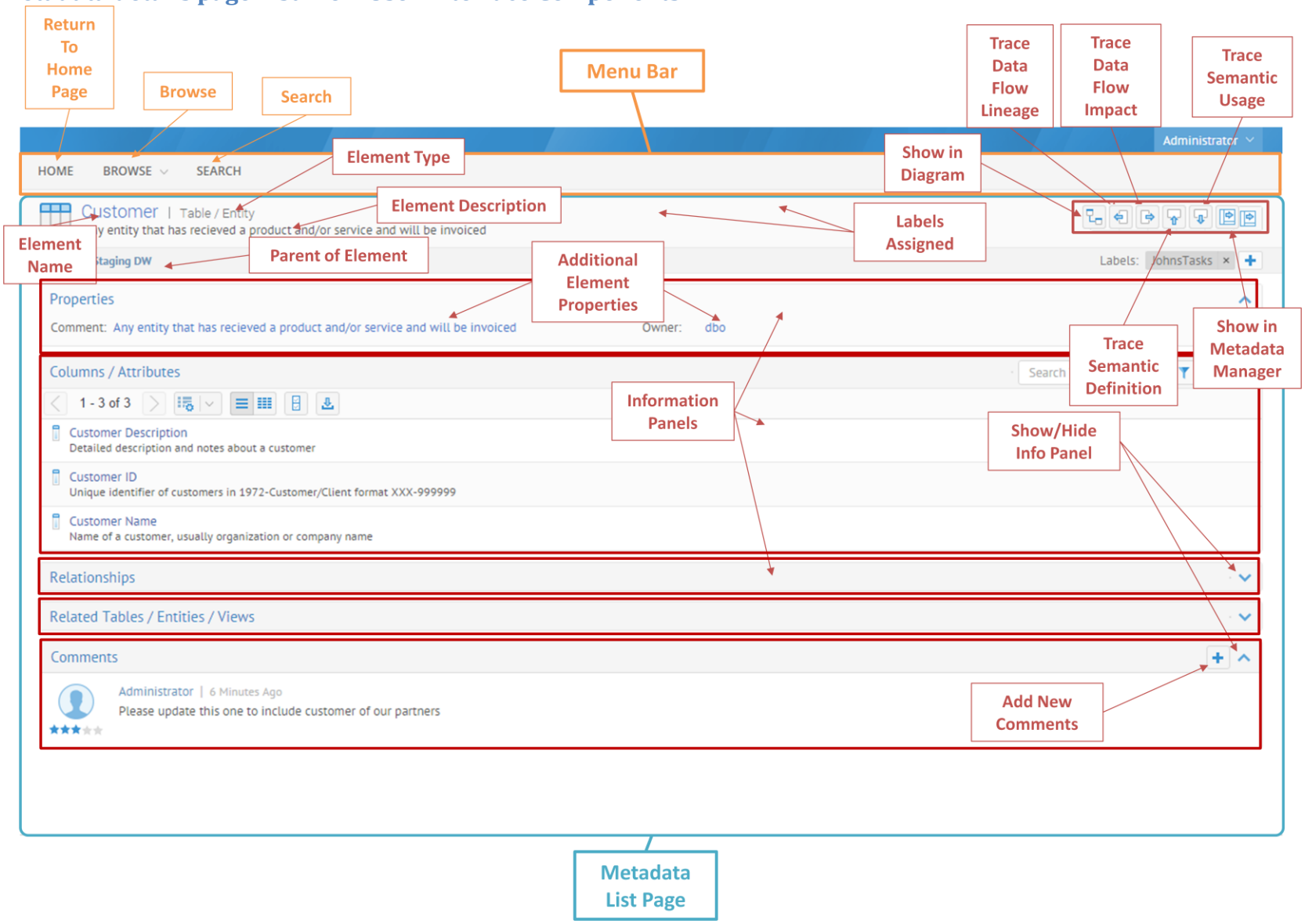
Grid View User Interface Components



Metadata Tree User Interface Components



Metadata details page List View User Interface Components



Search User Interface Components

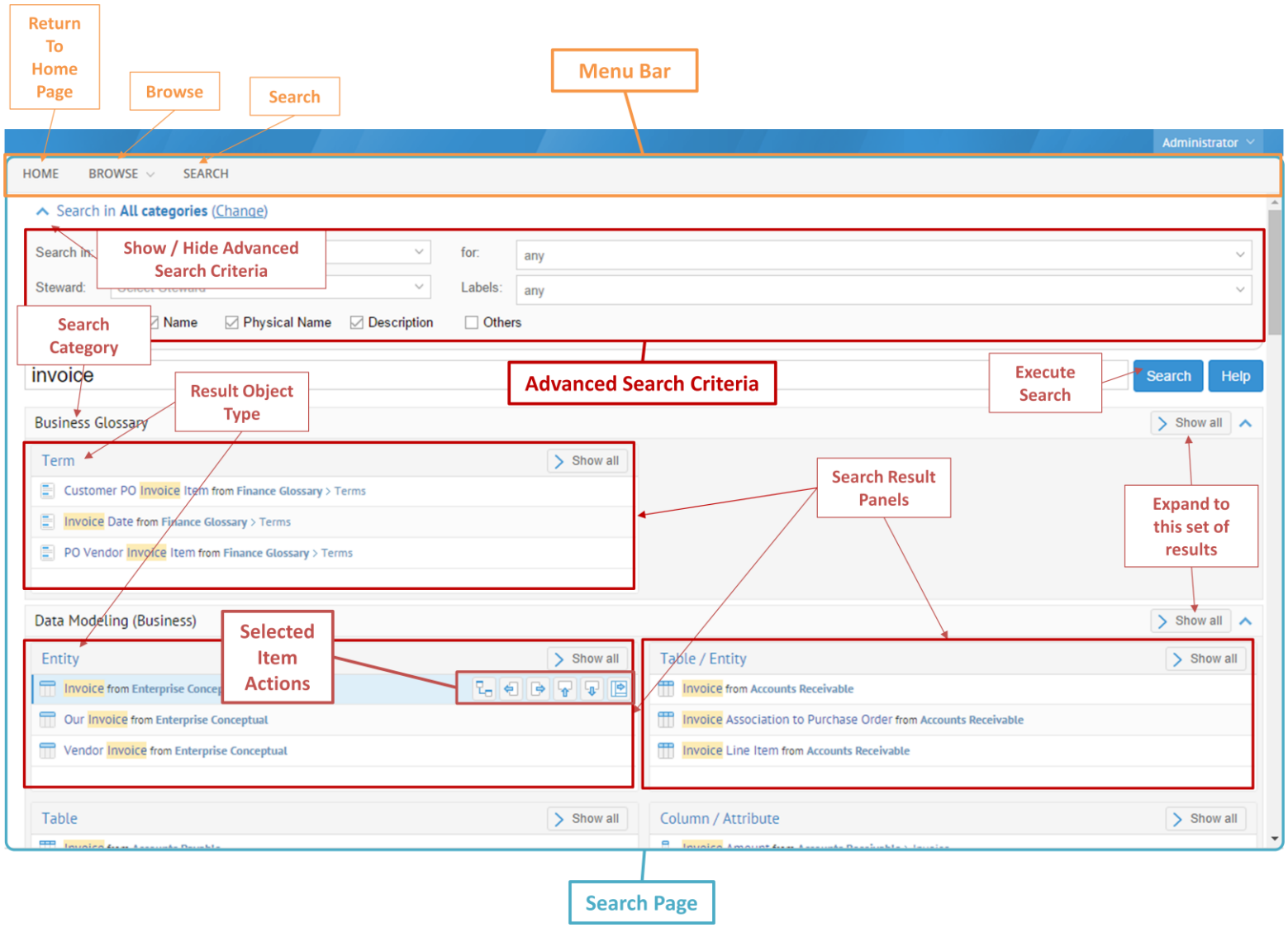
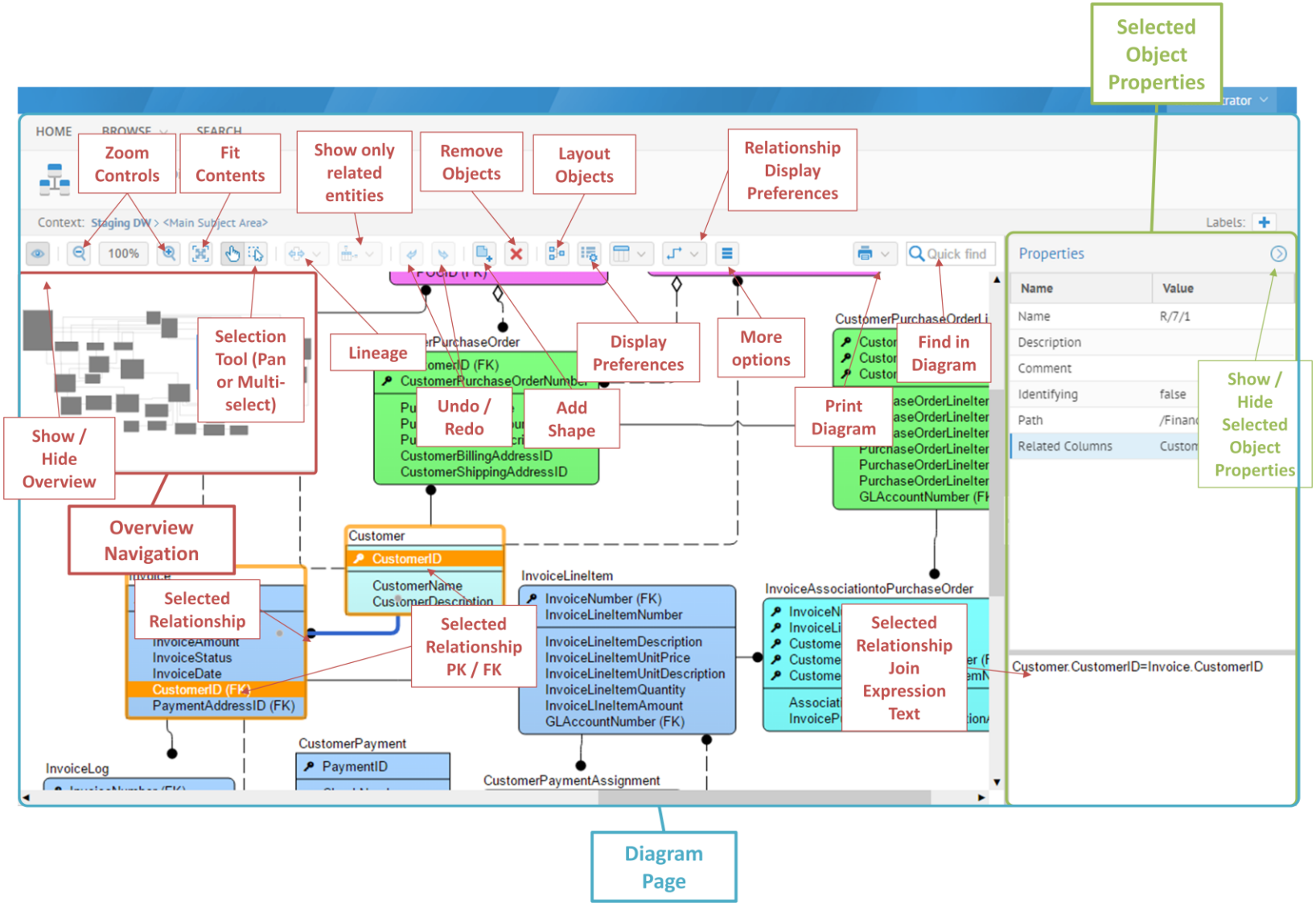
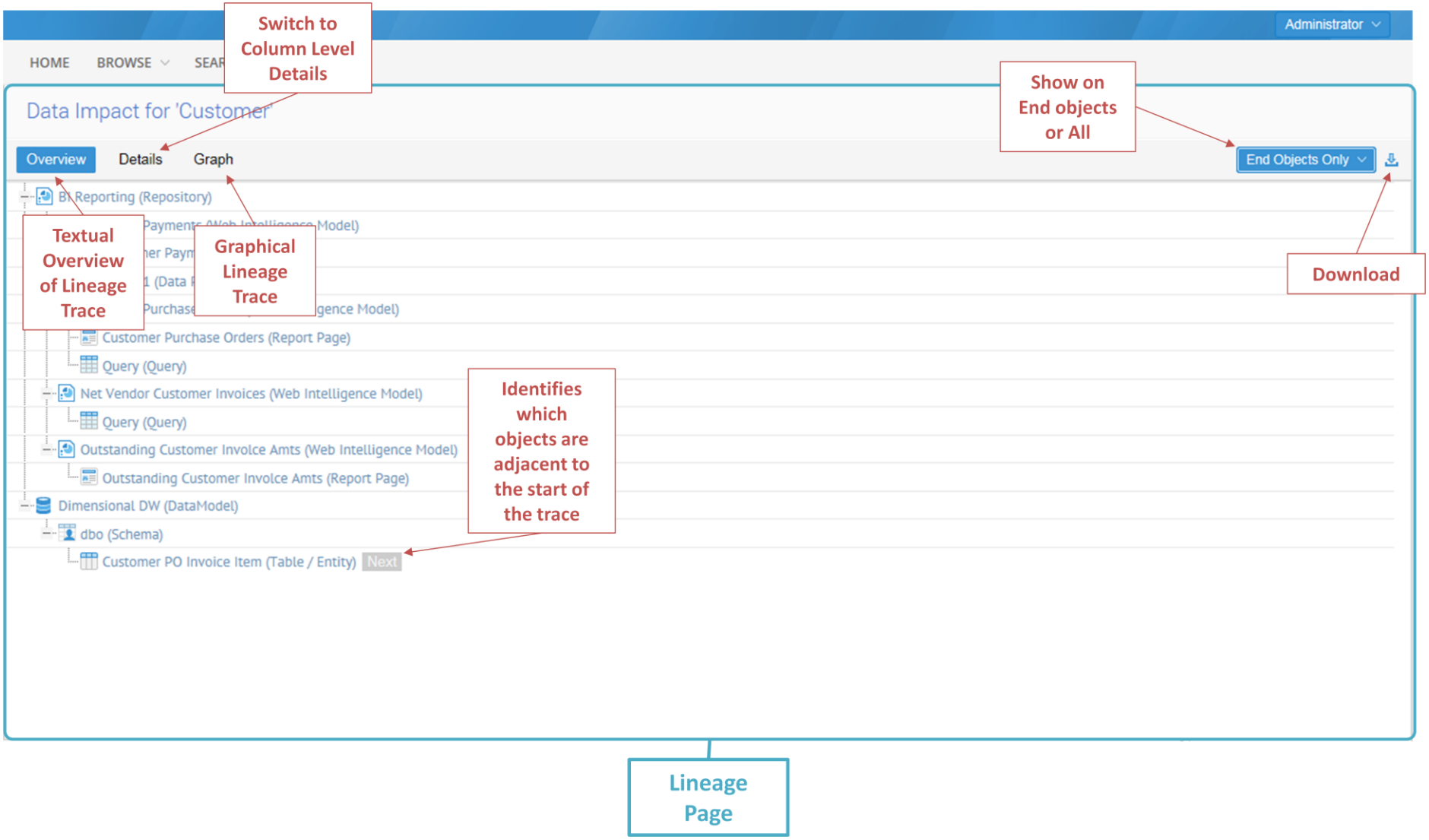


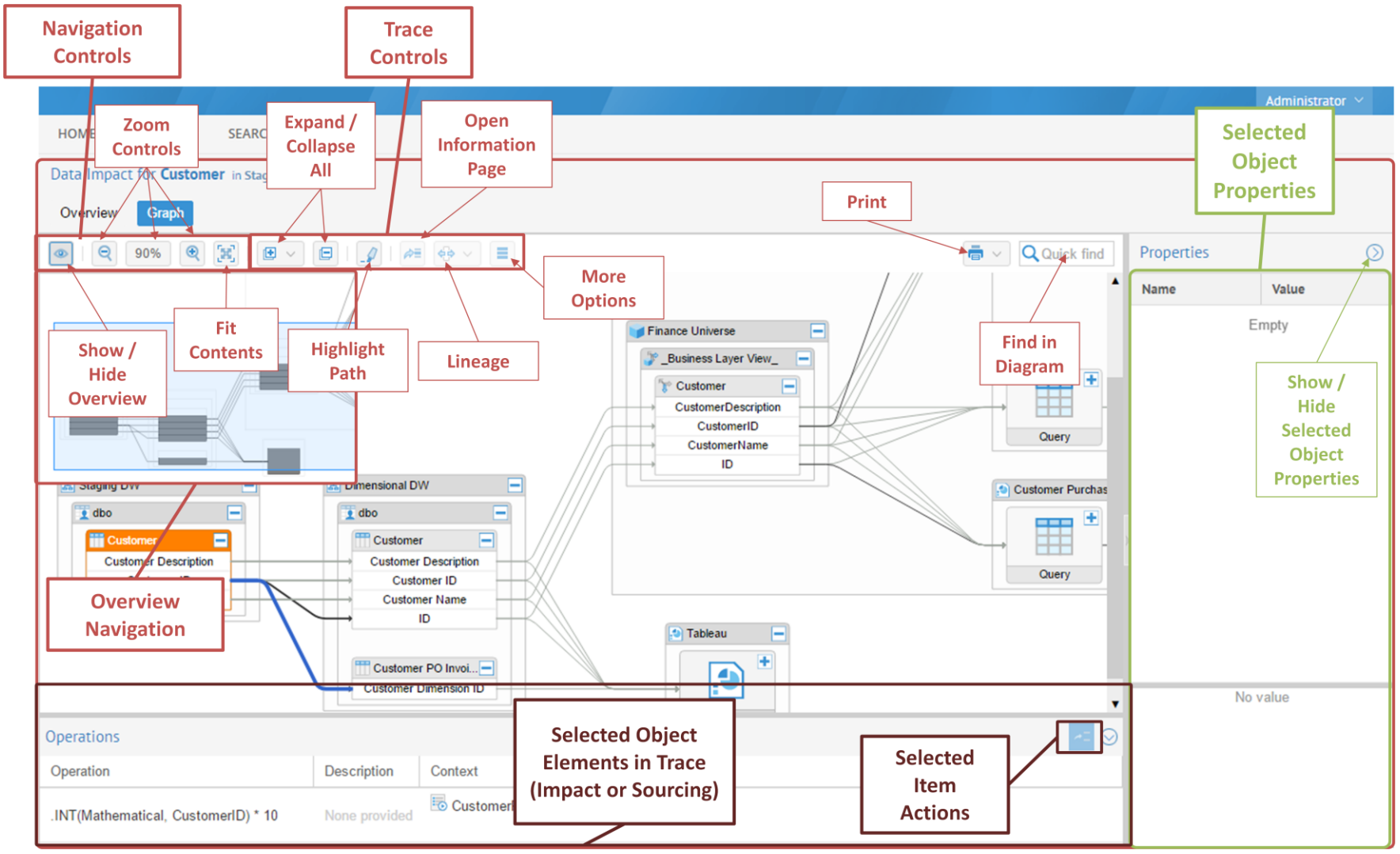
Diagram Visualization User Interface Components



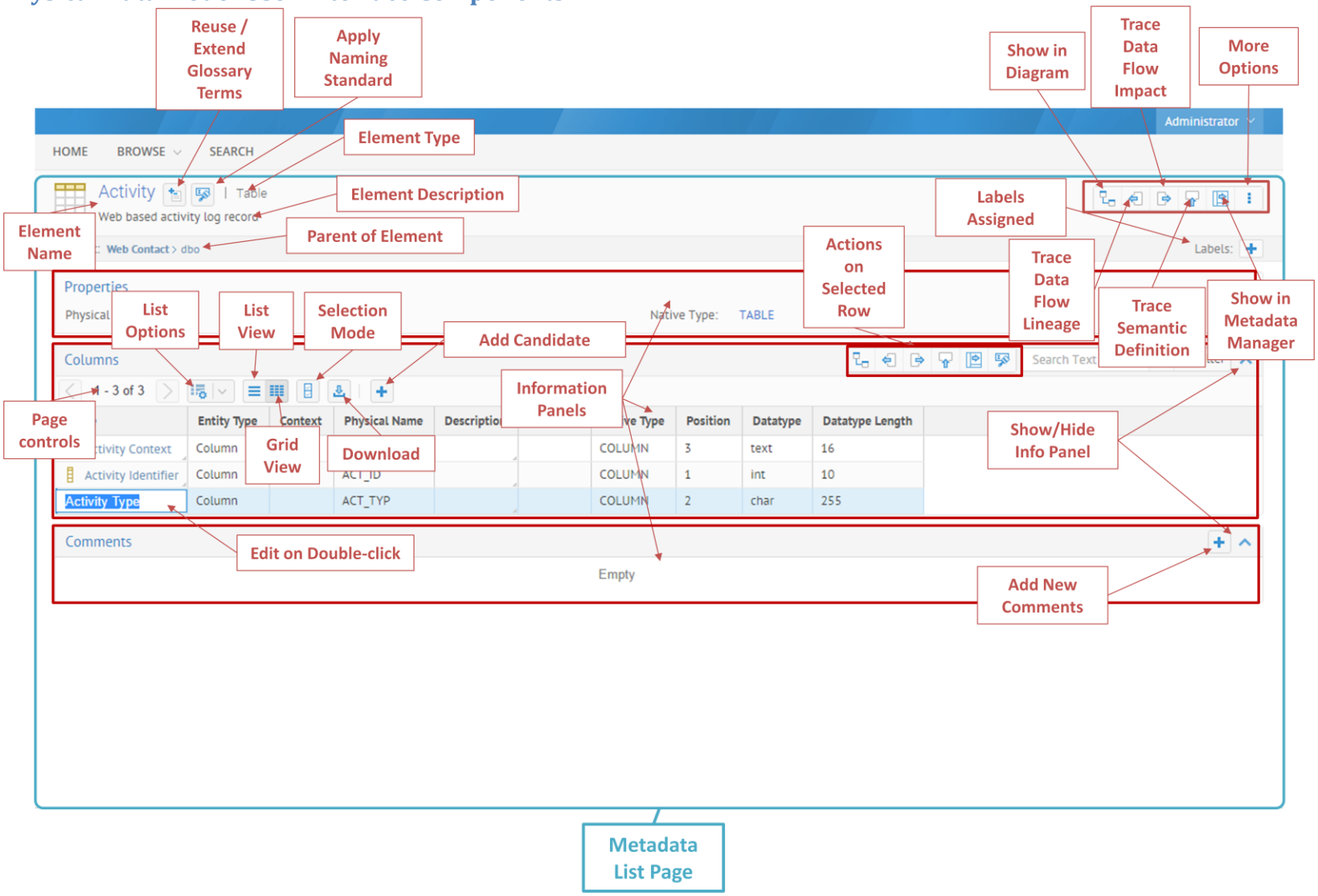
Lineage Trace User Interface Components



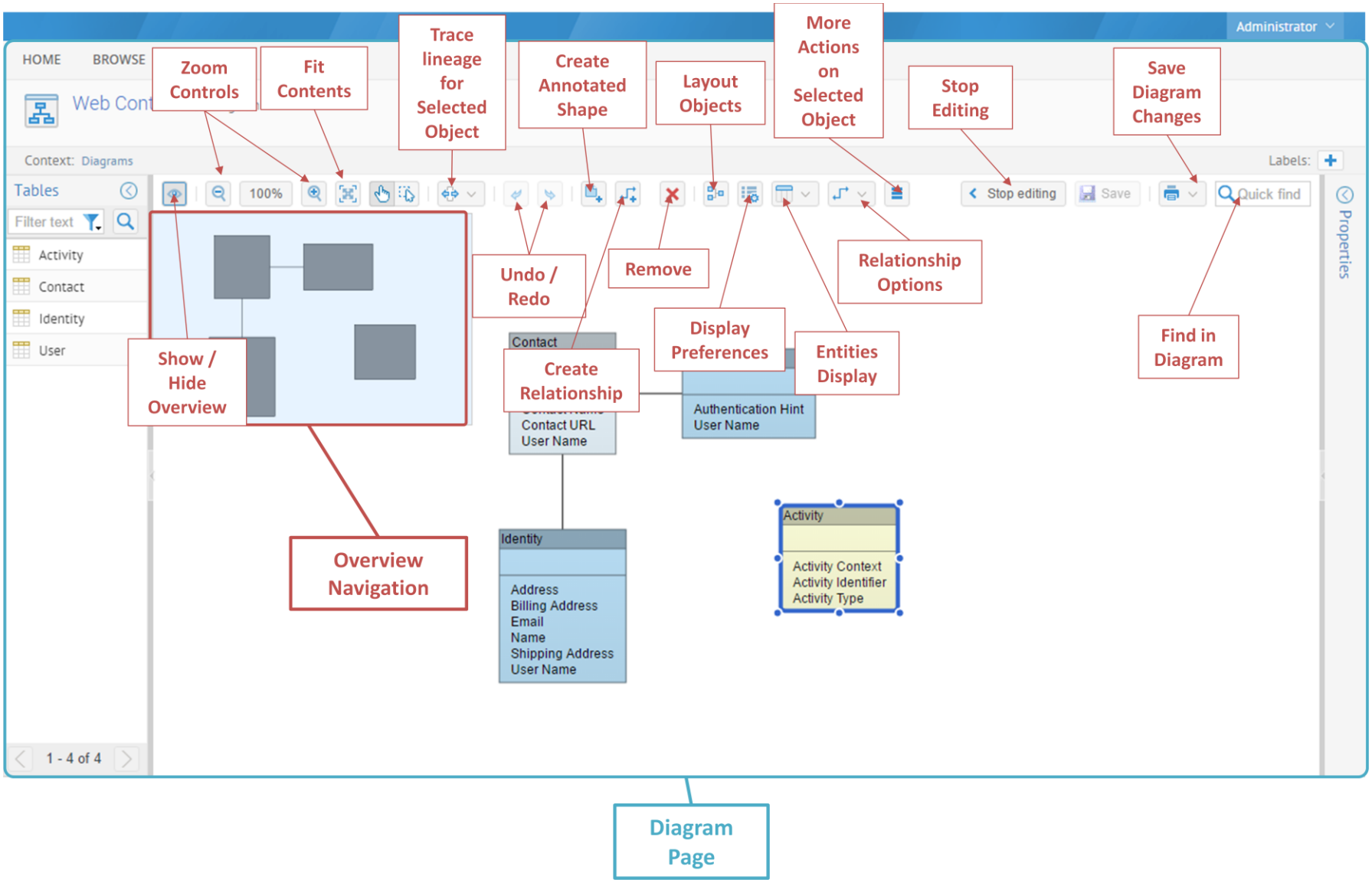
Graphical Lineage Trace User Interface Components



Physical Data Model User Interface Components



Physical Data Model Diagram Editing User Interface Components



Basic Functions

From any place in the Metadata Explorer UI you may use the top right banner menu to:

- Log Out – End your session and/or sign in as another user
- Go to Metadata Manager – Open the Metadata Manager UI in a new tab
- Help – Open the online help in a new tab
- About – Open the product about dialog

Explore metadata

Browse a list of metadata

1. Click on Browse in the banner.
2. Select the type of metadata you wish to browse:
   - Data Modeling – includes metadata from data models
   - Database – includes metadata from databases, physical data models, and other data source technologies
   - Glossary – Terms and categories from the business glossary
   - Other specific technologies, e.g. business intelligence tools.
3. When you select one of the metadata element types (e.g., Data Modeling ➔ Tables) you are then presented with a metadata list view of the element type you selected.
4. From here you may:
   - Click on any metadata elementin the list to view metadata details page about that metadata element
   - Click on *the line a particular metadata elementis on* in the list to see action icons that you may click on for this metadata element without going to the metadata element's information page
   - Click on the context (i.e. from…) listed next to each metadata element in the list (e.g., the table containing the column in the list)
   - Move to the [>] (Next) or the [<] (Previous) page of results
   - Select 
     - Select the number of Items per Page
     - Sort by Name either ascending or descending
     - Refresh
   -  (Download) to a CSV file
   -  (Filter) the results based upon advanced matching criteria, including:
     - Where the filter text string is in Name, Physical Name or Description
     - Where specific (Sub) Types of the element type selected, e.g. a view vs. table
     - Only those results in particular models
     - Only those results assigned to a specific Steward
     - Only those results with specific labels (tags) set

- Only those results with where the matched text is a part of a specific attribute type
- Reset to clear the selected the filter criteria

Browse metadata tree

1. Click on Browse in the banner.
2. Select the type of metadata you wish to browse:
   - Data Modeling – includes metadata from data models
   - Database – includes metadata from databases, physical data models, and other data source technologies
   - Glossary – Terms and categories from the business glossary
3. Select the Tree View option, which provides a full tree browsing interface for the particular type of metadata selected.
4. From here you may:
   - In the Tree View panel :
     - Expand / Contract metadata elements
     - Click on and metadata element to view metadata details page.

View metadata details page

1. Navigate to a metadata element by either
   - Browse a list of metadata
   - Browse a metadata tree
   - Search
2. You are presented with the metadata details page for this metadata element
3. From here you may:
   - Click on the Context, or containing metadata element (e.g., the table containing the column in the list)
   - Assign or remove Labels to this metadata element
   - Click on one of the lineage () icons to present a lineage trace for that metadata element where appropriate
   - Click on the  icon to present the graphical diagram for a metadata element where appropriate
   - Click on the  icon to go to the equivalent metadata element in the Metadata Explorer UI.
4. The remainder of the page presents one or more panels with information about this Metadata Element.
   - Each panel may be expanded or hidden using the  (show) or  (hide) control.
   - Each panel presents of list metadata elements of a particular type which are related to the metadata element this page is for. If the list of metadata elements is long, only a portion of that list is presented and it functions much like the list of metadata when browsing, including pagination and filtering.
   - The first panel contains the properties directly attached to this metadata element.

- The last panel provides the use with the opportunity to add and edit comments.
- From here you may:
  - Click on any metadata elementin the list to view metadata details page about that metadata element
  - Click on *the line a particular metadata elementis on* in the list to see action icons that you may click on for this metadata element without going to the metadata element's information page.
  - For any of these panels one may page through the results, download to CSV or filter just as when browsing any other list of metadata elements.

Search for any Metadata Element

1. Click on Search in the banner.
2. Select the search category defining the scope of metadata types to search by clicking on the  icon above the search text box or by clicking on Change next to the currently displayed category.
3. Enter the search text in the search text box (see Search Interface Components).
4. Click on the Search button.
5. You are then presented with the search results.
6. The remainder of the page presents one or more result panels with information about this Metadata Element.
   - Each result panelpresents of list metadata elements of a particular type which are related to the metadata element this page is for. If the list of metadata elements is long, only a portion of that list is presented and it functions much like the list of metadata when browsing, including pagination and filtering.
   - Click on any metadata element or its Context to view metadata details page
   - Click on *the line a particular metadata element is on* in the list to see action icons that you may click on for this metadata element without going to the metadata element's information page
   - Click on  (Show all results of this type) in the result panel for a given metadata element type, in order to see a metadata list with all the results of that type.
7. At any point you may click on the Help button to receive instructions on the advance search options supported.
8. In the search category panel, you may restrict the results to only those elements which:
   - Are in the selected set of metadata element types to search for
   - Are assigned to a specific Steward
   - Have any one of the specific Labels
   - the matched text is a part of a specific Property Types.

Analyze metadata

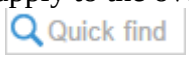
Visualize the diagram of a Model

1. Browse via the metadata element list or tree to a specific diagram.
   - Click on the  icon.

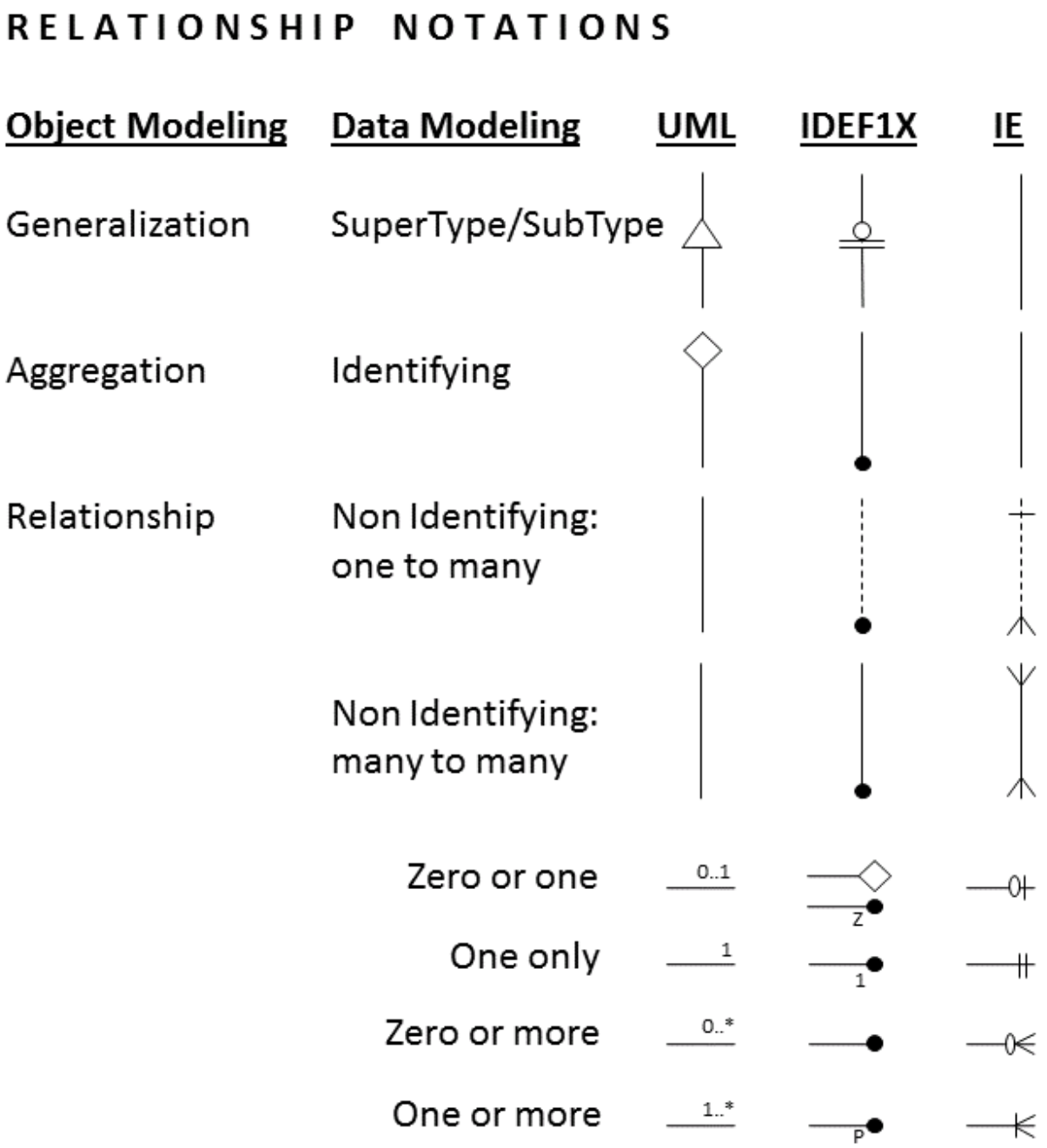
While one cannot permanently alter a diagram (or create new ones) for a simple model, nevertheless all of the layout, annotation, display level, etc., features may be employed for visualization. You may always return to the original published layout by clicking on the Show original button.

Thus, from here you may:

- All actions that are available for a harvestable model are also available here with a Physical Data Model.
- Click on an metadata element and view its properties in the Properties Panel. You may need to show ( )the Properties Panel (far right hand side of the page).
- Make use the of the standard graphical navigation toolbar.
- Open the selected object ( ) icon to display the metadata details page for the selected metadata element.
- Trace lineage ( ) to/from the selected metadata element
- Show only related entities ( ) related to the selected table
- Click on the Undo ( ) to undo the last action.
- Click on the Redo ( ) to redo the last action.
- Click on the New Shape ( ) icon to create and edit annotations in many shapes for a diagram.
- Click on the Remove ( ) icon to remove an object from the diagram.
- Click on the Layout ( ) icon to automatically layout the diagram.
- Use the Diagram Properties ( ) pick list to specify Model display options, including:
  - General
    - Notation (e.g. IDEF vs. IE)
    - Diagram Background color
    - Default Entity display type
    - Show lines on top.
  - Display format with formats for Entity, Shape and Label, including:
    - Background color
    - Border color
    - Border size
    - Font
    - Opacity
  - Default Entity Display Options
- Use the Entities Display ( ) pick list to specify Model display options, including:
  - Display Level
  - Column Properties
  - Reset entities size
- Use the control for the selected metadata element (or the entire diagram if nothing is selected), including Show and Hide:

    - Labels for labels on relationship lines
    - Relationship Names for names on relationship lines
    - Cardinalities for cardinality notations on relationship lines
    - Role Names for role name notations on relationship lines
    - Layout Labels to arrange relationship labels
- For any selected object in the diagram, right-click for the context menu or click on the  icon in the header to:
    - Open – Open the selected object details page
    - Show in Diagram – Move to the selected object location in the diagram and highlight the object
    - Trace Lineage – Trace lineage from the selected Object in the context of the current configuration
    - Show only related entities – related to the selected table
    - Quick Color – Quick color pallet dialog for the selected object
    - Reset Size – Reset the size of the selected object to the last saved state
    - Auto Size – Auto size the select object
    - Display Level… – Specify the display level for the selected object, including:
        1. Entity
        2. Description
        3. Primary Key
        4. Keys
        5. Attributes
        6. Physical Order
        7. Inherit – Inherit level from diagram settings.
    - Layout – Auto layout the selected object(s)
    - Start Relationship – To start a relationship line from the selected object
    - Properties – Edit properties for the selected object
    - Remove – Remove the selected object from the diagram only
- Actions which apply to the overall model (right-hand side of the model header):
    - Use the 

 text box metadata elements in the displayed diagram using a text string.
    - Print () the diagram
    - Analyze relationships in the diagram of a physical data model
        1. You may select a relationship in that diagram and perform the following analysis:
            - The associated primary keys and foreign keys are highlighted in the associated tables in the diagram. If there are more than one PK/FK pair, each will be highlighted in a different color.
            - In the Properties Panel you may copy and paste the Related Columns to be used to define the equivalent join directly in a reporting .



Trace and Analyze the data flow and semantic lineage of a Metadata Element

Once well managed, metadata is then open for detailed analysis, and true business level use cases may be solved. Oracle Metadata Management (OMM) supports full business level lineage and impact analysis down to the classifier (table/entity/dimension) and feature (column/attribute/measure) level.

Generally, there are two types of lineage:

- Data Flow based upon connection definitions to data stores and physical transformation rules which transform and move the data
- Semantic, e.g., detailing the relationships from a conceptual to logical model, or a logical to physical model.

Oracle Metadata Management (OMM) can allow users to display and analyze both types of lineage.

About lineage tracing


Data Flow Lineage

These are the *reporting analysis* type use cases, generally posed as questions such as:

- Given an item on a report, what data entry system fields impact these results?
- Why are the numbers on this report the way that they are?
- How do change the system data to get the correct the results of this report?

This type of analysis, i.e., asking where the information comes from, is a question posed "upstream" in the dataflow. We refer to it as a *reverse lineage* question. When consumers of these reports ask these questions, a correct and responsive answer may be the most valuable information provided by a metadata management solution.


Semantic Definition

In this scenario, from the same report one may wish to simply discover what are the meanings of these report fields.


Semantic Usage

In this scenario, one may wish to see the usage of the semantic element (e.g., business glossary term) in the architecture.


Show Reports

In this scenario, one may wish to see the business reports that use fields which are semantically related to a particular semantic element (e.g., business glossary term).


Data Flow Impact

Finally, business users may ask the forward lineage or impact analysis type of questions:

- If I make a change to this field, what reports will be impacted?
- How is this identity information merged with the personnel system information on these other reports?

Trace  Semantic Definition

In this scenario, from the same report one may wish to simply discover what are the meanings of these report fields.

1. Navigate to a metadata element by either
   - Browse a list of metadata
   - Browse a metadata tree

- Search

2. Click on the  icon
3. A Trace Semantic Definition dialog will be presented with the full definition of that metadata element.

From here you may:

- Click on the resulting term to go to view the metadata details page.
- Use the Show Semantic Definition Details () icon to see Lineage Trace Page.
- Use the Show more link to see other definitions provided in the architecture (via lineage trace) and the glossary (via search).

Trace  Semantic Usage

In this scenario, from a business glossary term or conceptual/logical model element one may wish to simply discover what data element are semantically mapped in the data flow architecture and thus would be impacted by a change to the term or model element.

4. Navigate to a metadata element by either
   - Browse a list of metadata
   - Browse a metadata tree
   - Search
5. Click on the  icon
6. A Trace Semantic Usage dialog will be presented with the full definition of that metadata element.

From here you may:

- Click on the resulting term to go to view the metadata details page.
- Use the Show Semantic Definition Details () icon to see Lineage Trace Page.
- Use the Show more link to see other definitions provided in the architecture (via lineage trace) and the glossary (via search).

 Show Reports

In this scenario, one may wish to see the business reports that use fields which are semantically related to a particular semantic element (e.g., business glossary term).

1. Navigate to a semantic metadata element by either
   - Browse a list of metadata
   - Browse a metadata tree
   - Search
2. Click on the  icon
3. A Show Related Business Reports dialog will be presented with the list of all such reports for that metadata element.
4. From here you may:
   - Click on any report]in the list to view metadata details page

- Click on *the line a particular report is on* in the list to see action icons that you may click on for this report without going to the report's information page. In particular, there is the Open ( ) action which will open the report in the 3rd Party tool.

Data Flow Lineage

These are the *reporting analysis* type use cases, generally posed as questions such as:

- Given an item on a report, what data entry system fields impact these results?
- Why are the numbers on this report the way that they are?
- How do change the system data to get the correct the results of this report?

1. Navigate to a metadata element by either
   - Browse a list of metadata
   - Browse a metadata tree
   - Search
2. Click on the icon.
3. You will then go to the Lineage Trace Page.

Data Flow Impact

Users may ask the forward lineage or impact analysis type of questions:

- If I make a change to this field, what reports will be impacted?
- How is this identity information merged with the personnel system information on these other reports?

1. Navigate to a metadata element by either
   - Browse a list of metadata
   - Browse a metadata tree
   - Search
2. Click on the icon.
3. You will then go to the Lineage Trace Page.

Lineage Trace In General

Reporting on lineage will bring you to the Lineage Trace Page.

You may then:

- Click on the Overview, Detailed or Graph selections to choose:
  - Present a text based lineage overview
  - Present a detailed column level lineage report
  - Present a graphical report of the lineage
- Actions which apply to the lineage trace are within the header:
- Use the Show: End Objects Only ∨ option to show only the ultimate source objects without any intermediary objects in the trace.

- Use the Show: All Public Objects v option to show all intermediary objects as well as the ultimate source objects in the trace.
- Use the Download Details ( ) icon to download a complete report of the trace to a format compatible with Microsoft Excel.

Interpreting the graphical lineage

In general, the lineage tools within Oracle Metadata Management (OMM) function identically whether one is analyzing data flow lineage, semantic lineage or both. However, the presentation is different, as follows:

			Thick Line	Thin Line
			Underlying Process (which may be expanded separately)	No Underlying Process
Data Flow Link	Black	Expression/ Transformation	Underlying Process with Transformation of the Data	Transformation of the data without an Underlying Process
	Grey	Pass-Through	Underlying Process but simple pass-through	Simple pass-through and no underlying process
	Yellow	Column Control	Control Flow which directly impacts values of columns (e.g., Lookup) and represents and underlying process	Control Flow which directly impacts values of columns (e.g., Lookup)
	Yellow Dashed	Row Control	Control Flow which does not directly impact values of columns (e.g., Filter) and represents and underlying process	Control Flow which does not directly impact values of columns (e.g., Filter)
Semantic Link	Blue Dashed	Semantic Link	Semantic link such as a derivation where there is an underlying process	Semantic Link such as a derivation

In addition, Oracle Metadata Management (OMM) has four levels of presentation:

- configuration model Connections Overview – which is a diagram representing the various models contained within a configuration and how they are related (or stitched) to each other based upon connection definitions manually assigned to Oracle Metadata Management (OMM).
- External Metadata Repository model Connections Overview – which is a diagram representing the various models contained within the directory of a External Metadata Repository and how they are related (or stitched) to each other based upon connection definitions already provided in the External Metadata Repository.
- Model Lineage Overview – which is a diagram representing and overview of the lineage within a given model.
- Lineage Trace analysis at the configuration or model level – which is a fully detailed trace of semantic and/or data flow lineage for detailed analysis.

Label metadata

Place labels for search and review

Labels are single word Oracle Metadata Management (OMM) wide meta tags, which may be applied to any object in a model, searched on, reviewed and managed centrally by model or configuration.

Tag, view or remove labels on an metadata element

To tag a metadata element with a label:

1. Browse via the metadata element list or tree to a specific metadata element.
2. Click on the area to the right of the Labels tag
3. Add a new label by typing it in (remember, each word is a separate label)
4. Assign already defined labels to this metadata element by typing one or more letters of that label and selecting from the resulting pick list.
5. Unassign a label by simply deleting it.

Note: Labels are defined Oracle Metadata Management (OMM) wide. Please keep in mind that the pool of labels defined by all users is shared across Oracle Metadata Management (OMM)

Review Label Assignments

One may review the label assignments across an entire model or configuration.

1. Click on Browse v in the banner.
2. Select the Configuration option.
3. Select the Review Labels option.
4. Enter any number single word labels into the Labels combo box or select any number using the combo box selection. Remember, you may select any number of labels to review.

Search for Label Assignments

When searching in a model or configuration, one may

- Filter the search results using the Filters panel to specific labels.

Provide feedback/comments and review

Comments are free-form text notes which may be queried for, reported on, reviewed and managed by model. A comment tracks its author, creation time, update time, importance and status. The user can attach any file including pictures and multimedia to the model and refer to them in a comment. One can leave one or more comment(s) per object and see comments made by others.

Unlike labels, comments only apply to the specific version of the model they were entered in. In addition, these comments may then be exported out of Oracle Metadata Management (OMM) and opened in External Metadata tool, there to be reviewed and edited in the original External Metadata model format (where supported in the External Metadata tool user interface).

Add/Remove comments

1. Browse via the metadata element list or tree to a specific metadata element.
2. The last panel provides the use with the opportunity to add and edit comments.
    a. Click on the  icon to add a new comment
    b. Click on the  (Edit) icon to edit the comment
    c. Click on the  (Delete) icon to delete the comment
3. When editing a comment you may click on the number of stars (★) to indicate the relative importance of the comment.

Report glossary documenter

When the business glossary is mapped to a business intelligence model (including reports), one may define new semantic (definition) maps from elements in the reports to terms in the business glossary directly in the Metadata Explorer UI. Of course, one must have permission to do so (contact the Oracle Metadata Management (OMM) Administrator to obtain these permissions).

1. Navigate to a report or metadata element within a report by either
    - Browse a list of metadata
    - Browse a metadata tree
    - Search
2. You are presented with the metadata details page for this report or metadata element
3. To add a link to a term in the glossary click on the Link to Term () action icon in the Glossary panel header.
4. From here you may
    - Search for terms and use the More pull down next to the search to select More search options
    - Expand the glossary category structure until you find a term
    - Click on the breadcrumb list to return to a category
    - Create a new category in the glossary
    - Create a new term in the current category in the glossary. This will create a terms based upon the name and description of the current report or metadata element you have opened. You may also specify you own name and definition.

The term will then be linked to the open report or metadata element.

Create and Manage a Business Glossary

Use the Metadata Manager UI to create a new and/or manage an existing business glossary.

Review and Edit a Business Glossary

Critical to the development and management of a complete data architecture is a Business Glossary. Oracle Metadata Management (OMM) provides an ISO 11179 based Business Glossary to capture, define, maintain and implement an enterprise Business Glossary of terminology, data definitions, code sets, domains, validation rules, etc. In addition, semantic mappings describe how elements in a source model (more conceptual like the Business Glossary) define elements in a destination model (closer to an implementation or representation).

The Business Glossary helps an enterprise to reach agreement between all stakeholders on their business assets (e.g. terms) and how they relate to data assets (e.g. database tables) and technology assets (e.g. ETL mappings). The Business Glossary can be used to document logical/physical data entities and attributes across IT collaboratively. Again, it involves tracing dependencies between business and technical assets.

The business glossary

In Oracle Metadata Management (OMM), a business glossary is a self-contained collection of categories and the terms sub-categories contained within each category. In turn, the terms may be semantically mapped to objects throughout the rest of the repository, such as tables and columns in a data model. Once mapped, one may perform semantic lineage traces such as definition lookups and term semantic usage across any configurations containing the business glossary, mappings and mapped objects.

Building a business glossary can be as simple as dragging in an existing well documented data model, via import from other sources via a CSV file format, or can be populated directly via the user interface as well as during the process of classifying objects in other data store models. In general, a combination of such methods are employed in conjunction with one another.

In order to ensure that the business glossary is accurate, up-to-date, available to all who need access to it and integrated properly with the rest of the metadata in the repository, Oracle Metadata Management (OMM) also provides a robust collection of Data Governance tools and methodologies. The Oracle Metadata Management (OMM) business glossary provides a very flexible workflow and publication process that may alternatively be quite sophisticated or quite simple depending upon one's needs. In addition, one may maintain any number of business glossaries, each with different workflow and publication characteristics.

The Business Glossary may be part of your lineage, will appear in the repository panel and when you open a Business Glossary, you will presented with a different UI than for other (harvestable) models.

Versions

The business glossary is one of the content types Oracle Metadata Management (OMM) supports. As a content, it can have multiple versions. You can employ different business glossary workflow strategies that involve one, two and multiple versions of the glossary. Here are some options:

- Simple - single version
- Dev vs. Prod - development and published versions
- Snapshots - historical versions

The business glossary may be part of your lineage, will appear in the repository panel, and when you open a business glossary you will presented with a different UI than for other (harvestable) models.

Categories

A business glossary is organized into categories, which may then contain terms or other categories. Categorization can help with:

- Subset by subject matter or organizational structure
- Managing stewardship assignments (at the category level)

Relationships

Terms may be cross-linked in a wide variety of relationship types, including:

- Synonyms
- See Also
- More General
- More Specific
- Contains
- Contained By
- Represents
- Represented By

Not surprisingly, all of the management and much of the editing of this authored content is performed using the Metadata Manager UI. However, as business users will often be required to contribute to the business glossary and physical data model, the Oracle Metadata Management (OMM) provides the ability to edit these types of content directly within the Metadata Explorer UI.

Review and edit terminology

1. Sign in to Oracle Metadata Management (OMM) as a Metadata Explorer UI user which had editor permissions to the business glossary you wish to document.

2. Navigate to the physical data model using the (please see Metadata Explorer UI User Interface Components). It will be a part of the Business Glossary category.
3. Navigate to any element (term or category) you wish to edit, or create a new category.

From here you may:

- Edit any of the properties of a term or category (e.g., Name and Description) simply by clicking on their value and typing. This will update the property
- One may use the 

button to limit the results in the list by:
    - Labels
    - Or use the 

button for additional filters based upon any other property of the objects in the list.
- One may enter text and use the 

control to limit the list to those items with names or descriptions that contain the text.
- One may select multiple items in the list with shift-click and/or ctrl-click. Then, the number of items selected appears as well as the 

icon. Clicking on the 

icon then allows one to set any of the properties that exist across all of the selected list items.
- One may switch between the List View and the Grid View. In the Grid View, one may edit in place any property associated with any of the rows (or list items in the list view).
- One may use the Custom Attribute  control in the properties area to assign custom attributes to the selected item. Note, one must first Define a Custom Attribute and associate it with objects in a business glossary before the  control will appear.
- One may add columns and terms tables and columns:
    - Navigate to the business glossary as a whole and click on the  icon of the Categories panel to create a new category
    - Navigate to a category and click on the  icon of either the Categories or Terms panels to create a new column or term

Document Data Stores

Oracle Metadata Management (OMM) allows users to document existing data stores, like databases, big data sources, imported as models in Oracle Metadata Management (OMM), and publish the resulting documented data stores to the enterprise.

Data modeling tools have been conceived as database design tools to be use by data architects and database administrator to design logical and physical data models generating DDL. Although many of these data modeling tools are rather used to document (create a data model) of existing databases. Oracle Metadata Management (OMM) offers a different approach than traditional data modeling tool:

- The Business Glossary driven methodology allows for immediate reuse and creation of Terms and naming standards on the fly, fast tracking the data store documentation process
- The Web enabled tool offers better access than Desktop tools

- The Data Modeling / Diagramming capabilities of Oracle Metadata Management (OMM) are similar to conventional data modeling tools
- Full integration (import/export) to most popular data modeling tool.

Oracle Metadata Management (OMM) can import undocumented metadata directly from a data store or External Metadata model. When documenting a model, one may:

- Add business names and descriptions to objects, like tables and columns
- Document relationships including
  - Cardinality
  - Join conditions
  - Verb phrases
  - to better understand interrelated objects
- Organize and view objects graphically using diagrams and subject areas
- Annotate diagrams.

In addition, these data stores change over time. Oracle Metadata Management (OMM) protects an investment in documenting data stores by supporting the migration of existing documentation to new data store versions automatically.

Finally, Oracle Metadata Management (OMM) has a business glossary application that allows one to manage terminology and domain definitions across the enterprise. One can reuse these definitions not only among different enterprise applications but between versions of the same application. A glossary may be used to collect and apply naming standards based upon the name assignments made when editing a documentable model. In addition, Oracle Metadata Management (OMM) allows one to link tables and columns to terms and glossary domains and business rules.

Create and Manage a Physical Data Model

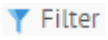
Use the Metadata Manager UI to create a new and/or manage an existing physical data model.

Edit a Physical Data Model

1. Sign in to Oracle Metadata Management (OMM) as a Metadata Explorer UI user which had editor permissions to the physical data model you wish to document.
2. Navigate to the physical data model using the (please see Metadata Explorer UI User Interface Components). It will be a part of the Data Models category.
3. Navigate to any element (table or column) you wish to edit, or create a new subject area, diagram or edit a diagram.

From here you may:

- All actions that are available for a harvestable model are also available here with a physical data model the (please see Metadata Explorer UI User Interface Components).
- Edit the Name and Description properties simply by clicking on their value and typing. This will update the business name and description. The physical name and comment will remain unchanged (as faithful representations of what is in the underlying data store).

- Click on the Link to Term () icon next to Name for Business Glossary term reuse and creation.
- One may use the  button to limit the results in the list by:
  - Object type
  - Labels
  - Or use the  button for additional filters based upon any other property of the objects in the list.
- One may enter text and use the  control to limit the list to those items with names or descriptions that contain the text.
- One may select multiple items in the list with shift-click and/or ctrl-click. Then, the number of items selected appears as well as the  icon. Clicking on the  icon then allows one to set any of the properties that exist across all of the selected list items.
- One may switch between the List View and the Grid View. In the Grid View, one may edit in place any property associated with any of the rows (or list items in the list view).
- One may use the Custom Attribute  control in the properties area to assign custom attributes to the selected item. Note, one must first Define a Custom Attribute and associate it with objects in a physical data model before the  control will appear.
- *|variable=AddCandidateTablesAndColumns*
- One may add subject areas and diagrams. Subject areas may contain diagrams and further subject areas:
  - Navigate to a physical data model or subject area and click on the  icon of the Subject Areas panel to add a new subject area.
  - Navigate to a physical data model or subject area and click on the  icon of the Diagrams panel to add a new subject area.
- One may view and edit the diagram(s) of a physical data model by:
  - Select an element in the physical data model and select Show in Diagram () to view and edit the diagram of a physical data model.
  - Click on a diagram in the physical data model to view and edit the diagram of a physical data model.

Business Glossary term reuse and creation

When linked to the documentable model, Business Glossary terms may be reused as part of the documentation process. When editing the name of a table or column in the Metadata Explorer UI, one may:

- Click on the Link to Term () icon to connect to and search for a terms in the linked business glossary:
  - Once a term is selected its Name and Definition will be copied as the (logical) Name and Description for that table or column in the documentable model.
  - Instead of selecting a term, one can click on the  button and then a new term will be created in that category of the business glossary using the

(logical) Name and Definition entered for that table or column in the documentable model.

- Click on the Create Category button to create a new category where you may then create a term.

Edit the diagram of a Physical Data Model

Visualize the a given diagram for a Physical Data Model in order to add and document relationships to better understand interrelated objects and organize and annotate objects graphically.

One may bring up the diagram(s) of a physical data model by:

- Select an element in the physical data model and select Show in Diagram () to view and edit the diagram of a physical data model.
- Click on a diagram in the physical data model to view and edit the diagram of a physical data model.

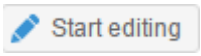
From here you may:

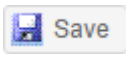
- All actions that are available for a harvestable model are also available here with a Physical Data Model.
- Click on an metadata element and view its properties in the Properties Panel. You may need to show ()the Properties Panel (far right hand side of the page).
- Make use the of the standard graphical navigation toolbar.
- Open the selected object () icon to display the metadata details page for the selected metadata element.
- Trace lineage () to/from the selected metadata element
- Show only related entities () related to the selected table
- Click on the Undo () to undo the last action.
- Click on the Redo () to redo the last action.
- Click on the New Shape () icon to create and edit annotations in many shapes for a diagram.
- Click on the Remove () icon to remove an object from the diagram.
- Click on the Layout () icon to automatically layout the diagram.
- Use the Diagram Properties () pick list to specify Model display options, including:
  - General
    - Notation (e.g. IDEF vs. IE)
    - Diagram Background color
    - Default Entity display type
    - Show lines on top.
  - Display format with formats for Entity, Shape and Label, including:
    - Background color
    - Border color
    - Border size
    - Font

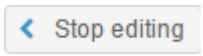
        - Opacity
    - Default Entity Display Options
- Use the Entities Display () pick list to specify Model display options, including:
    - Display Level
    - Column Properties
    - Reset entities size
- Use the  control for the selected metadata element (or the entire diagram if nothing is selected), including Show and Hide:
    - Labels for labels on relationship lines
    - Relationship Names for names on relationship lines
    - Cardinalities for cardinality notations on relationship lines
    - Role Names for role name notations on relationship lines
    - Layout Labels to arrange relationship labels
- Click on the New Relationship () icon to create relationships by dragging from one table to another.
- For any selected object in the diagram, right-click for the context menu or click on the  icon in the header to:
    - Open – Open the selected object details page
    - Show in Diagram – Move to the selected object location in the diagram and highlight the object
    - Trace Lineage – Trace lineage from the selected Object in the context of the current configuration
    - Show only related entities – related to the selected table
    - Quick Color – Quick color pallet dialog for the selected object
    - Reset Size – Reset the size of the selected object to the last saved state
    - Auto Size – Auto size the select object
    - Display Level… – Specify the display level for the selected object, including:
        1. Entity
        2. Description
        3. Primary Key
        4. Keys
        5. Attributes
        6. Physical Order
        7. Inherit – Inherit level from diagram settings.
    - Layout – Auto layout the selected object(s)
    - Start Relationship – To start a relationship line from the selected object
    - Properties – Edit properties for the selected object
    - Remove – Remove the selected object from the diagram only
- Actions which apply to the overall model (right-hand side of the model header):
    - Use the 

text box metadata elements in the displayed diagram using a text string.
    - Print () the diagram
    - Analyze relationships in the diagram of a physical data model

1. You may select a relationship in that diagram and perform the following analysis:
   - The associated primary keys and foreign keys are highlighted in the associated tables in the diagram. If there are more than one PK/FK pair, each will be highlighted in a different color.
   - In the Properties Panel you may copy and paste the Related Columns to be used to define the equivalent join directly in a reporting .

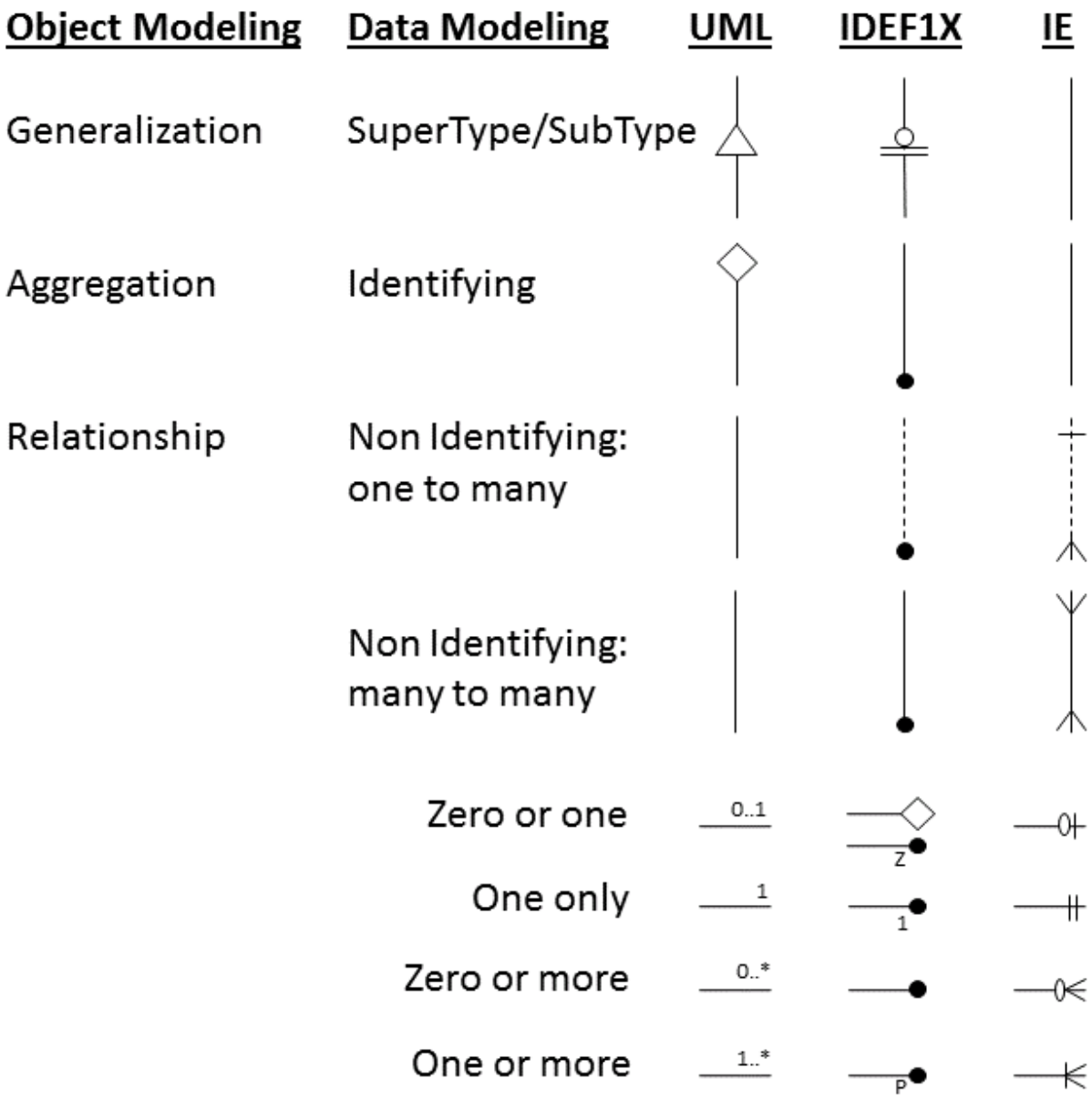
- Click on the 

button to open the diagram for editing. When finished or at any time in editing the diagram:
  - One may either click on the 

button to save any changes
  - One may click on the 

button and you will be prompted to save or not
  - One may simply close the browser, refresh the browser or close the browser tab) to close without saving.

RELATIONSHIP NOTATIONS



Naming standard for a Physical Data Model.

Abbreviation/Naming standard can help one to derive business names from physical ones in a consistent manner. For example, a physical name empl_first_name can be interpreted as a business name Employee First Name by tokenizing the physical name over the "_" separator, assuming "empl" is an abbreviation of "employee" and capitalizing the first letters of each word. This process is *automated* by Oracle Metadata Management (OMM) based upon any defined *naming standard*.

A naming standard is a list of abbreviations and words they represent, defined as terms in a glossary. Oracle Metadata Management (OMM) allows one to define a naming standard once and reuse it for documenting different models and their new versions.

Oracle Metadata Management (OMM) can generate an initial naming standard from a physical model. It is a list of all unique abbreviation tokens produced from table and column physical names. The application tokenizes names by separating characters (e.g. "_") and capitalized letters (e.g. EmployeeName). The application cleanses the list from obvious noise (e.g. numbers).

To associate a glossary with a Physical Data Model for naming standard purposes, you may do so at model creation time or when editing the Settings of the model.

Naming standard supervised learning

When supervised learning is specified in the Naming Standards tab for the documentable model, every time you edit the (logical) Name property for columns and tables, the associated naming standard business glossary category terms will be updated to reflect the new naming. E.g., if and column has the Physical Name ACT, and then one edits the (logical) Name to be Action, a term Action will be created with and Abbreviation ACT.

One may apply the naming standard on demand as needed.

Apply a naming standard

To do so, when editing a physical data model use the Apply naming standard ( ) icon.

Document BI Reports

When the business glossary is mapped to a business intelligence model (including reports), one may define new semantic (definition) maps from elements in the reports to terms in the business glossary directly in the Metadata Explorer UI. Of course, one must have permission to do so (contact the Oracle Metadata Management (OMM) Administrator to obtain these permissions).

1. Navigate to a report or metadata element within a report by either
   - Browse a list of metadata
   - Browse a metadata tree
   - Search
2. You are presented with the metadata details page for this report or metadata element
3. To add a link to a term in the glossary click on the Link to Term ( ) action icon in the Glossary panel header.
4. From here you may
   - Search for terms and use the More pull down next to the search to select More search options
   - Expand the glossary category structure until you find a term
   - Click on the breadcrumb list to return to a category
   - Create a new category in the glossary

- Create a new term in the current category in the glossary. This will create a terms based upon the name and description of the current report or metadata element you have opened. You may also specify you own name and definition.

The term will then be linked to the open report or metadata element.