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# PeopleTools 8.59: Data Distribution Framework

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**April 2021**

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# Preface

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## Understanding the PeopleSoft Online Help and PeopleBooks

The PeopleSoft Online Help is a website that enables you to view all help content for PeopleSoft applications and PeopleTools. The help provides standard navigation and full-text searching, as well as context-sensitive online help for PeopleSoft users.

### Hosted PeopleSoft Online Help

You can access the hosted PeopleSoft Online Help on the [Oracle Help Center](#). The hosted PeopleSoft Online Help is updated on a regular schedule, ensuring that you have access to the most current documentation. This reduces the need to view separate documentation posts for application maintenance on My Oracle Support. The hosted PeopleSoft Online Help is available in English only.

To configure the context-sensitive help for your PeopleSoft applications to use the Oracle Help Center, see [Configuring Context-Sensitive Help Using the Hosted Online Help Website](#).

### Locally Installed Help

If you're setting up an on-premise PeopleSoft environment, and your organization has firewall restrictions that prevent you from using the hosted PeopleSoft Online Help, you can install the online help locally. See [Configuring Context-Sensitive Help Using a Locally Installed Online Help Website](#).

### Downloadable PeopleBook PDF Files

You can access downloadable PDF versions of the help content in the traditional PeopleBook format on the [Oracle Help Center](#). The content in the PeopleBook PDFs is the same as the content in the PeopleSoft Online Help, but it has a different structure and it does not include the interactive navigation features that are available in the online help.

### Common Help Documentation

Common help documentation contains information that applies to multiple applications. The two main types of common help are:

- Application Fundamentals
- Using PeopleSoft Applications

Most product families provide a set of application fundamentals help topics that discuss essential information about the setup and design of your system. This information applies to many or all applications in the PeopleSoft product family. Whether you are implementing a single application, some combination of applications within the product family, or the entire product family, you should be familiar with the contents of the appropriate application fundamentals help. They provide the starting points for fundamental implementation tasks.

In addition, the *PeopleTools: Applications User's Guide* introduces you to the various elements of the PeopleSoft Pure Internet Architecture. It also explains how to use the navigational hierarchy, components, and pages to perform basic functions as you navigate through the system. While your application or implementation may differ, the topics in this user's guide provide general information about using PeopleSoft applications.

## Field and Control Definitions

PeopleSoft documentation includes definitions for most fields and controls that appear on application pages. These definitions describe how to use a field or control, where populated values come from, the effects of selecting certain values, and so on. If a field or control is not defined, then it either requires no additional explanation or is documented in a common elements section earlier in the documentation. For example, the Date field rarely requires additional explanation and may not be defined in the documentation for some pages.

## Typographical Conventions

The following table describes the typographical conventions that are used in the online help.

<b><i>Typographical Convention</i></b>	<b><i>Description</i></b>
Key+Key	Indicates a key combination action. For example, a plus sign (+) between keys means that you must hold down the first key while you press the second key. For Alt+W, hold down the Alt key while you press the W key.
. . . (ellipses)	Indicate that the preceding item or series can be repeated any number of times in PeopleCode syntax.
{ } (curly braces)	Indicate a choice between two options in PeopleCode syntax. Options are separated by a pipe ( ).
[ ] (square brackets)	Indicate optional items in PeopleCode syntax.
& (ampersand)	When placed before a parameter in PeopleCode syntax, an ampersand indicates that the parameter is an already instantiated object.  Ampersands also precede all PeopleCode variables.
⇒	This continuation character has been inserted at the end of a line of code that has been wrapped at the page margin. The code should be viewed or entered as a single, continuous line of code without the continuation character.

## ISO Country and Currency Codes

PeopleSoft Online Help topics use International Organization for Standardization (ISO) country and currency codes to identify country-specific information and monetary amounts.

ISO country codes may appear as country identifiers, and ISO currency codes may appear as currency identifiers in your PeopleSoft documentation. Reference to an ISO country code in your documentation

does not imply that your application includes every ISO country code. The following example is a country-specific heading: "(FRA) Hiring an Employee."

The PeopleSoft Currency Code table (CURRENCY\_CD\_TBL) contains sample currency code data. The Currency Code table is based on ISO Standard 4217, "Codes for the representation of currencies," and also relies on ISO country codes in the Country table (COUNTRY\_TBL). The navigation to the pages where you maintain currency code and country information depends on which PeopleSoft applications you are using. To access the pages for maintaining the Currency Code and Country tables, consult the online help for your applications for more information.

## Region and Industry Identifiers

Information that applies only to a specific region or industry is preceded by a standard identifier in parentheses. This identifier typically appears at the beginning of a section heading, but it may also appear at the beginning of a note or other text.

Example of a region-specific heading: "(Latin America) Setting Up Depreciation"

### Region Identifiers

Regions are identified by the region name. The following region identifiers may appear in the PeopleSoft Online Help:

- Asia Pacific
- Europe
- Latin America
- North America

### Industry Identifiers

Industries are identified by the industry name or by an abbreviation for that industry. The following industry identifiers may appear in the PeopleSoft Online Help:

- USF (U.S. Federal)
- E&G (Education and Government)

## Translations and Embedded Help

PeopleSoft 9.2 software applications include translated embedded help. With the 9.2 release, PeopleSoft aligns with the other Oracle applications by focusing our translation efforts on embedded help. We are not planning to translate our traditional online help and PeopleBooks documentation. Instead we offer very direct translated help at crucial spots within our application through our embedded help widgets. Additionally, we have a one-to-one mapping of application and help translations, meaning that the software and embedded help translation footprint is identical—something we were never able to accomplish in the past.

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## Using and Managing the PeopleSoft Online Help

Select About This Help in the left navigation panel on any page in the PeopleSoft Online Help to see information on the following topics:

- Using the PeopleSoft Online Help
- Managing Hosted online help
- Managing locally installed PeopleSoft Online Help

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## PeopleTools Related Links

[PeopleTools 8.59 Home Page](#)

[PeopleTools Elasticsearch Home Page](#)

"PeopleTools Product/Feature PeopleBook Index" (PeopleTools 8.59: Getting Started with PeopleTools)

[PeopleSoft Hosted Online Help](#)

[PeopleSoft Information Portal](#)

[PeopleSoft Spotlight Series](#)

[PeopleSoft Training and Certification | Oracle University](#)

[My Oracle Support](#)

[Oracle Help Center](#)

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## Contact Us

Send your suggestions to [psft-infodev\\_us@oracle.com](mailto:psft-infodev_us@oracle.com). Please include the applications update image or PeopleTools release that you're using.

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# Getting Started with Data Distribution Framework

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## Data Distribution Framework Overview

PeopleTools Data Distribution Framework provides a mechanism to extract and flatten PeopleSoft data. This data can be used for the purpose of machine learning. The data is hosted on Elasticsearch. The machine learning server pulls the data from Elasticsearch for training the machine learning model.

PeopleTools Data Distribution Framework is built using the technology from PeopleSoft Search Framework, such as mappings used to create Elasticsearch index definitions, search instance for defining Elasticsearch server, and DirectTransfer technology used to index data from PeopleSoft to Elasticsearch. The data is made available in Elasticsearch in JSON format.

The Elasticsearch indices built for search can be re-used for machine learning or other activities. The data available from this framework can be used by Oracle Cloud Infrastructure (OCI) Data Science service to create models that are used for prediction. The OCI Data Science platform is an Oracle Cloud Infrastructure service. You can use an on-premise PeopleSoft instance or a PeopleSoft instance on OCI.

For more information on OCI Data Science service, see the Data Science documentation on the Oracle Cloud Infrastructure Documentation website.

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## Data Distribution Framework Architecture

The application consists of the following:

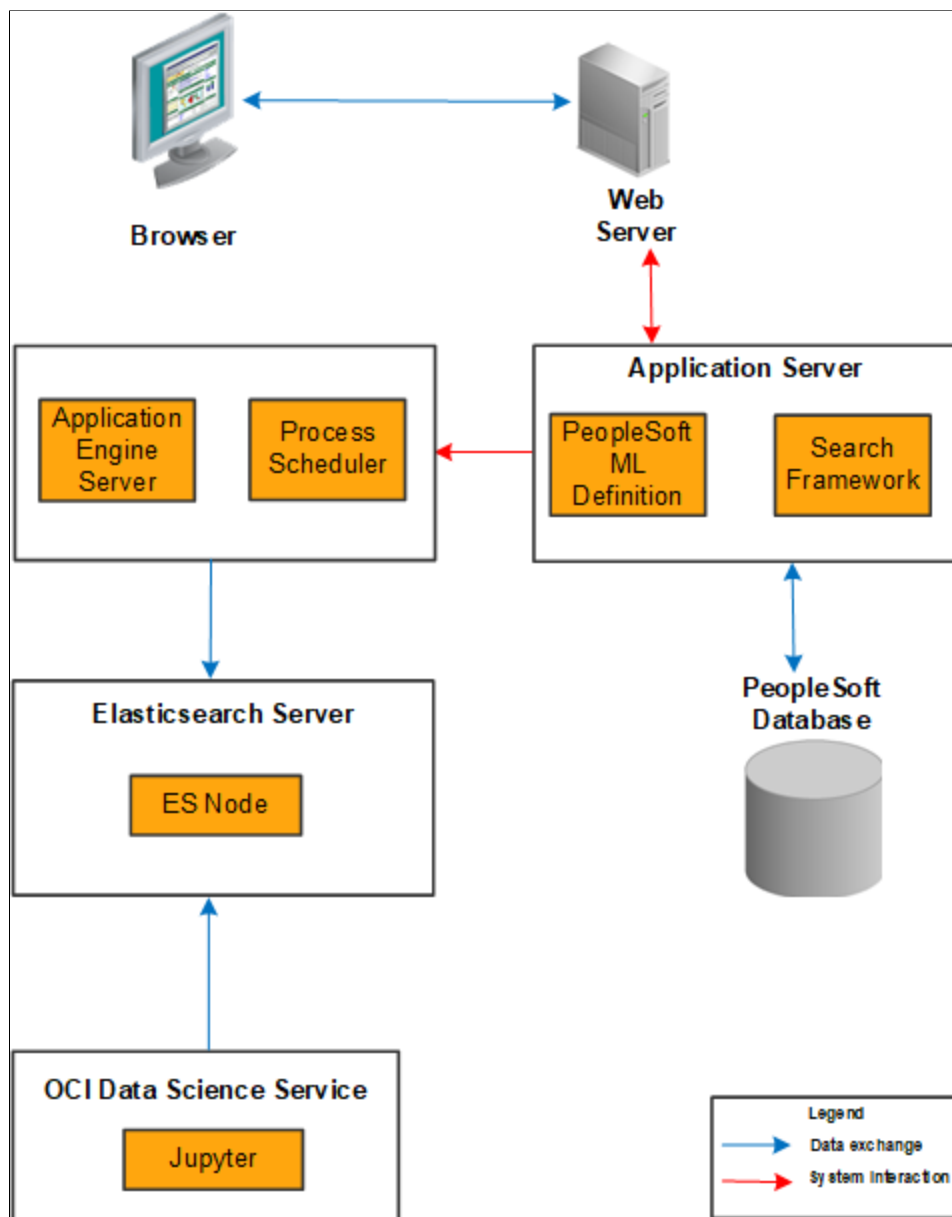
- **Data Source Definition** - This is the data layer, which uses existing PeopleSoft data sources and contains the definitions required to send data to Elasticsearch from PeopleSoft.
- **Search Instance** - Data is sent to this search instance. Search instance is defined in PeopleSoft Search Framework.
- **Machine Learning Server configuration** - This is the server, which uses the data in Data Distribution framework and creates models.

Elasticsearch stores the deployed search definitions, builds indexes, and maintains indexes. The OCI Data Science platform pulls the data from Elasticsearch indexes and trains and builds a model.

The server topology includes the essential elements of a PeopleSoft system, and includes an Elasticsearch server and an OCI Data Science service. The following diagram describes the architecture that includes PeopleSoft system elements, Elasticsearch server, and the OCI Data Science service and the interaction of these elements.

**Image: Data Distribution Framework Architecture**

The following diagram describes the interaction of the PeopleSoft system elements, Elasticsearch server, and the OCI Data Science service.



The web server and application server (the PeopleSoft Internet Architecture) provide the interface for the design, administration, and end user access. The PeopleSoft database stores the PeopleSoft queries that define the search definition metadata.

# Configuring Data Distribution Framework

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## Understanding Data Distribution Framework

PeopleTools provides the data distribution framework for PeopleSoft applications and users to build index and register a model. In PeopleSoft, a search definition is the primary data definition, which mines data using PSQuery or connected query as a data source. Elasticsearch then builds an index and maintains indexes. PeopleSoft enables you to register a model created in OCI Data Science service.

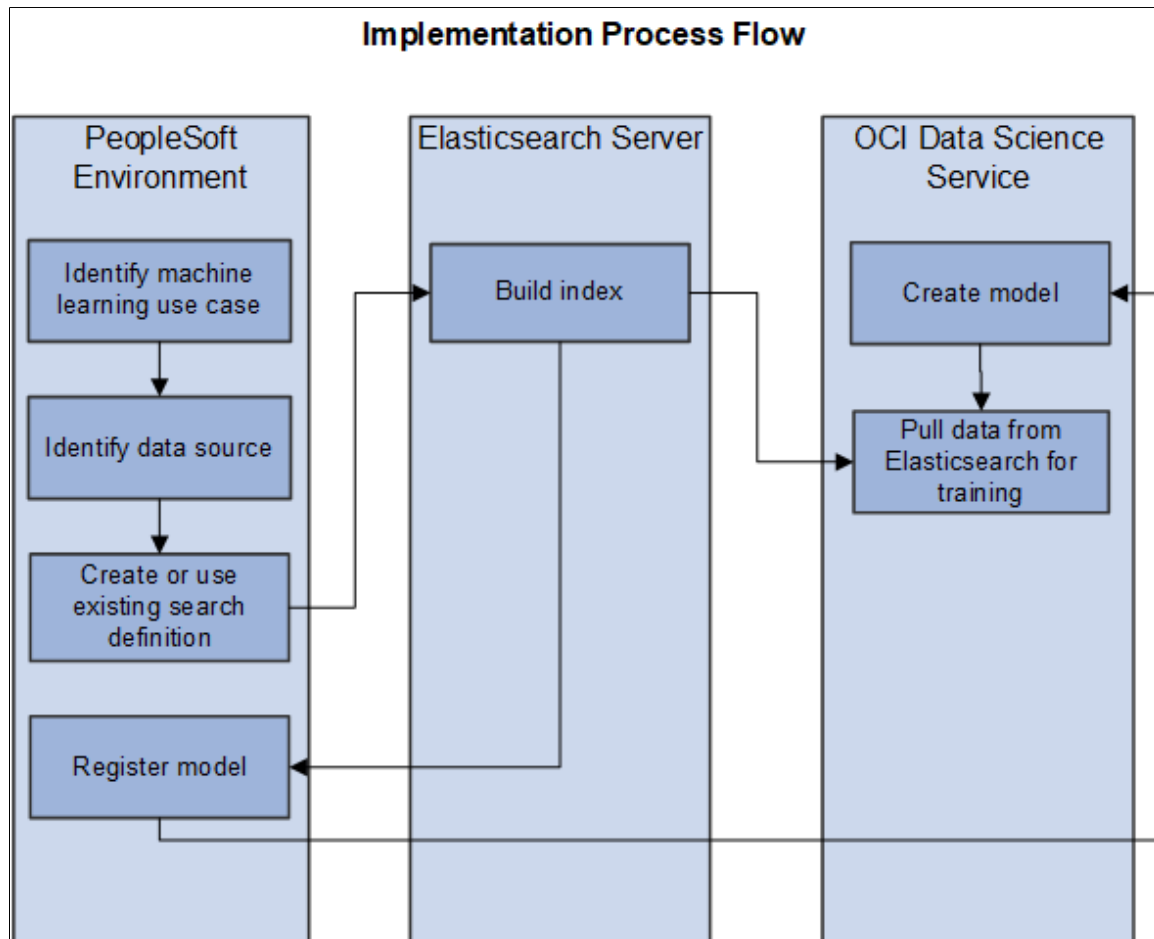
The process flow involves the following steps:

1. PeopleSoft sends data to Elasticsearch using DirectTransfer.
2. OCI Data Science service pulls data from Elasticsearch.
3. The data is used to train the machine learning model in the Jupyter notebook on the OCI Data Science service.
4. When the model is created, it can be saved in the OCI object storage.
5. The saved model can be deployed as a REST service using OCI Functions and OCI API Gateway.
6. PeopleSoft registers the REST endpoint.

The following diagram illustrates the process flow among PeopleSoft, Elasticsearch, and OCI Data Science service.

**Image: Implementation Process Flow**

The diagram illustrates the process flow among PeopleSoft, Elasticsearch, and OCI Data Science service.



This documentation covers the tasks that are performed in PeopleSoft. For tasks that should be performed on the OCI Data Science service, such as creating a model, deploying model as REST service and so on, refer to the OCI Data Science documentation on Oracle Cloud Infrastructure Documentation website.

PeopleSoft provides a navigation collection – Data Distribution Setup – that enables you to perform the following tasks:

- Set up data source.
- Specify OCI Data Science server.
- Build an index in Elasticsearch.
- Register a model.

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## Setting Up Data Source

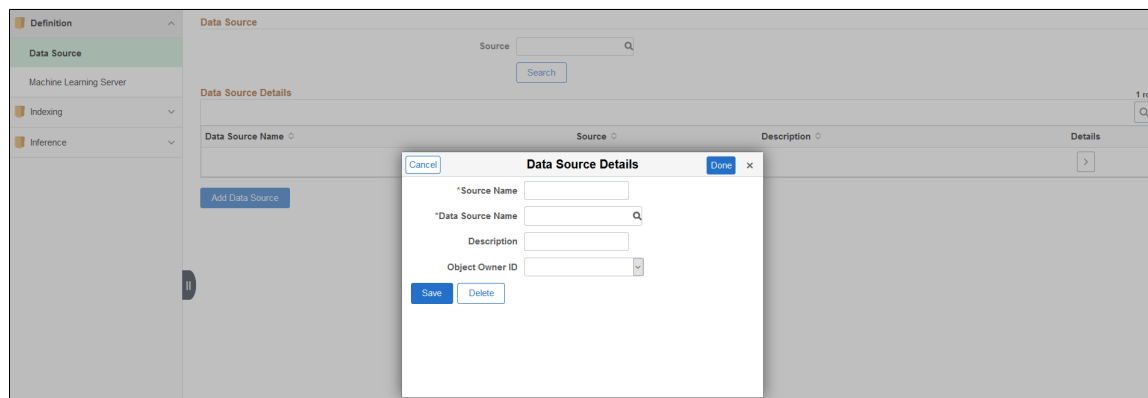
Before you can set up the data source, you should identify the data that you require for analytics. For this purpose, you create a search definition in PeopleSoft Search Framework.

For information on creating a search definition, see "Creating Search Definitions" (PeopleTools 8.59: Search Technology).

Access the Data Source Definition page by navigating to PeopleTools >Data Distribution Framework >Data Distribution Setup and select Data Source (under the Definition folder in the left panel). Alternatively, you can navigate to PeopleTools >Data Distribution Framework >Define Data Sources.

### Image: Data Source Definition page

This example illustrates the fields and controls on the Data Source Definition page. You can find definitions for the fields and controls later on this page.



The Data Source Definition page displays a list of data sources that you have set up. Use the Source drop-down list to identify the data source that you require.

To add a new data source, select the Add Data Source button. Use the Data Source Details page to enter details of a new data source.

<b>Source Name</b>	Enter a name for the data source.
<b>Data Source Name</b>	Select a search definition. The drop-down list displays all the search definitions created in Search Framework.
<b>Description</b>	Enter a description for the data source.
<b>Object Owner ID</b>	Select an object owner ID.

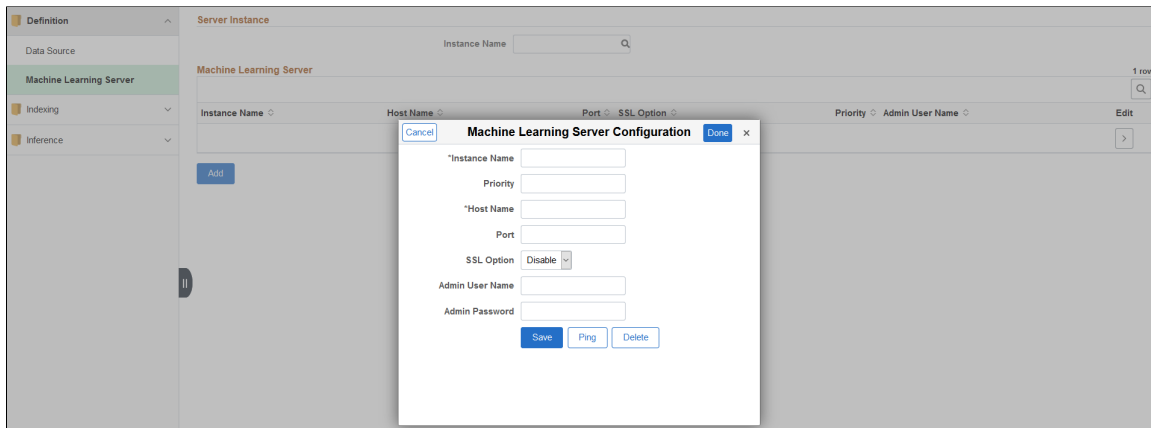
## Specifying OCI Data Science Server

You use the Server Definition page to register the OCI Data Science servers.

Access the Server Definition page by navigating to PeopleTools >Data Distribution Framework >Data Distribution Setup, and select Machine Learning Server (under the Definition folder in the left panel). Alternatively, you can navigate to PeopleTools >Data Distribution Framework >Machine Learning Server.

## Image: Server Definition page

This example illustrates the fields and controls on the Server Definition page. You can find definitions for the fields and controls later on this page.



The Server Definition page displays a list of servers that you have set up. Use the Instance Name drop-down to identify the server that you require. You may set up as many servers as you require.

To add a new instance of a server, select the Add button. Use the Machine Learning Server Configuration page to specify the details of the new server.

### Instance Name

Enter a name for the server.

### Priority

Enables administrators to set the sequence in which the available servers are to be used. The lowest number is 1 and it has the highest priority.

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**Note:** The search instance with the priority set at the lowest number has the highest priority, and it will be set as the default server instance.

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### Host Name

Enter the server name of the host where the OCI Data Science platform server is running, including the domain. The host name value can be a DNS name or an IP address.

### Port

Enter the port on which the server listens for requests.

### SSL Option

Select one of the options for SSL.

If the REST URL created for the machine learning model is SSL enabled, then this option should be enabled.

### Admin User Name

Enter the user name to connect to the server.

### Admin Password

Enter the password associated with the user name.

### Ping

Select to make sure your host name and port are correct and that the server is available. A positive result displays a success message.



## Building an Index

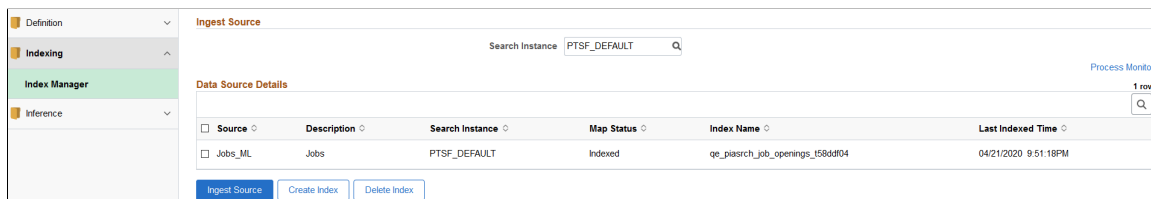
After you have defined a data source, you should create an index in Elasticsearch. The OCI Data Science service pulls data from the Elasticsearch index to build and train the machine learning model.

You use the Index Manager page to create an index for a data source and to update an index.

Access the Index Manager page by navigating to PeopleTools >Data Distribution Framework >Data Distribution Setup, and select Manage Data Source Indexes (from the Indexing folder in the left panel). Alternatively, you can navigate to PeopleTools >Data Distribution Framework >Manage Data Source Indexes.

### Image: Index Manager page

This example illustrates the fields and controls on the Index Manager page. You can find definitions for the fields and controls later on this page.



The screenshot shows the 'Index Manager' page in the PeopleTools interface. On the left is a navigation menu with 'Definition', 'Indexing', 'Index Manager' (highlighted), and 'Inference'. The main area is titled 'Ingest Source' and includes a 'Search Instance' dropdown set to 'PTSF\_DEFAULT'. Below this is a 'Data Source Details' section with a table. The table has columns: Source, Description, Search Instance, Map Status, Index Name, and Last Indexed Time. One row is visible for 'Jobs\_ML' with status 'Indexed'. At the bottom are buttons for 'Ingest Source', 'Create Index', and 'Delete Index'.

Source	Description	Search Instance	Map Status	Index Name	Last Indexed Time
Jobs_ML	Jobs	PTSF_DEFAULT	Indexed	qe_pisarch_job_openings_158ddf04	04/21/2020 9:51:18PM

The Index Manager page displays a list of data sources.

### Search Instance

A search definition in Search Framework is associated with a search instance. The Data Source Details section displays the data sources associated with the selected search instance.

### Map Status

The statuses are:

- Mapped – this is the initial status of a data source.
- Indexed – the status changes to Indexed when you successfully index the data source.

### Index Name

The system appends an index with the database to differentiate it from indexes with the same name in other databases.

### Create Index

Creates an empty index.

### Ingest Source

Initiates the PTML\_GENFEED Application Engine program to build an index.

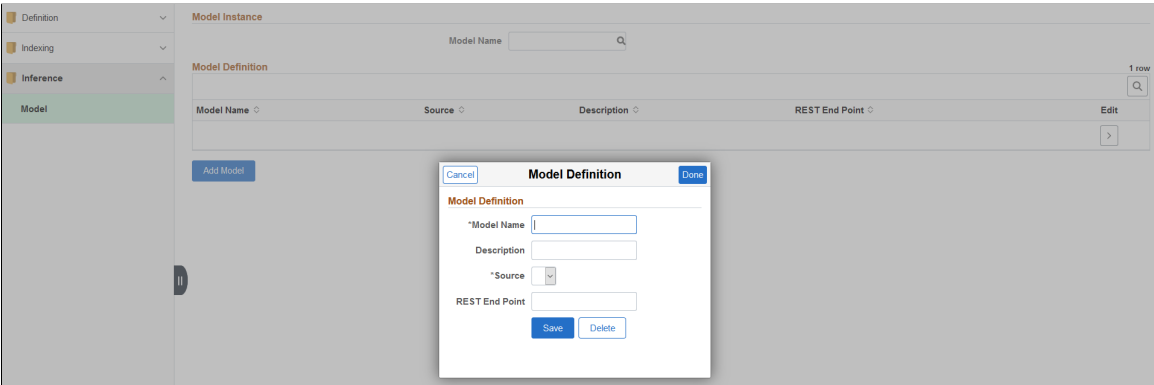
## Registering a Model

The machine learning model can be deployed as a REST endpoint after it has been trained and built. Use the Model page to register the REST endpoint. PeopleSoft applications and users use the REST endpoint using the delivered IB\_Generic service in Integration Broker.

Access the Model Definition page by navigating to PeopleTools > Data Distribution Framework >Data Distribution Setup, and select Model (under the Inference folder in the left panel). Alternatively, you can navigate to PeopleTools >Data Distribution Framework >Machine Learning Models.

**Image: Model Definition page**

This example illustrates the fields and controls on the Model Definition page. You can find definitions for the fields and controls later on this page.



The Model Definition page displays a list of existing model definitions. The Model Name drop-down enables you to identify the model that you require.

To add a new model, select the Add Model button. Use the Model Definition page to specify details of a new model.

- Model Name

Enter a name for the model.
- Description

Enter a description.
- Source

Select a data source from the list. The data sources are listed here.
- REST End Point

Enter a value to indicate the model.

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**Note:** The system appends the value entered here to the server host to create a fully qualified REST endpoint.

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