Oracle

Textura Payment Management Analytics User Guide

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Primary Author: Oracle Corporation

Contents

About Textura Payment Management Analytics

Textura Payment Management Analytics provides a method for analyzing and evaluating an organization's draw budgets, invoices, payments, Subcontractor status, and draw performance on the Oracle Textura Payment Management (TPM) system.

Built upon the Oracle Business Intelligence (OBI) suite, TPM Analytics provides an interactive way of viewing and analyzing TPM data.

The dashboards provide detailed insight through analytical charts, tables, maps, and graphics. Dashboards enable users to navigate between analyses to provide a precise, root-cause analysis.

Use TPM Analytics to:

- Quickly visualize important project performance
- Gather critical insights into current and historical performance of all projects and Subcontractors
- Drill down from aggregated metrics to examine the root-cause of a problem
- Make better decisions to eliminate project delays.

As a General Contractor, see the ***Introduction to Textura Payment Management Analytics Video*** (see Introduction to Textura Payment Management Analytics Video - ***https://players.brightcove.net/2985902027001/SyXjZnYeeb_default/index.html?videoId=5823407800001***) for an introductory overview of this add-on.

As an Owner, see the ***Textura Analytics Video https://players.brightcove.net/2985902027001/default_default/index.html?videoId=6196931758001*** for an introductory overview of Owner dashboards.

Analytics for General Contractors

Read about how to use TPM Analytics as a General Contractor.

Prerequisites to Use Textura Payment Management Analytics

The following prerequisites need to be met before a user can use Textura Payment Management Analytics:

- Must be a TPM user
- Must have OBI enabled on the organization profile in TPM.

> **Note**: This feature must be added by a Textura Administrator. Contact your Textura implementation team if you think you need to use this feature.

- Must have the **View Textura Analytics** user permission on the user profile in TPM.

> **Note:** Users with the **View Textura Analytics** permission will only see data for projects on which they have a role. Assign the **View All Organization Projects** permission to see data across all organization projects. Once assigned the **View Textura Analytics** permission, a user can access Textura Analytics.
>
> After receiving the **View Textura Analytics** role, the application will grant the user access in ten minutes.

Dashboards

Dashboards present various types of information quickly and easily. Each dashboard displays various components of the OBI suite.

Textura Payment Management Analytics includes six dashboards.

Navigate to Dashboards

1) Navigate to Oracle Textura Payment Management.
2) Enter a TPM **Username** and **Password**. Select **Textura Analytics** under the **Tools** menu. The OBI **Home** page opens in a new tab.

> **Note:** Only users with the **View Textura Analytics** permission will see **Textura Analytics** under the **Tools** menu.

3) From the **Home** screen, select **Dashboards**. Choose a dashboard from the list.

Dashboard Layout

Each TPM dashboard has four main areas.

- **Filters** appear in a panel on the left of the page. Use **Filters** to exclude data that is less interesting, and instead focus on key data.
- **Key Metrics** are represented by tiles spanning across the top of the page. These tiles change based on a user's filter selections. Use **Key Metrics** to get a summary of the dashboard.
- **Details** display under the **Key Metrics** and break down the metrics in a table. Use this area to see different details of the data behind the metrics.
- **Snapshots** appear in large panes across the bottom of the screen. Snapshots present metrics and details visually in graphs and charts.

Filters

- **Contract**—View data for specific contracts
- **Currency**—View projects with a specific currency set
- **Disbursement Date**—See data for invoices disbursed in a selected date range
- **Draw #**—View data for selected draws

- **Draw Period to Date**—Select a date and see data on invoices with draws that end on that date or earlier
- **Funding Organization**—Select an organization to see data for the projects it funds
- **Hold Status**—Provides the ability to filter down to holds that are currently in place (On Hold) and those that have been released
- **Hold Type**—Select the type of hold to view
- **Payment Status**—View data on invoices with the selected status:
  - **Unpaid**—All invoices not disbursed
  - **Paid**—All disbursed invoices
- **Payment Due Date**—View invoices within a specific payment due date range
- **Payment Type**—See data for selected payment methods:
  - **TPM Electronic Payment (ACH)**
  - **TPA**
  - **Manual**
- **Project Name**—View data associated with selected projects
- **Project Owner**—Select an organization to view data on projects on which it is listed as Owner
- **Project Status**—Show data associated with active projects, inactive projects, or both
- **Projects with Draws Since**—Select a date to see data on projects that have draws opened since

> **Note**: A user can filter on **Project with Draws Since** to exclude projects without recent activity.

- **Segment ID**—Show data for projects assigned to a specific **Segment ID**
- **Subcontractor**—Show data associated with selected Subcontractors

Key Metrics

- **# of Resubmissions**–Number of times an invoice was submitted to the General Contractor for review
- **Draw Milestones** (Average Days)
  - Days to Approve–Aggregate number of days an invoice is in the General Contractor's possession for approval
  - Days to Authorize–Aggregate number of days between the Draw End Date and the Date Authorized
  - Days on Hold–Actual number of days an invoice is on hold (excluding overlapping days)
  - Days Past Due–Aggregate number of days between the overdue payment and the actual Disbursement Date
  - Days to Pay–Aggregate number of days between the Draw End Date and the actual Disbursement Date
  - Days to Submit–Aggregate number of days an invoice is in the Subcontractor's possession
- **TPA Funded**—Aggregate net invoice value of Textura Payment Accelerator disbursements, including funded and paid invoices

- **TPA Pending Maturity**—Net payment of Textura Payment Accelerator funded invoices
- **Manual**—Aggregate payment amount for electronic payments
- **Net Approved Invoices**—Aggregate net value of all invoices that have been approved to date, including disbursed invoices
- **On Hold**—Aggregate value of net invoices with an On Hold payment status
- **Paid**—Aggregate payment amount of paid invoices
- **Pending Approval**—Aggregate value of net invoices submitted but not yet approved
- **Pending Authorization**—Aggregate value of net invoices with a **Pending Authorization** invoice status
- **Pending Disbursement**—Aggregate value of disbursable invoices, invoices that have been approved or authorized and do not have a status of **On Hold**
- **Retention**—Aggregate value of retention balance
- **TPM Electronic Payment**—Aggregate payment amount for electronic payments
- **Subcontract Value**—Current aggregate value of prime subcontracts

Snapshots

- **Amount Billed by Month of Draw Period to Date**—Displays the net invoice amount billed and paid by draw period month for the last 12 months
- **Average Days to Approve**—Displays the average number of days it takes for Approvers to approve a submitted invoice
- **Average Days to Pay**—Displays the average number of days it takes for the Disburser to disburse project funds for approved and (when applicable) invoices
- **Contract Value Added**—Compares the aggregate contract value that is added each month with the gross invoice amount that is approved over the last 12 months
- **Current Organization Level Payment Holds**—Shows the value of all payments currently withheld on an Organization Level Payment Hold
- **TPA Funded**—Shows Textura Payment Accelerator (TPA) payments that have been paid and funded over the last 12 months
- **Holds by Type**—Shows the type of hold applied to an invoice.
- **Holds Created vs. Holds released**—Compares the number of holds placed on invoices to the amount of holds released.
- **Invoice Aging**—Shows all outstanding invoices and places them into groups based on days outstanding

> **Note**: In the **Invoice Aging** snapshot, the **Period to Date** of an invoice defines in which month the invoice approval or payment data should display.

- **Invoice Status**—Shows a breakout of unpaid invoice amounts by status:
  - Pending Approval
  - On Hold
  - Pending Authorization
  - Pending Disbursement
- **# of Resubmissions**—Displays the average number of invoice resubmissions

- **Payments by Funding Organization**—Displays all disbursements made by the funding organizations, broken down by payment type
  - TPM Electronic Payments (ACH)
  - TPA
  - Manual

> **Note**: Manual payments include checks, split payments, etc.

- **Payments by Month**—Shows all monthly payments over the last 12 months
- **Project Value by Year**—Lists project values by year
- **Top Contracts**—Shows the largest contracts for the selected organization based on the total contract value
- **Top Subcontractors by Total Contract Value**—Displays the largest Subcontractors the organization is working with, based on total contract value
- **Top Segments by Total Contract Value**—Shows the largest segments based on total contract value

Creating and Managing Filters

Textura Analytics provides the ability to save your predefined filters. You can save multiple filters and use them any time. The saved filters are availably only for your user login. You can also set a saved filter as your default.

Creating a Filter and Setting a Default

1) Select the filter options that you would like to save.
2) After setting your filter options, select the **Gear**  icon and select **Save Current Customization**.
3) Enter a name for your custom filter set.
4) Select the **Make this my default for this page** checkbox to use this filter for subsequent logins.
5) Select **OK** to save your filter.

   This filter set will now be your default the next time you view the dashboard.

Tips:

- To apply saved filters: From the **Gear**  icon, select **Apply Saved Customization**. You can view a list of all saved filters for the specified dashboard. Select a saved filter to jump to the desired view.
- To clear filters: Select **Clear My Customization** from the **Gear**  icon.

Editing Saved Filters

1) Select **Edit Saved Customization** from the **Gear**  icon to change the following:
   - Name of previously created filters.
   - Set the default filter by moving the **My Default** radio button.

- A saved filter can be deleted by selecting the record and clicking the **X** icon.

2) Click **OK** to save

Portfolio Overview

The **Portfolio** dashboard provides an enterprise summary of current on-system budget, invoices, and payment data on Textura Payment Management across all vendors and projects.

> **Note:** You can also easily access this dashboard from TPM when generating reports.

Defined Filters

- Currency
- Segment ID
- Project Name
- Project Owner
- Funding Organization
- Project With Draws Since
- Project Status

Key Metrics

Current Subcontractor Amounts

- Subcontract Value
- Net Approved Invoices
- Retention
- Paid
- TPA Funded

Pending Subcontractor Amounts

- Pending Approval
- On Hold
- Pending Authorization
- Pending Disbursement
- TPA Pending Maturity

Details

A table includes vendor and project details.

> **Note:** Most Key Performance Indicator (KPI) values include a number. These numbers are a count of the total amount of items included in the data.
>
> **For example:** A Subcontract Value (50) of $1,000,000 includes 50

subcontracts.

Column List

- Project Name
- Project #
- Segment ID
- Project Owner
- Funding Organization
- Original Subcontract Value
- Change Order Value
- Subcontract Value
- Net Approved Invoice
- Retention
- Paid
- Pending Approval
- On Hold
- Pending Authorization
- Balance to Bill
- Balance to Pay
- TPA Funded
- TPA Pending Maturity

Snapshots

- Invoice Aging
- Average Days to Approve
- Average Days to Pay
- Contract Value Added
- Top Subcontractors by Total Contract Value
- Top Segments by Total Contract Value
- TPA Funded
- Amount Billed by Month of Draw Period to Date
- Project Value by Year

Project

The **Project** dashboard provides a view of the current budget, invoice, and payment information for a single project.

Users can filter the dashboard by **Project Name**.

Project Information

Below the filter panel, a **Project Information** section displays the site address for the project.

Contract Detail

Below the **Project Information** section, a **Contract Detail** section displays:

- **First Contract Created On**—The date the first contract was created, formatted as DD-Mmm-YYYY
- **Balance to Bill**—The amount billed by subcontracts
- **Balance to Pay**—The amount owed in payments
- **Last Contract Created On**—The date the last contract was created, formatted as DD-Mmm-YYYY
- **Last Draw Period to Date**—The last draw period to date on the project
- **# of Subcontractors**—Aggregate number of Subcontractors on the project
- **# of Contracts**—Aggregate number of contracts on the project

Key Metrics

Current Subcontractor Amounts

- Subcontract Value
- Net Approved Invoices
- Retention
- Paid
- TPA Funded

Pending Subcontractor Amounts

- Pending Approval
- On Hold
- Pending Authorization
- Pending Disbursement
- TPA Pending Maturity

Details

Column List

- Subcontractor
- Contract #
- Original Contract Value
- Change Order Value
- Subcontract Value
- Net Approved Invoice
- Retention
- Paid
- Pending Approval
- On Hold
- Pending Authorization
- Pending Disbursement
- Balance to Bill
- Balance to Pay
- TPA Funded

- TPA Pending Maturity

The default loads the first available Subcontractor.

Snapshots

- Invoice Aging
- Average Days to Approve
- Average Days to Pay
- Top Subcontractors by Total Contract Value
- Unpaid Amounts
- Amount Billed by Month of Draw Period to Date
- TPA Funded

Subcontractor

The **Subcontractor** dashboard provides a view of the current budget, invoice, and payment information for a single Subcontractor organization.

Defined Filters

- Currency
- Subcontractor
- Segment ID
- Project Owner
- Projects with Draws since
- Project Status

The default loads the first available Subcontractor. Reset returns to the default state.

Subcontractor Information

Below the filter panel, a **Subcontractor Information** section displays the contact and address for the selected Subcontractor.

Key Metrics

Contract Details

- My Contract Value
- My Contract Pending Approval
- My Contract Approved
- My Contract Paid

Current Subcontractor Amounts

- Subcontract Value
- Net Approved Invoices
- Retention
- Paid
- TPA Funded

Pending Subcontractor Amounts

- Pending Approval
- On Hold
- Pending Authorization
- Pending Disbursement
- TPA Pending Maturity

Details

Columns

- Project Name
- Project #
- Segment ID
- Contract #
- Project Owner
- Original Subcontract Value
- Change Order Value
- Subcontract Value
- Net Approved Invoices
- Retention
- Paid
- Pending Approval
- On Hold
- Pending Authorization
- Pending Disbursement
- Balance to Bill
- Balance to Pay
- TPA Funded
- TPA Pending Maturity

The default table loads lines sequentially by **Project #**, then **Contract #** in ascending order.

Snapshots

- Invoice Aging
- Average Days to Approve
- Average Days to Pay
- Unpaid Amounts
- Top Contracts
- Unpaid Amounts
- Amount Billed by Month of Draw Period to Date
- TPA Funded

Invoice

The **Invoice** dashboard shows the current budget, payment, and detailed invoice information for the selected filters.

> **Note:** You can also easily access this dashboard from TPM when generating either the **Disbursable** or **Unapproved Invoice** reports.

Defined Filters

- Currency
- Segment ID
- Project Name
- Subcontractor
- Contract #
- Draw Period to Date Between

  This filter defaults to show invoices from one year (365 days) ago until the current date.
- Payment Due Date
- Status
- Billing Type
- Project Status

The default sort is on **Period to Date** from earliest to current date.

Key Metrics

Current Subcontractor Amounts

- Subcontract Value
- Net Approved Invoices
- Retention
- Paid
- TPA Funded

Pending Subcontractor Amounts

- Pending Approval
- On Hold
- Pending Authorization
- Pending Disbursement
- TPA Pending Maturity
- Paid

Details

Columns

- Project Name
- Project #
- Contract #

- Subcontractor
- Draw Period to Date
- Invoice #
- Status
  - Pending Approval
  - On Hold
  - Pending Authorization
  - Pending Disbursement
  - Paid
- Work Completed this Period
- Materials Stored this Period
- Total Completed and Stored this Period
- Retention Held this Period
- Retention Requested this Period
- Net Invoice

The default sorts alphabetically by **Project Name**, then the **Period to Date**.

Snapshots

- Invoice Aging
- Average Days to Approve
- Average Days to Pay
- Amount Billed by Month of Draw Period to Date
- Unpaid Amounts

Payment

The **Payment** dashboard provides a view of the current budget and detailed payment records.

> **Note:** You can also easily access this dashboard from TPM when generating the **Disbursed** report.

Defined Filters

- Currency
- Segment ID
- Project Name
- Project Owner
- Funding Organization
- Subcontractor
- Payment Type
- Disbursed Date
- Project Status

Key Metrics

- Paid

- TPM Electronic Payment
- Manual
- TPA

Details

Default Columns

- Project Name
- Project #
- Segment ID
- Funding Organization
- Subcontractor
- Contract #
- Invoice #
- Draw #
- Draw Period to Date
- Payment Type
- Check No.
- Disbursed Date
- Payment Amount

Snapshots

- Payments by Funding Organization
- Payments by Month

Draw Performance

The **Draw Performance** dashboard provides an aggregate average of days for each event in the invoice workflow. View the **Draw Performance** dashboard for the whole portfolio, a segment, or a project.

Defined Filters

- Segment ID
- Project Name
- Subcontractor
- Draw #
- Draw Period to Date Between
- Payment Type
- Project Status

The default loads all segments, projects, draws and vendors. Reset returns to the default state.

Key Metrics

- **Draw Milestones** (Average Days)
  - Days to Submit
  - # of Resubmissions

- Days to Approve
- Days on Hold
- Days to Authorize
- Days to Pay
- Days Past Due

Details

Column List (Across the portfolio)

- Project Name
- Project #
- Segment ID
- # of Contracts
- # of Invoices
- Days to Submit
- Last Submission Date
- # of Resubmissions
- Days to Approve
- Date Approved
- Days on Hold
- Days to Authorize
- Date Authorized
- Days to Pay
- Date Paid
- Days Past Due
- Payment Due Date

Snapshots

- Average Days to Submit
- Average Resubmissions Per Draw By Project

Payment Holds (Project View)

The **Payment** dashboard provides combined average of payment hold related data across all organization projects. The page includes all invoices with past or current payment holds.

If you select a project name from the **Project Name** column of the table, you can view the hold audit details for the selected project.

> **Note:** You can also easily access this dashboard from TPM when generating the **Payment Hold and Audit Release** report.

Defined Filters

- Currency
- Segment ID
- Project Name

- Subcontractor
- Hold Status
- Hold Type
- Hold Set Method
- Payment Status
- Draw Period to Date
- Payment Due Date
- Project Status

Key Metrics

Current Holds

- Invoices on Hold
- Days on Hold
- Holds Placed Manually
- Amount on Hold

Past Holds

- Invoices on Hold
- Days on Hold
- Holds Placed Manually
- Days Released before Disbursement

Details

A table includes project and hold details.

Column List

- Project Name
- Project #
- Segment ID
- Current: Invoices on Hold
- # of Contracts
- # of Invoices
- Current: # of Holds
- Current: Days on Hold
- Current: Holds Placed Manually
- Current: Amount on Hold
- Past: Invoices on Hold
- Past: # of Holds
- Past: Days on Hold
- Past: Hold Release Manually
- Past: Days Released before Disbursement

Snapshots

- Holds by Type
- Holds Created vs. Released

Payment Holds (Invoice View)

The **Invoice View** of the **Payment** dashboard provides shows hold details for a specific project. By default, the page includes all Subcontractors with active payment holds.

Details

A table includes draw and hold details.

Column List

- Project Name
- Project Number
- Draw #
- Draw Period to Date
- Subcontractor
- Contract #
- Net Invoice Amount
- Type of Hold
- Days on Hold
- Created On
- Released On
- Set Method
- Created By
- Release Method
- Released By
- Disbursement Date
- Invoice #

Snapshots

- Holds by Type
- Holds Created vs. Released
- Current Organization Level Payment Holds

Analytics for Owners

Read about how to use TPM Analytics as an Owner.

Owner Prerequisites to Use Textura Payment Management

The following prerequisites need to be met before a user can use Textura Payment Management Analytics:

- Must be a TPM user
- Must have OBI enabled on the organization profile in TPM.

> **Note:** This feature must be added by a Textura Administrator. Contact your Textura implementation team if you think you need to use this feature.

- Must have the **View Textura Analytics** user permission on the user profile in TPM.

> **Note:** Users with the **View Textura Analytics** permission will only see data for projects on which they have a role. Assign the **View All Organization Projects** permission to see data across all organization projects. Once assigned the **View Textura Analytics** permission, a user can access Textura Analytics.
>
> After receiving the **View Textura Analytics** role, the application will grant the user access the following business day.

- Projects with "Open Book" enabled in TPM by the General Contractor will be visible in Textura Analytics.

Dashboards for Owners

Dashboards present various types of information quickly and easily. Each dashboard displays various components of the OBI suite.

Textura Payment Management Analytics includes four dashboards.

Navigate to Dashboards

1) Navigate to Oracle Textura Payment Management.
2) Enter a TPM **Username** and **Password**. Select **Textura Analytics** under the **Tools** menu. The OBI **Home** page opens in a new tab.

> **Note:** Only users with the **View Textura Analytics** permission will see **Textura Analytics** under the **Tools** menu.

3) From the **Home** screen, select **Dashboards**. Choose a dashboard from the list.

Dashboard Layout

Each TPM dashboard has four main areas.

- **Filters** appear in a panel on the left of the page. Use **Filters** to exclude data that is less interesting, and instead focus on key data.
- **Key Metrics** are represented by tiles spanning across the top of the page. These tiles change based on a user's filter selections. Use **Key Metrics** to get a summary of the dashboard.
- **Details** display under the **Key Metrics** and break down the metrics in a table. Use this area to see different details of the data behind the metrics.

- **Snapshots** appear in large panes across the bottom of the screen. Snapshots present metrics and details visually in graphs and charts.

Filters for Owners

- **Currency**—View projects with a specific currency set
- **Disbursement Date**—See data for invoices disbursed in a selected date range
- **Draw #**—View data for selected draws
- **Draw Period to Date**—Select a date and see data on invoices with draws that end on that date or earlier
- **General Contractor**—View data for projects with a specific General Contractor
- **Funding Organization**—Select an organization to see data for the projects it funds
- **Payment Due Date**—View invoices within a specific payment due date range
- **Payment Type**—See data for selected payment methods:
  - **TPM Electronic Payment (ACH)**
  - **Manual**
- **Project Name**—View data associated with selected projects
- **Project Status**—Show data associated with active projects, inactive projects, or both
- **Projects with Draws Since**—Select a date to see data on projects that have draws opened since

> **Note:** A user can filter on **Project with Draws Since** to exclude projects without recent activity.

- **Segment ID**—Show data for projects assigned to a specific Segment ID. The Segment ID can be enabled from your organization's Edit Primary Organization page. To assign a Segment to a Project, navigate to the project's Project Settings page.
- **Subcontractor**—Show data associated with selected Subcontractors.

Key Metrics for Owners

- **# of Resubmissions**–Number of times an invoice was submitted to the General Contractor for review
- **Draw Milestones** (Average Days)
  - **Days to Approve**—Aggregate number of days an invoice is in the General Contractor's possession for approval
  - **Days to Authorize**—Aggregate number of days between the Draw End Date and the Date Authorized
  - **Days on Hold**—Actual number of days an invoice is on hold (excluding overlapping days)
  - **Days Past Due**—Aggregate number of days between the overdue payment and the actual Disbursement Date
  - **Days to Pay**—Aggregate number of days between the Draw End Date and the actual Disbursement Date
  - **Days to Submit**—Aggregate number of days an invoice is in the Subcontractor's possession
- **Manual**—Aggregate payment amount for electronic payments

- **My Contract Approved**—Aggregate net value of General Contractor invoices approved by Owner organization
- **My Contract Paid**—Aggregate net value of General Contractor invoices disbursed via ACH using Textura Payment Management
- **My Contract Pending Approval**—Aggregate net value of General Contractor invoices pending approval by Owner organization
- **My Contract Value**—Current Project Value
- **Net Approved Invoices**—Aggregate net value of all invoices that have been approved to date, including disbursed invoices
- **On Hold**—Aggregate value of net invoices with an On Hold payment status
- **Paid**—Aggregate payment amount of paid invoices
- **Pending Approval**—Aggregate value of net invoices submitted but not yet approved
- **Pending Authorization**—Aggregate value of net invoices with a **Pending Authorization** invoice status
- **Pending Disbursement**—Aggregate value of disbursable invoices, invoices that have been approved or authorized and do not have a status of **On Hold**
- **Retention**—Aggregate value of retention balance
- **TPM Electronic Payment**—Aggregate payment amount for electronic payments
- **Subcontract Value**—Current aggregate value of prime subcontracts

Snapshots for Owners

All snapshots are interactive. To drill into a portion of the snapshot, click on a bar within the snapshot. Specific snapshots have **View All** links that expose the data points that make up the snapshot. Hover over the snapshot to expose additional information.

- **Amount Billed by Month of Draw Period to Date**—Displays the net invoice amount billed and paid by draw period month for the last 12 months
- **Contract Value Added**—Compares the aggregate contract value that is added each month with the gross invoice amount that is approved over the last 12 months
- **Invoice Aging**—Shows all outstanding invoices along with their current status and amount of each invoice

> **Note:** Days outstanding is calculated using the invoice's Last Submission Date. To view the detail of the graph, click on a portion of the map to see the data view.

- **# of Resubmissions**—Displays the average number of invoice resubmissions
- **Payments by Funding Organization**—Displays all disbursements made by the funding organizations, broken down by payment type
  - TPM Electronic Payments (ACH)
  - Manual

> **Note:** Manual payments include checks, split payments, etc.

- **Payments by Month**—Shows all monthly payments over the last 12 months

- **Top Subcontractors by Total Contract Value**—Displays the largest Subcontractors the organization is working with, based on total contract value
- **Top Segments by Total Contract Value**—Shows the largest segments based on total contract value
- **Project Value by Year**—Total Subcontract Value added by the year the project was created on TPM.

Creating and Managing Filters

Textura Analytics provides the ability to save your predefined filters. You can save multiple filters and use them any time. The saved filters are availably only for your user login. You can also set a saved filter as your default.

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4) Select the **Make this my default for this page** checkbox to use this filter for subsequent logins.
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   This filter set will now be your default the next time you view the dashboard.

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   - Name of previously created filters.
   - Set the default filter by moving the **My Default** radio button.
   - A saved filter can be deleted by selecting the record and clicking the **X** icon.
2) Click **OK** to save

Portfolio Overview for Owners

The **Portfolio** dashboard provides an enterprise summary of current on-system budget, invoices, and payment data on Textura Payment Management across all vendors and projects.

> **Note:** You can also easily access this dashboard from TPM when generating reports.

Defined Filters

- Currency
- General Contractor
- Segment ID
- Project Name
- Funding Organization
- Project with Draws Since
- Project Status

Key Metrics

My Contract

- My Contract Value
- My Contract Pending Approval
- My Contract Approved
- My Contract Paid

Current Subcontract Amounts

- Subcontract Value
- Net Approved Invoices
- Retention
- Paid

Pending Subcontract Amounts

- Pending Approval
- On Hold
- Pending Authorization
- Pending Disbursement

Details

A table includes vendor and project details.

> **Note:** Most Key Performance Indicator (KPI) values include a number. These numbers are a count of the total amount of items included in the data.
>
> **For example:** A Subcontract Value (50) of $1,000,000 includes 50 subcontracts.

Column List

- Project Name
- Project #

- Segment ID
- General Contractor
- Funding Organization
- My Contract Value
- My Contract Pending Approval
- My Contract Approved
- My Contract Paid
- Original Subcontract Value
- Change Order Value
- Subcontract Value
- Net Approved Invoice
- Retention
- Paid
- Pending Approval
- On Hold
- Pending Authorization
- Pending Disbursement
- Balance to Bill
- Balance to Pay

Snapshots

- Invoice Aging
- Average Days to Approve, Pay
- Contract Value Added
- Top Subcontractors by Total Contract Value
- Top Segments by Total Contract Value
- Amount Billed by Month of Draw Period to Date
- Project Value by Year

> **Note:** Snapshots are interactive. You can drill into them for more details.

Invoice Overview for Owners

The **Invoice** dashboard shows the current budget, payment, and detailed invoice information for the selected filters.

> **Note:** You can also easily access this dashboard from TPM when generating either the **Disbursable** or **Unapproved Invoice** reports.

Defined Filters

- Currency
- General Contractor
- Segment ID

- Project Name
- Subcontractor
- Contract #
- Draw Period to Date Between

  This filter defaults to show invoices from one year (365 days) ago until the current date.
- Payment Due Date
- Status

  Filter invoices by **Status** including: **Pending Approval**, **On Hold**, **Pending Authorization**, **Pending Disbursement**, and **Paid.**
- Billing Type
- Project Status

The default sort is on **Period to Date** from earliest to current date.

Key Metrics

My Contract

- My Contract Value
- My Contract Pending Approval
- My Contract Approved
- My Contract Paid

Current Subcontract Amounts

- Subcontract Value
- Net Approved Invoices
- Retention
- Paid

Pending Subcontract Amounts

- Pending Approval
- On Hold
- Pending Authorization
- Pending Disbursement
- Paid

Details

Columns

- Project Name
- Project #
- Contract #
- General Contractor
- Subcontractor
- Draw Period to Date
- Payment Due Date

- Invoice #
- Status
  - Pending Approval
  - On Hold
  - Pending Authorization
  - Pending Disbursement
  - Paid
- Work Completed this Period
- Materials Stored this Period
- Total Completed and Stored this Period
- Retention Held this Period
- Retention Requested this Period
- Net Invoice

The default sorts alphabetically by **Project Name**, then the **Period to Date**.

Snapshots

- Invoice Aging
- Average Days to Approve, Pay
- Amount Billed by Month of Draw Period to Date
- Unpaid Amounts

Payment Overview for Owners

The **Payment** dashboard provides a view of the current budget and detailed payment records.

> **Note:** You can also easily access this dashboard from TPM when generating the **Disbursed** report.

Defined Filters

- Currency
- General Contractor
- Segment ID
- Project Name
- Project Owner
- Funding Organization
- Subcontractor
- Payment Type
- Disbursed Date
- Project Status

Key Metrics

- Paid
- TPM Electronic Payment

- Manual

Details

Default Columns

- Project Name
- Project #
- Segment ID
- General Contractor
- Funding Organization
- Subcontractor
- Contract #
- Invoice #
- Draw #
- Draw Period to Date
- Payment Type
- Disbursed Date
- Payment Amount

Snapshots

- Payments by Funding Organization
- Payments by Month

Draw Performance Overview for Owners

The **Draw Performance** dashboard provides an aggregate average of days for each event in the invoice workflow.

You can use the **Draw Performance** dashboard to compare your project's actual values with targets set by your organization. In the **Key Metrics** section, a green indicator will display if the actual average is below the set target. If the value exceeds the target, an orange indicator will display. The details table values will highlight in red if a value is exceeds the target.

To assign a Targets for your organization, navigate to your organization's Edit Primary Organization page within TPM. On the right hand side of the screen there will be an option to configure Textura Analytics target values.

> **Note:** Changes to the target values will be reflected in Analytics after the next data load.

Defined Filters

- General Contractor
- Segment ID
- Project Name
- Subcontractor
- Draw #

- Draw Period to Date Between
- Payment Type
- Project Status

The default loads all segments, projects, draws and vendors. Reset returns to the default state.

Key Metrics

- **Draw Milestones** (Average Days)
  - Days to Submit to Owner
  - Days to Approve by Owner
  - Days to Submit
  - # of Resubmissions
  - Days to Approve
  - Days on Hold
  - Days to Authorize
  - Days to Pay
  - Days Past Due

Details

Column List (Across the portfolio)

- Project Name
- Project #
- Segment ID
- General Contractor
- # of Contracts
- # of Invoices
- General Contractor
- Days to Submit
- # of Resubmissions
- Days to Approve
- Days on Hold
- Days to Authorize
- Days to Pay
- Days Past Due

Within the **Details** table, click on a project to show all invoices submitted for that project and their draw performance dates and timing.

Column List

- Org Name
- Contract #
- Invoice #
- Draw #
- Draw Period to Date

- Days to Submit to Owner
- Last Submission to Owner
- Days to Approve by Owner
- Owner Approval Date
- Days to Submit
- Last Submission Date
- # of Resubmissions
- Days to Approve
- Date Approved
- Days on Hold
- Days to Authorize
- Date Authorized
- Days to Pay
- Date Paid
- Days Past Due
- Payment Due Date

Snapshots

- Average Days to Submit
- Average Resubmissions Per Draw By Project

About the TPM Data Service

The TPM Data Service provides read-only access to your cloud-based TPM Analytics data via RESTful endpoints. The service supports Basic TPM Data Service authentication and all communication is done over HTTPS.

> **Note:** You are responsible for all aspects of the query process including writing, executing, and consuming query results and storing the fetched data.

In This Section

TPM Data Service Introduction

The Data Service exposes a set of endpoints that enable you to extract data from the TPM Analytics Datawarehouse. You can use the data TPM service endpoints to discover which database tables and columns are accessible and run queries against them. Create JSON objects to specify database queries and submit them using the service's longrunquery endpoint. Upon processing a POST request and resolving a query, the longrunquery endpoint returns a JSON object containing application data that satisfies the query specified in the request body. You can use the JSON data returned by the service to analyze your application data.

Accessing the Data Service

To access the data service send requests to the following base URL:

https://<url>/ebis/api/v1/dataservice/<endpoint>

The variables in the previous example URL should be replaced with the following information when accessing the data service:

- **<url>**: The base URL where the TPM Data Service application is deployed. Please insert the following <https://services.texturacorp.com> to replace <url>.
- **<endpoint>**: A valid data service endpoint, excluding the data service base URL. For example: metadata/tables, metadata/columns and longrunquery.

Example curl Request

The following example demonstrates accessing the data service tables endpoint using curl:

```
curl -X GET
-u "<username>:<password>"
https://<url>/ebis/api/v1/dataservice/metadata/tables
```

The variables in the previous example should be replaced with the following information when accessing the data service:

<username>: The username of an application user which will access the data service.
<password>: The password associated with the user account used to access the data service.
<url>: The URL provided to you when the application was deployed.

Limitations

Complex SQL queries cannot be replicated in JSON input. The API supports only:

- Basic select statements with Where conditions for operators EQUALS, NOT_EQUALS, GREATER_THAN, LESS_THAN, GREATER_THAN_OR_EQUALS, LESS_THAN_OR_EQUALS, BETWEEN.
- The API does not support queries using the LIKE, or IN conditions.

In order to execute the complex queries (sub queries, multiple joins, aggregate methods), it is recommended that you:

- Pull the required tables data using the basic select run query endpoint.
- Load the data into a local database.
- Execute complex queries against the local database.

Available Endpoints

TPM Data Service offers the following endpoints:

1) To view supported tables and columns:
   - **Metadata Tables Endpoint**: Use this endpoint to return list of all the tables owned by the schema user given in respective configuration.

     Syntax:

```
https://<base_url>/ebis/api/v1/dataservice/metadata/tables
```

     Method: GET
   - **Metadata Columns Endpoint**: Use this endpoint to return list of all columns of the given table owned by the schema user given in respective configuration.

     Syntax :

```
https://<base_url>/ebis/api/v1/dataservice/metadata/columns?table=<TABLE_NAME>
```

     Method: GET

Example: To get list of columns of table w_payment_d

https://<base_url>/ebis/api/v1/dataservice/metadata/columns?table=w_payment_d

2) To retrieve data using Longrunquery endpoint

LongRunquery Endpoint: Use this endpoint to run queries asynchronously against the data available

Syntax:

https://<base_url>/ebis/api/v1/dataservice/longrunquery

Header: Content-Type: application/json

Method: POST

Example: To query data of PAYMENT_OBJECT_ID, PROJECT_OBJECT_ID, CONTRACT_OBJECT_ID from w_payment_d using following JSON input:

```
{
  "name": "Test",
  "pageSize": "1000",
  "tables": [
    {
      "tableName": "W_PAYMENT_D",
      "columns": [
        "PAYMENT_OBJECT_ID",
        "PROJECT_OBJECT_ID",
                "CONTRACT_OBJECT_ID"
      ]
    }
  ]
}
```

The above endpoint will return a unique key like "e554174b-7acd-4745-ada4-c6517a25bb0b". Provide this in next request to fetch the result:

Url: https://<base_url>/ebis/api/v1/dataservice/longrunquery/result/<KEY>

Method: GET

The JSON query will be processing in the backend until it is completed, this will return **Processing** as the result. Once the processing is completed it will return the result set.

Sample JSON Response

```
{
    "data": {
        "W_PAYMENT_D": [
            {
                "PAYMENT_OBJECT_ID": "999683",
                "PROJECT_OBJECT_ID": "13428",
                "CONTRACT_OBJECT_ID": "658370"
            },
            {
                "PAYMENT_OBJECT_ID": "999684",
                "PROJECT_OBJECT_ID": "13428",
                "CONTRACT_OBJECT_ID": "594023"
            },
            {
                "PAYMENT_OBJECT_ID": "1000088",
                "PROJECT_OBJECT_ID": "17334",
                "CONTRACT_OBJECT_ID": "1027103"
            },
.
.
.
.
.
            {
                "PAYMENT_OBJECT_ID": "1048509",
                "PROJECT_OBJECT_ID": "16654",
                "CONTRACT_OBJECT_ID": "926790"
            }
        ],
        "pagination": [
            {
                "nextTableName": "W_PAYMENT_D",
                "nextKey": "1001"
            }
        ],
        "safetyDate": [
            {
                "queryName": "Test",
                "sinceDate": "2011-11-15 14:27:49 -0500"
            }
        ]
    }
}
```


Security

The following sections provide information about the TPM Data Service security model, and suggest practices for using the data service securely.

- Transport Level Security using HTTPS

- Authentication and Authorization

Transport Level Security using HTTPS

The TPM Data Service supports the HTTPS (Hypertext Transfer Protocol over Secure Socket Layer) to ensure secure communication between clients and the data service. All requests to the data service must be sent using the HTTPS For security reasons, HTTP is not supported and a protocol.

All requests to the data service must be sent over HTTPS, which ensures sensitive data is encrypted. The HTTPS protocol utilizes Transport Layer Security (TLS) to prevent third parties from accessing data as it is transmitted. Servers provide authorized certificates in order to authenticate their identity over HTTPS connections. Tools such as curl and modern web browsers verify the integrity of the server certificates before sending request data over HTTPS in order to guarantee your data is sent to your intended recipient. TPM data service does not support insecure connections over HTTP. The combination of Authentication and the HTTPS protocol provides a convenient way to authenticate your requests to the data service while ensuring your sensitive data remains secure.

Authentication Using curl

To authenticate using curl, pass the <username>:<password> for your TPM Data service account using the -u curl option:

-u <username>:<password>

-H "Accept:application/json" -X GEThttps://<url>/ebis/api/v1/dataservice/<endpoint>

> **Note:** Text surrounded in < > indicates a variable. You must replace variables with your own data to run the examples in this documentation. For example, replace the <username> variable with your username.

The variables in the previous example should be replaced with the following information when accessing the data service:

- <username>: The username of an application user which will access the data service.
- <password>: The password associated with the user account used to access the data service.
- <url>: The URL provided to you when the application was deployed.
- <endpoint>: A valid data service endpoint, excluding the data service base URL. For example metadata/tables, metadata/columns and longrunquery.

Data Security

Asynchronous run query (longrunquery) is the only end point from which TPM Data service application accesses the source Textura analytics Datawarehouse. While querying the the source Textura Analytics Datawarehouse, only the requested user accessible data only will be returned in the longrunquery JSON Result set.

Allowed List of Tables

TPM Data Service allows querying on the following allowed list of tables

List of tables allowed to query using Data Service.

- W_BUDGET_F
- W_INVOICE_D
- W_PAYMENT_PROGRAM_D
- W_CONTRACT_D
- W_PAYMENT_D
- W_BILLING_F
- W_PAYMENT_F
- W_T_PROJECT_D
- W_CHANGE_ORDER_D
- W_INVOICE_HOLD_D

The tables listed below are not allowed; and longrunquery cannot be executed for these tables.

- W_T_PROJECT_SECURITY_S
- W_PROJECT_SECURITY_S
- W_T_USER_S W_GC_D
- W_SUBCONTRACTOR_D
- W_ORGANIZATION_D
- W_FUNDER_D
- W_DAY_D

Date Format and Time Zone

Note: Timezone is set to Central Time in the United States.

Date format example from data output: 20220112T024916.000-0600.

Value	Definition
2022	4 digit year
01	2 digit month
12	2 digit date
T	Time
02	2 digit hour
49	2 digit minutes
16	2 digit seconds
.000	Represents millisecond, always set to ".000" for DATE field

-0600	Time zone offset

Time stamp format example from data output: 20220112T024916.709984

Value	Definition
2022	4 digit year
01	2 digit month
12	2 digit date
T	Time
02	2 digit hour
49	2 digit minutes
16	2 digit seconds
.7099984	Represents millisecond

Date and time stamp format on input to Data Service for filtering: 12-Nov-2021.

Value	Definition
12	2 digit date
Nov	3 character month
2021	4 digit year

Note: Filtering for time is not supported.

Managing Incremental Updates

Textura Data Service supports fetching incremental updates on a daily basis as an alternative to full data fetches. You are responsible for maintaining a local copy of your whole data set.

Notes:

- Textura Data Service is unavailable from 12:30 AM to 6:00 AM CT. All calls to the Data Service must be scheduled outside of this window.
- All time zones used in the data service and this documentation is Central Time.

DATE_UPDATED and DATE_DELETED Values and Filtering

The DATE_UPDATED columns are used to indicate the last date a record was either updated or added. Only the most current version of any record is provided; a complete log of all updates, additions, and deletions are not available. If a record existed and currently does not, its primary key (or unique key for tables not having a primary key) can be found in the W_T_DELETED_D table.

The DATE_UPDATED and DATE_DELETED values in the Textura Data Service data warehouse have both a date and time (CT). They represent when data has been updated within our internal Data Service ETL (typically early morning hours), not the time at which the data has changed in the upstream source TPM database.

The value passed by the client to Textura Data Service to filter on DATE_UPDATED and DATE_DELETED only supports a date value (the time is set to beginning of the day). The date format is represented as follows: DD-MON-YYYY (e.g. 31-Dec-2021).

The following is an example timeline of events on the Oracle Textura side and suggested logic and timing on the client side:

1) A new contract is created on 10-Nov-2021.
2) The overnight Textura Data Service batch process runs the morning of Nov 11th and the DATE_UPDATED for that record is set to 11-Nov-2021 4:00 AM. The exact time depends on when our batch process runs.
3) Processing is finished and this new data is available to clients at 6:00 AM CT.
4) The client can fetch data on 11-Nov-2021 with a filter of DATE_UPDATED GREATER_THAN_OR_EQUALS 11-Nov-2021 to return this new record, and any other new or updated records.
5) The contract is updated later on 11-Nov-2021.
6) The next overnight Textura Data Service batch process runs the morning of 12-Nov-2021 and DATE_UPDATED for the record is updated to 12-Nov-2021 4:00 AM.
7) Fetch data with a filter of DATE_UPDATED GREATER_THAN_OR_EQUALS 12-Nov-2021 to return this new record, and any other new or updated records. If incremental changes are needed and the code is not run until a week later, you should filter for changes greater than or equal to 12-Nov-2021.

How to Use Incremental Data Queries

Use the DATE_UPDATED column to fetch records that have been updated or inserted since your last data extract.

For example, your local data warehouse was last updated with a full data extract from the Data Service on 11-Nov-2021. If today's date is 12-Nov-2021, you would fetch all data where the DATE_UPDATED is greater than or equal to 12-Nov-2021 and apply all changes to your local data warehouse.

Example: To fetch all records from W_BILLING_F that have been updated or inserted since the start of Nov. 12, 2021 use the following:

```
{
    "name": "W_BILLING_F",
    "pageSize": "100",
    "tables": [
        {
            "tableName": "W_BILLING_F",
            "columns": [
                "BILLING_OBJECT_ID",
                "DATE_UPDATED",
                "CONTRACT_OBJECT_ID",
                …
            ],
            "condition": {
                "operator": "AND",
                "conditions": [
                    {
                        "columnName": "DATE_UPDATED",
                        "operator": "GREATER_THAN_OR_EQUALS",
                        "value1": "12-Nov-2021"
                    }
                ]
            }
        }
    ]
}
```

For every record that is returned, you will need to implement a merging logic in your data warehouse. Insert or update records by looking for the record in your local data warehouse using the primary or unique key for the given table (See topic ***Available Data Points in Data Service*** (on page 43) to view the primary or unique keys for each table). If the record already exists, it is an update. If the record does not exist in your local data warehouse, then do an insert. The data in the Textura Data Service database is only updated once a day, but writing the logic this way is useful in case processing is aborted midway due to any client side, server side or network errors.

Note: Data changes to the following fields CURR_DAYS_ON_HOLD, DAYS_PAST_DUE do not trigger a change to the DATE_UPDATED value.

Deletions

Records that are deleted in Textura are stored in W_T_DELETED_D. You will need to retrieve the records in this table and delete them in your data warehouse to keep data in sync. This table contains all records that have been deleted from all tables. It contains the following columns: TABLE_NAME, DATE_DELETED, OBJECT_ID, OBJECT_ID2, OBJECT_ID3, TIMESTAMP_COL.

Example: To retrieve a list of all records that have been deleted since 12-Nov-2021 use an API such as:

```
{
    "name": "W_T_DELETED_D",
    "pageSize": "100",
    "tables": [
        {
            "tableName": "W_T_DELETED_D",
            "columns": [
                "TABLE_NAME",
                "DATE_DELETED",
                "OBJECT_ID",
                "OBJECT_ID2",
                "OBJECT_ID3",
                "TIMESTAMP_COL"
            ],
            "condition": {
                "operator": "AND",
                "conditions": [
                    {
                        "columnName": "DATE_DELETED",
                        "operator": "GREATER_THAN_OR_EQUALS",
                        "value1": "12-Nov-2021"
                    }
                ]
            }
        }
    ]
}
```

Every record returned represents a record that has been deleted. TABLE_NAME indicates the table that the record was deleted from. DATE_DELETED indicates the date that it was deleted. The column or columns in the primary or unique key of the record to be deleted maps to columns in W_T_DELETED using the following table:

Columns in Primary/Unique Key	Corresponding W_T_DELETED Columns
W_BILLING_F.BILLING_OBJECT_ID	W_T_DELETED_D.OBJECT_ID

W_BUDGET_F.CHANGE_ORDER_OBJECT_ID	W_T_DELETED_D.OBJECT_ID2
W_BUDGET_F.CONTRACT_OBJECT_ID	W_T_DELETED_D.OBJECT_ID
W_CHANGE_ORDER_D.CHANGE_ORDER_OBJECT_ID	W_T_DELETED_D.OBJECT_ID
W_CONTRACT_D.CONTRACT_OBJECT_ID	W_T_DELETED_D.OBJECT_ID
W_INVOICE_D.INVOICE_OBJECT_ID	W_T_DELETED_D.OBJECT_ID
W_INVOICE_HOLD_D.HOLD_PLACED_TIMESTAMP	W_T_DELETED_D.TIMESTAMP_COL
W_INVOICE_HOLD_D.HOLD_TYPE_OBJECT_ID	W_T_DELETED_D.OBJECT_ID2
W_INVOICE_HOLD_D.INVOICE_OBJECT_ID	W_T_DELETED_D.OBJECT_ID
W_INVOICE_HOLD_D.MANUAL_CONTRACTOR_ID	W_T_DELETED_D.OBJECT_ID3
W_PAYMENT_D.PAYMENT_OBJECT_ID	W_T_DELETED_D.OBJECT_ID
W_PAYMENT_F.PAYMENT_OBJECT_ID	W_T_DELETED_D.OBJECT_ID
W_PAYMENT_PROGRAM_D.SETTLEMENT_OBJECT_ID	W_T_DELETED_D.OBJECT_ID
W_T_PROJECT_D.PROJECT_OBJECT_ID	W_T_DELETED_D.OBJECT_ID

Note that there are two tables (W_INVOICE_HOLD_D and W_BUDGET_F) with a unique key consisting of multiple columns.

Deleted Projects

Deletion of projects (W_T_PROJECT_D) are handled differently than other data, and are not tracked in the W_T_DELETED_D table. Projects can be deleted in TPM if they have no draws or subcontracts. Projects are identified with a Deleted status. We recommend you maintain the deletion status in your data warehouse or you can remove deleted projects from your data warehouse.

Available Data Points in Data Service

The following topics describe the available data points.

W_BILLING_F

Data Mapping

Field	Description	Data Type
BILLING_OBJECT_ID	Primary Key. Foreign Key to W_INVOICE_D	NUMBER(19)
CONTRACT_OBJECT_ID	Foreign Key to W_CONTRACT_D	NUMBER(19)
CURRENT_MANUAL_HOLDS	Count of active manual holds	NUMBER
CURRENT_SYSTEM_HOLDS	Count of active system holds	NUMBER
CURR_DAYS_ON_HOLD	Total Number of days Invoice is On Hold	NUMBER
DATE_CREATED	Date subcontractor was invited to the Draw	DATE
DATE_UPDATED	DATE_UPDATED is the date that this record was updated in the TPM Data Service database. For more information, view the ***Managing Incremental Updates*** section in Help.	DATE
DAYS_ON_HOLD	Number of days the Invoice has been held for	NUMBER
DAYS_PAST_DUE	Number days between Disbursement and Payment Due Date	NUMBER
DAYS_TO_APPROVE	Number of days the Invoice with the General Contractor for Approval	NUMBER
DAYS_TO_AUTHORIZE	Number of days from Draw Period to Date to Authorization	NUMBER
DAYS_TO_DISBURSE_AFTER_HOLD	Number of days Disbursed after release of Hold	NUMBER
DAYS_TO_PAY	Number of days from Draw Period to Date to Disbursement	NUMBER

DAYS_TO_SUBMIT	Number of days the Invoice was with the Subcontractor before submitting to General Contractor.	NUMBER
MANUAL_HOLDS_PLACED	Number of Holds placed by a User	NUMBER
MANUAL_HOLDS_RELEASED	Number of Holds released by a User	NUMBER
PAST_DAYS_ON_HOLD	Average hold length for invoice (sum of days on hold/# of released holds)	NUMBER
PENDINGDISBURSEMENT	Net Invoice Amount Pending Disbursement	NUMBER
PENDINGPAYMENT	Net Invoice Amount Pending Maturity	NUMBER
PROJECT_OBJECT_ID	Foreign Key to W_T_PROJECT_D	NUMBER(19)
RESUBMISSIONS	Number of times the Invoice was submitted to the General Contractor	NUMBER
SELFMATERIALSTORED	Materials Stored this period by Prime Subcontractor	NUMBER
SELFRETENTIONHELD	Retention Held this period by Prime Subcontractor	NUMBER
SELFRETENTIONPAYMENT	Retention Paid to Prime Subcontractor	NUMBER
SELFRETENTIONTAXHELD	Retention Held with Tax by Prime Subcontractor	NUMBER
SELFRETENTIONTAXPAYMENT	Retention Payment with Tax by Prime Subcontractor	NUMBER
SELFTAXPAYMENT	Tax Payment by Prime Subcontractor	NUMBER
SELFWORKCOMPLETE	Worked completed this period by Prime Subcontractor	NUMBER
SYSTEM_HOLDS_PLACED	Hold set by the system	NUMBER

SYSTEM_HOLDS_RELEASED	Hold released by the system	NUMBER
TOTALAMOUNTPAID	Amount paid including Subtier payments	NUMBER
TOTALMATERIALSTORED	Materials Stored including Subtier materials	NUMBER
TOTALRETENTIONHELD	Retention Held including Subtier retention held	NUMBER
TOTALRETENTIONPAYMENT	Retention Paid including Subtier retention payment	NUMBER
TOTALRETENTIONTAXHELD	Retention Held with Tax including Subtier billing	NUMBER
TOTALRETENTIONTAXPAYMENT	Retention Tax Payment including Subtier billing	NUMBER
TOTALTAXPAYMENT	Total Tax Payment including Subtier billing	NUMBER
TOTALWORKCOMPLETE	Total Work Completed including Work Completed of Subtiers	NUMBER
TOTAL_HOLD_COUNT	Number of Holds created against invoice	NUMBER

W_BUDGET_F

Data Mapping

The Unique Key on this table is a combination of CONTRACT_OBJECT_ID and CHANGE_ORDER_OBJECT_ID. This is not a Primary key as CHANGE_ORDER_OBJECT_ID is nullable.

Field	Description	Data Table
CONTRACT_OBJECT_ID	Unique Key (This is not a Primary Key as CHANGE_ORDER_OBJECT_ID is nullable). Foreign Key to W_CONTRACT_D	NUMBER(19)
CHANGE_ORDER_OBJECT_ID	Unique Key. Foreign Key to W_CHANGE_ORDER_D	NUMBER(19)

BALANCE	Remaining Contract Balance (Current Contract Amount – Paid, Pending, & Retention Balance)	NUMBER
BUDGET_AMOUNT	Current Contract Value including Change Orders	NUMBER
CHANGE_ORDER_AMOUNT	Value of Change Order	NUMBER
DATE_CREATED	Date Contract was created	DATE
DATE_UPDATED	DATE_UPDATED is the date that this record was updated in the TPM Data Service database. For more information, view the ***Managing Incremental Updates*** section in Help.	DATE
ORIGINAL_BUDGET_AMOUNT	Original Subcontract Amount including Hidden Change Orders	NUMBER
PROJECT_OBJECT_ID	Foreign Key to to W_T_PROJECT_D	NUMBER(19)
TOTAL_SUB_CONTRACT_AMOUNT	Sum of subcontracts on a project	NUMBER
TOTALMATERIALSTORED	Total Stored Materials against the Contract	NUMBER
TOTALRETENTIONHELD	Total Retention Held against the Contract	NUMBER
TOTALRETENTIONPAYMENT	Total Retention Requested against the Contract	NUMBER
TOTALWORKCOMPLETE	Total Work Completed against the Contract	NUMBER

W_CHANGE_ORDER_D

Data Mapping

Field	Description	Data Type
CHANGE_ORDER_OBJECT_ID	Unique Key	NUMBER(19)

CHANGE_ORDER_CREATION_DATE	The Date the Change Order was Created in TPM	DATE
CHANGE_ORDER_NUMBER	Change Order number assigned to Change Order.	VARCHAR2(1000)
CHANGE_ORDER_TITLE	Title assigned to Change Order.	VARCHAR2(2000)
AMOUNT	Value of Change Order	NUMBER(19)
DATE_CREATED	Change Order Creation Date	DATE
DATE_UPDATED	DATE_UPDATED is the date that this record was updated in the TPM Data Service database. For more information, view the ***Managing Incremental Updates*** section in Help.	DATE
HIDDEN	0 = False, 1 = True	VARCHAR2(10)
PROJECT_OBJECT_ID	Foreign Key to W_T_PROJECT_D	NUMBER(19)

W_CONTRACT_D

Data Mapping

Field	Description	Data Type
CONTRACT_OBJECT_ID	Unique key	NUMBER(19)
ADDRESS_1	Address 1 from Organization Profile	VARCHAR2(150)
ADDRESS_2	Address 2 from Organization Profile	VARCHAR2(80)
BILLED_TO_DATE	Total billed against subcontract	NUMBER(14,2)
CITY	City from Organization Profile	VARCHAR2(60)
CONTRACT_CREATION_DATE	The date the contract was created in TPM.	DATE
CONTRACT_DATE	Contract date from Contact Maintenance	DATE
CONTRACT_NUMBER	Contract number assigned	VARCHAR2(1000)

COUNTY	County from Organization Profile	VARCHAR(50)
DATE_UPDATED	DATE_UPDATED is the date that this record was updated in the TPM Data Service database. For more information, view the ***Managing Incremental Updates*** section in Help.	DATE
LAST_DRAW_NUM	Last Initiated Draw on the Project the contract is associated with.	NUMBER
GC_NAME	General Contractor name	VARCHAR2(2000)
NET_CHANGE_ORDER_AMOUNT	Value of change order	NUMBER
ORG_ID	Textura customer number	NUMBER(19)
ORG_NAME	Organization name	VARCHAR2(2000)
PARENT_CONTRACT_OBJECT_ID	Foreign Key	NUMBER(19)
PERCENT_COMPLETE	Percent complete for subcontract	INTEGER
PHONE1	Phone 1 from Organization Profile	VARCHAR2(50)
PHONE2	Phone 2 from Organization Profile	VARCHAR2(50)
PROJECT_CREATED	Date project created	DATE
PROJECT_NAME	Project name	VARCHAR2(2000)
PROJECT_NUMBER	Project number	VARCHAR2(2000)
PROJECT_OBJECT_ID	Foreign key to W_T_PROJECT_D table	NUMBER(19)
SUBDIVISIONCODE	Country and State from Organization Profile	VARCHAR2(6)
TAXID	Tax ID from Organization Profile	VARCHAR2(60)
TPA_ACCEPTANCE_DATE	Date TPA offer accepted by subcontractor	DATE
TPA_DECLINED_DATE	Date TPA offer declined by user	DATE

TPA_DECLINED_PHONE	Phone number of user who declined TPA offer	VARCHAR2(250)
TPA_EMAIL	Email of user who is assigned as TPA contact	VARCHAR2(256)
TPA_FEE_AT_DECLINE	TPA fee offered when declined by user	NUMBER(16, 2)
TPA_FIRSTNAME	First name of user who is assigned as TPA contact	VARCHAR2(100)
TPA_LAST_FUNDING_DATE	Last TPA funding against contract	DATE
TPA_LASTNAME	Last name of user who is assigned as TPA contact	VARCHAR2(100)
TPA_OFFER_CONTRACT	TPA terms offered on contract	NUMBER(16,2)
TPA_PHONE	Phone Number of user who is assigned as TPA contact	VARCHAR2(50)
TPA_PREVIOUS_ENROLLMENT	Boolean indication of previous enrollment in TPA	VARCHAR2(10)
TPA_REASON_FOR_DECLINE	Reason for declining TPA offer	VARCHAR2(500)
ZIPCODE	Zip Code from Organization Profile	VARCHAR2(30)
TPA_STATUS	TPA status (Ineligible, Eligible, Enrolled, Disabled)	NVARCHAR2(15)
TPA_TENOR	TPA maturity interval	NUMBER
TPA_USER_WHO_DECLINED	First and last name of user who declined TPA offer	VARCHAR2(250)
VENDOR_ID	Vendor ID assigned to Subcontractor	VARCHAR2(50)
ZIPCODE	Zip Code from Organization Profile	VARCHAR2(30)

W_INVOICE_D

Data Mapping

Field	Description	Data Type
INVOICE_OBJECT_ID	Unique Key	NUMBER(19)
APPROVED	True / False	VARCHAR2(750)
AUTHORIZED	True / False	VARCHAR2(750)
DATE_APPROVED	Date Invoice Approved	DATE
DATE_AUTHORIZED	Date Invoice Authorized	DATE
DATE_CREATED	Date Subcontractor Invited to Invoice	DATE
DATE_UPDATED	DATE_UPDATED is the date that this record was updated in the TPM Data Service database. For more information, view the ***Managing Incremental Updates*** section in Help.	DATE
DATE_SUBMITTED	Date Invoice Submitted	DATE
DAYS_ON_HOLD	Days on Hold	NUMBER
DAYS_TO_APPROVE	Number of Days the Invoice was with the General Contractor pending Approval	NUMBER
DAYS_TO_PAY	Number of days to Pay calculated from Draw Period to Date	NUMBER
DAYS_TO_SUBMIT	Number of Days the Invoice was with the Subcontractor	NUMBER
DISBURSED_DATE	Date Invoice Disbursed	DATE
DRAW_DATE	Draw Due Date	DATE
DRAW_NUMBER	Draw Number	NUMBER(19)
HOURS_WORKED	Hours worked recorded against invoice	NUMBER(14,2)
INVOICE_NUMBER	Invoice Number	VARCHAR2(750)
IS_EPP	Identifies TPA payment type (True/False)	VARCHAR2(5)

IS_MANUAL	Identifies Manual Check payment type (True/False)	VARCHAR2(5)
IS_PRIOR_BILLING	Identifies Off-System payment (True/False)	VARCHAR2(5)
LAST_HOLD_PLACED	Date of Last Hold	DATE
LAST_HOLD_RELEASED	Date Last Hold was released	DATE
PAYMENT_DUE_DATE	Payment Due Date	DATE
PERIOD_TO	Draw Period to Date	DATE
PROJECT_OBJECT_ID	Foreign Key to W_T_PROJECT_D table	NUMBER(19)
SUBMISSION_COUNT	Number of times the invoice was submitted	NUMBER
STATE	TPA invoice status (Pending Approval, On Hold, Pending authorization, pending disbursement, EPP pending maturity, Paid)	VARCHAR2(50)
TPA_DATE_REMOVED_FROM_TPA	Date invoice was removed from TPA	DATE
TPA_REMOVAL_COMMENT	TPA removal comment entered by user	VARCHAR2(1000)
TPA_REMOVAL_REASON	TPA system generated removal reason	VARCHAR2(200)
TPA_REMOVAL_SOURCE	TPA system generated removal source	VARCHAR2(50)

W_INVOICE_HOLD_D

Data Mapping

The Unique Key on this table is a combination of INVOICE_OBJECT_ID, HOLD_TYPE_OBJECT_ID, HOLD_PLACED_DATE, and MANUAL_CONTRACTOR_ID. This is not a Primary key as MANUAL_CONTRACTOR_ID is nullable.

Field	Description	Data Type
DATE_UPDATED	DATE_UPDATED is the date that this record was updated in the TPM Data	DATE

	Service database. For more information, view the ***Managing Incremental Updates*** section in Help.	
INVOICE_OBJECT_ID	Part of Unique Key. Foreign Key to W_INVOICE_D	NUMBER(19)
HOLD_TYPE_OBJECT_ID	Part of Unique Key. Id for Hold Type	NUMBER(19)
HOLD_PLACED_DATE	Part of Unique Key. Date Hold Placed	DATE
MANUAL_CONTRACTOR_ID	Part of Unique Key.	NUMBER(19)
HOLD_PLACED_METHOD	Method the Hold was placed (Manual, System)	VARCHAR2(255)
HOLD_RELEASED_DATE	Date Hold Released	DATE
HOLD_RELEASED_METHOD	Method the Hold was released (Manual, System)	VARCHAR2(255)
HOLD_TYPE_NAME	Name of Hold	VARCHAR2(255)
MANUALLY_OVERRIDABLE	Identifies if the Hold can be released manually	VARCHAR2(10)
PLACED_FIRST_NAME	First Name of user who set hold	VARCHAR2(100)
PLACED_LAST_NAME	Last Name of user who set hold	VARCHAR2(100)
PROJECT_OBJECT_ID	Foreign Key to W_T_PROJECT_D	NUMBER(19)
RELEASED_FIRST_NAME	First Name of user who released hold	VARCHAR2(100)
RELEASED_LAST_NAME	Last Name of user who released hold	VARCHAR2(100)

W_PAYMENT_D

Data Mapping

Field	Description	Data Type
PAYMENT_OBJECT_ID	Unique Key. This table is 1 to 1 w/ W_PAYMENT_F, joining on this column	NUMBER(19)
CHECKNUMBER	Check Number Sequence	NUMBER(19)
CONTRACT_OBJECT_ID	Foreign Key to W_CONTRACT_D	NUMBER(19)
DATE_CREATED	Date Payment file was created	DATE
DATE_UPDATED	DATE_UPDATED is the date that this record was updated in the TPM Data Service database. For more information, view the ***Managing Incremental Updates*** section in Help.	DATE
DATE_SUBMITTED_TO_BANK	Date Payment was Submitted to Bank	DATE
DISBURSED_DATE	Date Payment was Disbursed from TPM	DATE
DISCOUNT_TAKEN	Amount of Discount on Payment	NUMBER
DISPLAYCODE	Payment Type (Partial, ACH, Manual, Split, TPA)	VARCHAR2(100)
FROM_ORG_NAME	General Contractor Organization	VARCHAR2(2000)
FUNDED	Payment has been funded (True, False)	VARCHAR2(10)
MATURE	Maturity Payment (True/False)	VARCHAR2(10)
PAY_FROM_ORG_ID	Organization Funding Payment	NUMBER(19)
PAY_TO_ORG_ID	Organization Receiving Payment	NUMBER(19)
PROJECT_OBJECT_ID	Foreign Key to	NUMBER(19)

	W_T_PROJECT_D table	
TAX_AMOUNT	Tax Amount	NUMBER
TO_ORG_NAME	Organization Receiving Payment	VARCHAR2(2000)

W_PAYMENT_F

Data Mapping

Field	Description	Data Type
PAYMENT_OBJECT_ID	Primary key. Foreign key to W_PAYMENT_D	NUMBER(19)
AMOUNT	Payment amount	NUMBER
CONTRACT_OBJECT_ID	Foreign key to W_CONTRACT_D	NUMBER(19)
DATE_UPDATED	DATE_UPDATED is the date that this record was updated in the TPM Data Service database. For more information, view the ***Managing Incremental Updates*** section in Help.	DATE
DISCOUNTEDPAYMENTAMOUNT	Calculated/estimated discount payment amount	NUMBER
DISCOUNTPAYMENTAMOUNT	Discount payment amount received from funder	NUMBER
INVOICE_OBJECT_ID	Foreign key to W_INVOICE_D	NUMBER(19)
PAYMENTAMOUNT	Payment amount	NUMBER
PAYMENTTAXAMOUNT	Payment amount including tax	NUMBER
PROJECT_OBJECT_ID	Foreign key to W_T_PROJECT_D	NUMBER(19)
SETTLEMENT_OBJECT_ID	Foreign key to W_PAYMENT_PROGRAM_D	NUMBER(19)
TAXAMOUNT	Tax amount	NUMBER
TPA_EFFECTIVE_DATE	Effective date of accelerated payment to subcontractor	TIMESTAMP
TPA_FEE_AMOUNT	Subcontractor TPA fee amount	NUMBER (16,2)

TPA_FUNDING_ACCOUNT	Account debited for accelerated paymennt	VARCHAR2(15)
TPA_MATURITY_ACCOUNT	Account credited for maturity payment	VARCHAR2(15)
TPA_PROGRAM_NUMBER	System generated TPA program number associated with payment	VARCHAR2(20)

W_PAYMENT_PROGRAM_D

Data Mapping

Field	Description	Data Type
SETTLEMENT_OBJECT_ID	Unique key	NUMBER(19)
CONTRACT_OBJECT_ID	Foreign key to W_CONTRACT_D	NUMBER(19)
TPA_CREDIT_ACCOUNT	Subcontractor TPA pay to account number (last 4 digits)	VARCHAR2(15)
DATE_CREATED	Date program created	DATE
DATE_SUBMITTED	Transmission date of TPA payment	DATE
DATE_UPDATED	DATE_UPDATED is the date that this record was updated in the TPM Data Service database. For more information, view the ***Managing Incremental Updates*** section in Help.	DATE
TPA_DEBIT_ACCOUNT	TPA pay from account number (last 4 digits)	VARCHAR2(15)
DRAW_NUMBER	Draw number	NUMBER(19)
FUNDED	Funded True/False	VARCHAR2(50)
MATURITY_DATE	Maturity date of TPA invoice	DATE
PROJECT_OBJECT_ID	Foreign key to W_T_PROJECT_D	NUMBER(19)
SUBORGANIZATION_ID	Textura customer number of subcontractor	NUMBER(19)

TPA_FILE_CREATION_DATE	Date the maturity bank file was created	DATE
TPA_DATEPROCESSED	Date the subcontractor accelerated payment is submitted	DATE

W_T_PROJECT_D

Data Mapping

Field	Description	Data Type
PROJECT_OBJECT_ID	Unique key	NUMBER(19)
ACTIVE	Project status (Active, Inactive)	VARCHAR2(50)
ACTUAL_START	Project start date from Project Settings	DATE
ADDRESS_1	Address line 1 from Site Information	VARCHAR2(50)
ADDRESS_2	Address line 2 from Site Information	VARCHAR2(50)
ARCHITECT_NAME	Name of architect assigned to project	VARCHAR2(2000)
CITY	City from Site Information	VARCHAR2(255)
CONSTRUCTION_TYPE	Project Type (Residential - New, Residential - Remodel, Commercial - New, Commercial - Remodel)	VARCHAR2(1000)
COUNTRY_NAME	Country from Site Address	VARCHAR2(255)
COUNTY	County from Site Address	VARCHAR2(255)
CURRENCY_LABEL	Currency assigned to project	VARCHAR2(10)

DATE_CREATED	Date project created	DATE
DATE_UPDATED	DATE_UPDATED is the date that this record was updated in the TPM Data Service database. For more information, view the ***Managing Incremental Updates*** section in Help.	DATE
DISBURSING_ORG_NAME	Name of organization disbursing payments	VARCHAR2(2000)
ESTIMATED_COMPLETION	Estimated completion date	DATE
ESTIMATED_START	Estimated start date	DATE
EXCLUDE_FROM_EXPORT	Exclude this project from invoice and payment exports selected on Project Settings	VARCHAR2(10)
GC_FUNDING_ORG_NAME	General Contractor Funding Organization from Project Participants	NVARCHAR2(1000)
GC_NAME	General contractor name	VARCHAR2(2000)
INVOICE_NUMBER_FORMAT	System Generated Invoice Number Format selected on Project Settings	VARCHAR2(200)
LAST_DRAW_PERIOD_TO_DATE	Last draw period to date on the project	DATE
ORACLE_GC_PART_DESCRIPTION	Project Fee Description	VARCHAR(50 CHAR)
ORACLE_GC_PART_NUMBER	Project Fee Number	NUMBER
ORIGINAL_COMPLETION	Original completion date	DATE
OWNER_NAME	Project owner assigned to project	VARCHAR2(2000)
PROGRAM_ID	TPA Program identifier	NUMBER(19)

PROJECT_NAME	Name of project	VARCHAR2(200)
PROJECT_NUMBER	GC project number	VARCHAR2(1000)
PROPERTY_NAME	Site name from Site Information	VARCHAR2(2000)
PROPERTY_OWNER	Property owner from Site Information	VARCHAR2(2000)
SEGMENT_DESCRIPTION	Description of segment ID	VARCHAR2(2000)
SEGMENT_NAME	Segment ID assigned to project	VARCHAR2(255)
STATEPROVINCE	State project is located	VARCHAR2(255)
SUB_FUNDING_ORG_NAME	Subcontractor funding organization from Project Participants	VARCHAR2(1000 CHAR)
TPA_AUTO_ENROLL	Project setting set to enable TPA eligibility for all contracts (True/False)	NVARCHAR2(10)
TPA_FUNDER_NAME	Name of funding account on TPA program assigned to project	VARCHAR2(1000)
TPA_MATURITY_INTERVAL	TPA invoice maturity interval assigned to project	NUMBER (38,0)
TPA_PROGRAM_NAME	Name of TPA program assigned to project	NVARCHAR2(200)
TPA_TERM_CODE	Name of assigned project pricing structure	NVARCHAR2(1000)
ZIPCODE	Zipcode from Site Information	VARCHAR2(255)

W_T_DELETED_D

Data Mapping

Field	Description	Data Type
DATE_DELETED	Date and time that the record was deleted from the TPM Data Service database.	DATE
TABLE_NAME	Name of table that the row was deleted from.	VARCHAR2(255)
OBJECT_ID	Part of the Primary Key or Unique Key.	NUMBER(19)
OBJECT_ID2	Part of Primary Key or Unique Key for some tables. For more information, view the ***Managing Incremental Updates*** section in Help.	NUMBER(19)
OBJECT_ID3	Part of Primary Key or Unique Key for some tables. For more information, view the ***Managing Incremental Updates*** section in Help.	NUMBER(19)
TIMESTAMP_COL	Part of Primary Key or Unique Key for some tables. For more information, view the ***Managing Incremental Updates*** section in Help.	TIMESTAMP6
PROJECT_OBJECT_ID	Foreign Key to W_T_PROJECT_D	NUMBER(19)

W_EXPORT_D

Data Mapping

Field	Description	Data Type
EXPORT_OBJECT_ID	Unique Key	INTEGER

CONTRACT_OBJECT_ID	Foreign Key to W_CONTRACT_D	INTEGER
INVOICE_OBJECT_ID	Foreign Key to W_INVOICE_D	INTEGER
PROJECT_OBJECT_ID	Foreign Key to W_T_PROJECT_D	INTEGER
JOBID_INVOICE	Textura Job Number for invoice export.	INTEGER
JOBID_INVOICE_REJECTION	Textura Job Number for invoice rejection export.	INTEGER
JOBID_PAYMENT	Textura Job Number for payment export.	INTEGER
INVOICE_EXPORT_DATE	The date the invoice was exported.	DATE
INVOICE_REJECTION_EXPORT_DATE	The date the invoice was rejected.	DATE
PAYMENT_EXPORT_DATE	The date the payment was exported.	DATE
INVOICE_NUMBER	Invoice number	VARCHAR2(750)
CHECK_NUMBER	Check number sequence	INTEGER
VENDOR_ID	Vendor ID assigned to Subcontractor.	VARCHAR2(50)
PAYMENT_OBJECT_ID	Foreign Key to W_PAYMENT_D	INTEGER
INVOICE_AMOUNT	Net invoice amount.	NUMBER(16,2)
DATE_UPDATED	DATE_UPDATED is the date that this record was updated in the TPM Data Service database. For more information, see topic ***Managing Incremental Updates***.	DATE

W_BUDGET_COMPONENT_D

Data Mapping

Field	Description	Data Type
BUDGET_COMPONENT_OBJECT_ID	Unique Key	INTEGER
CONTRACT_OBJECT_ID	Foreign Key to W_CONTRACT_D	INTEGER
PROJECT_OBJECT_ID	Foreign Key to W_T_PROJECT_D	INTEGER
CREATE_DRAW_NUMBER	Draw Number component created in.	INTEGER
DELETE_DRAW_NUMBER	Draw Number component created in.	INTEGER
DESCRIPTION	Description of component.	VARCHAR2(4000)
SUBCONTRACT_ITEM_NUMBER	Subcontractor Item Number	VARCHAR2(500)
DATE_UPDATED	DATE_UPDATED is the date that this record was updated in the TPM Data Service database. For more information, see topic ***Managing Incremental Updates***.	DATE

How Asynchronous Run Query Works

When longrunquery is run with valid JSON input, it returns 202 status code along with a unique key, internally it accepts the request and starts processing requested query. Once the processing is completed, result is cached for configurable amount of time. User can access the result with same unique key until it is available in cache.

Processing status can be checked using longrunquery result end point by passing the key like /ebis/api/v1/dataservice (the /longrunquery/result/<Key> request should be appended with the key that got returned from the longrunquery), it returns following responses based on the status

- PROCESSING if the request query is still processing.
- Response in JSON format, if the request query is successfully executed and saved in cache.

- FAILED if the request query encounters any exception while processing.

> **Note:** LongRunQuery response data for a specific key will be available in the system for only 60 minutes and after that response data will be deleted from system and key gets expired.

Page Size and Pagination

Page Size

Page size enables you to specify the max number of rows to be returned in response and this can be any value between 1 to 50000. Invalid values or values out of the specified range are discarded and the default value of 50000 is used.

For example: In below JSON input, it limits the response to have only 100 records even though there are more than 100 records in W_PAYMENT_D table

JSON Input

```
{

  "name": "PAYMENT",
  "pageSize": "100",
  "tables": [
    {
      "tableName": "W_PAYMENT_D",
      "columns": [
        "PAYMENT_OBJECT_ID",
        "PROJECT_OBJECT_ID",
                "CONTRACT_OBJECT_ID"
      ]
    }
  ]
}
```

Pagination

Pagination enables you to organize the content of large responses into smaller, more manageable chunks. The response contains pagination information to indicate that there are more pages of data that have not been returned. You can send the same request again along with the pagination information to get the rest of the data.

For example, the following response contains pagination information:

```
    "pagination": [
        {
            "nextTableName": "W_PAYMENT_D",
            "nextKey": "101"
        }
    ]
```

To retrieve the next page of the data, set the "nextTableName" and "nextKey" properties in the original JSON request and run the query again using the /longrunquery endpoint. The response will again return a unique key, which should be used in a subsequent call to the result/<key> end point and it fetches number of rows specified in "pageSize" property (or the max page size which is 50,000). If there is more data, the response will include a new section of pagination information. You can continue to send requests with new pagination information until the "pagination" section in the response JSON text shows "nextTableName" as "-1".

Sample Response with Pagination Data

```
{
    "data": {
        "W_PAYMENT_D": [
            {
                "PAYMENT_OBJECT_ID": "999683",
                "PROJECT_OBJECT_ID": "13428",
                "CONTRACT_OBJECT_ID": "658370"
            },
.
.
.
.
{
                "PAYMENT_OBJECT_ID": "1146540",
                "PROJECT_OBJECT_ID": "15248",
                "CONTRACT_OBJECT_ID": "840741"
            }
        ],
        "pagination": [
            {
                "nextTableName": "W_PAYMENT_D",
                "nextKey": "101"
            }
        ],
        "safetyDate": [
            {
                "queryName": "PAYMENT",
                "sinceDate": null
            }
        ]
    }
}
```

Sample Request for Next Page

```
{

  "name": "PAYMENT",
  "nextTableName": "W_PAYMENT_D",
  "nextKey": "101",
  "pageSize": "100",
  "tables": [
    {
      "tableName": "W_PAYMENT_D",
      "columns": [
        "PAYMENT_OBJECT_ID",
        "PROJECT_OBJECT_ID",
                "CONTRACT_OBJECT_ID"
      ]
    }
  ]
}
```


REST Style Architecture and Status Codes

The TPM Data Service employs web-based technology to handle requests from external client programs. Clients access the data service by sending HTTPS requests that include standard HTTPS methods. Some requests, such as a POST request to the /longrunquery endpoint, require additional request data in JSON format. When you provide additional data with a request, you must specify a content-type in the request header. For example, a request that includes JSON data must include a content-type of application/json in its request header.

The data service supports the following HTTPS request methods:

- GET: Returns supported database tables and columns.
- POST: Run queries against database tables.

Upon receiving a request, the data service invokes business and security logic to service the request and provide an appropriate response.

Status Codes

Upon receiving a request, the TPM Data Service returns a response containing one of the following standard HTTP status codes.

HTTP Status Code	Description
200 OK	Request completed successfully. A 200 status is returned when a request is successfully processed. The 200 status response is also returned in special cases like below : - When the user requested for the data, if the request is still being processed then status code :- 200 response :- {"data":{"STATUS": "Processing"}} When the user requested for the data, if the data is being cleared in the server cache tables then status code :- 200 response :- {"data":{"STATUS": "NO DATA (The Results Are Cleaned Up)"}} When the user requested for the data, if the request is failed while due to data errors. status code :- 200 response :- {"data":{"STATUS": "FAILED"}}
400 Bad Request	The request could not be processed because it is missing information, contains invalid information, or has syntax errors. The 400 status response is also returned in special cases like below : - When user 'A' is requested the data (gets the key in response), and user 'B' is trying to access the data then the response message will be like status code :- 400 response : - 'B' : user can not access the data. When the user requested for the data with invalid key(key which is not created by the server). status code : 400 response :- No Record Found For Given Key with User : 'A'
404 Not Found	The request includes a URI that does not exist.

401 Unauthorized	The request is not authorized. The authentication credentials included with this request are missing or invalid.
403 Forbidden	The user cannot be authenticated. The user does not have authorization to perform this request.
405 Method Not Allowed	The HTTP verb specified in the request ( ) is not supported for this request URI.
406 Not Acceptable	The object identified by this request is not capable of generating a representation corresponding to one of the media types in the Accept header of the request. For example, the client's Accept request header may require XML format return values, but the data service may only return JSON format values
415 Not Acceptable	The client's ContentType header is not correct. For example, the client attempts to send the request in XML, but the resource can only accept JSON.
500 Internal Server Error	The server encountered an unexpected error that prevented it from fulfilling the request.
503 Service Unavailable	The server is unable to handle the request due to temporary overloading or maintenance.

Additional Data Service Query Examples

Data service query using BETWEEN operator for filtering date values

```
{
    "name": "INVOICE",
    "pageSize": "1000",
    "tables": [
        {
            "tableName": "W_INVOICE_D",
            "columns": [
                "DATASOURCE_ID",
                "INVOICE_OBJECT_ID",
                "DATE_APPROVED",
                "DATE_AUTHORIZED",
                "PAYMENT_STATUS",
                "INVOICE_NUMBER"
            ],
            "condition": {
                "operator": "AND",
                "conditions": [
                    {
                        "columnName": "DATE_APPROVED",
                        "operator": "BETWEEN",
                        "value1": "20-OCT-2018",
                        "value2": "20-DEC-2018"
                    }
                ]
            }
        }
    ]
}
```

Data service query using simple Explicit Join when there is no referential integrity between tables

```
{
    "name": "BUDGET",
    "pageSize": "1000",
    "tables": [
        {
            "tableName": "W_BUDGET_F",
            "columns": [
                "DATASOURCE_ID",
                "BUDGET_OBJECT_ID",
                "PROJECT_OBJECT_ID",
                "GC_OBJECT_ID",
                "SUBCONTRACTOR_OBJECT_ID",
                "CONTRACT_OBJECT_ID",
                "BUDGET_AMOUNT",
                "BALANCE"
            ],
            "joinedTables": [
                {
                    "tableName": "W_PAYMENT_D",
                    "columns": [
                        "PAYMENT_OBJECT_ID",
                        "PAYMENTCODE"
                    ],
                    "joinCondition": {
                        "columnName1": "W_BUDGET_F.PROJECT_OBJECT_ID",
                        "columnName2": "W_PAYMENT_D.PROJECT_OBJECT_ID"
                    }
                }
            ]
        }
    ]
}
```

Data service query joining multiple inner tables

```
{
    "name": "BUDGET",
    "pageSize": "1000",
    "tables": [
        {
            "tableName": "W_BUDGET_F",
            "columns": [
                "DATASOURCE_ID",
                "BUDGET_OBJECT_ID",
                "PROJECT_OBJECT_ID",
                "GC_OBJECT_ID",
                "SUBCONTRACTOR_OBJECT_ID",
                "CONTRACT_OBJECT_ID",
                "BUDGET_AMOUNT",
                "BALANCE"
            ],
            "joinedTables": [
                {
                    "tableName": "W_PAYMENT_D",
                    "columns": [
                        "PAYMENT_OBJECT_ID",
                        "PAYMENTCODE"
                    ],
                    "joinCondition": {
                        "columnName1": "W_BUDGET_F.PROJECT_OBJECT_ID",
                        "columnName2": "W_PAYMENT_D.PROJECT_OBJECT_ID"
                    }
                },
                {
                    "tableName": "W_CONTRACT_D",
                    "columns": [
                        "CONTRACT_OBJECT_ID",
                        "CONTRACT_NUMBER"
                    ],
                    "joinCondition": {
                        "columnName1": "W_BUDGET_F.PROJECT_OBJECT_ID",
                        "columnName2": "W_CONTRACT_D.PROJECT_OBJECT_ID"
                    }
                }
            ]
        }
    ]
}
```

Data service query joining single inner table with multiple conditions

```
{
    "name": "BUDGET",
    "pageSize": "1000",
    "tables": [
        {
            "tableName": "W_BILLING_F",
            "columns": [
                "DATASOURCE_ID",
                "BILLING_OBJECT_ID",
                "PROJECT_OBJECT_ID",
                "GC_OBJECT_ID",
                "SUBCONTRACTOR_OBJECT_ID",
                "CONTRACT_OBJECT_ID",
                "TOTALWORKCOMPLETE",
                "PENDINGPAYMENT"
            ],
            "joinedTables": [
                {
                    "tableName": "W_PAYMENT_F",
                    "columns": [
                        "PAYMENT_OBJECT_ID",
                        "INVOICE_OBJECT_ID",
                                                "PAYMENTAMOUNT"
                    ],
                    "joinCondition": {
                                            "operator": "AND",
                    "joinConditions": [
                                            {
                        "columnName1": "W_BILLING_F.PROJECT_OBJECT_ID",
                        "columnName2": "W_PAYMENT_D.PROJECT_OBJECT_ID"
                    },
                                            {
                        "columnName1": "W_BILLING_F.INVOICE_OBJECT_ID",
                        "columnName2": "W_PAYMENT_D.INVOICE_OBJECT_ID"
                    }
                }
            ]
        }
    ]
}
```

Data service query with Join and Data filter

```
{
    "name": "BUDGET",
    "pageSize": "1000",
    "tables": [
        {
            "tableName": "W_BUDGET_F",
            "columns": [
                "DATASOURCE_ID",
                "BUDGET_OBJECT_ID",
                "PROJECT_OBJECT_ID",
                "GC_OBJECT_ID",
                "SUBCONTRACTOR_OBJECT_ID",
                "CONTRACT_OBJECT_ID",
                "BUDGET_AMOUNT",
                "BALANCE"
            ],
            "joinedTables": [
                {
                    "tableName": "W_PAYMENT_D",
                    "columns": [
                        "PAYMENT_OBJECT_ID",
                        "PAYMENTCODE"
                    ],
                    "condition": {
                        "operator": "AND",
                        "conditions": [
                            {
                                "columnName": "PAYMENTCODE",
                                "operator": "NOT_EQUALS",
                                "value1": "ACH",
                                "value2": null
                            }
                        ]
                    },
                    "joinCondition": {
                        "columnName1": "W_BUDGET_F.PROJECT_OBJECT_ID",
                        "columnName2": "W_PAYMENT_D.PROJECT_OBJECT_ID"
                    }
                },
                {
                    "tableName": "W_CONTRACT_D",
                    "columns": [
                        "CONTRACT_OBJECT_ID",
                        "CONTRACT_NUMBER"
                    ],
                    "joinCondition": {
                        "columnName1": "W_BUDGET_F.PROJECT_OBJECT_ID",
                        "columnName2": "W_CONTRACT_D.PROJECT_OBJECT_ID"
                    }
                }
            ]
        }
    ]
}
```

Data service complex query with Filters and Joins

```
{
    "name": "BUDGET",
    "pageSize": "1000",
    "tables": [
        {
            "tableName": "W_BUDGET_F",
            "columns": [
                "DATASOURCE_ID",
                "BUDGET_OBJECT_ID",
                "PROJECT_OBJECT_ID",
                "GC_OBJECT_ID",
                "SUBCONTRACTOR_OBJECT_ID",
                "CONTRACT_OBJECT_ID",
                "BUDGET_AMOUNT",
                "BALANCE"
            ],
            "condition": {
                "operator": "AND",
                "conditions": [
                    {
                        "columnName": "BALANCE",
                        "operator": "GREATER_THAN",
                        "value1": "0",
                        "value2": null
                    }
                ]
            },
            "joinedTables": [
                {
                    "tableName": "W_PAYMENT_D",
                    "columns": [
                        "PAYMENT_OBJECT_ID",
                        "PAYMENTCODE"
                    ],
                    "condition": {
                        "operator": "AND",
                        "conditions": [
                            {
                                "columnName": "PAYMENTCODE",
                                "operator": "NOT_EQUALS",
                                "value1": "ACH",
                                "value2": null
                            }
                        ]
                    },
                    "joinCondition": {
                        "columnName1": "W_BUDGET_F.PROJECT_OBJECT_ID",
                        "columnName2": "W_PAYMENT_D.PROJECT_OBJECT_ID"
                    }
                },
                {
                    "tableName": "W_CONTRACT_D",
                    "columns": [
                        "CONTRACT_OBJECT_ID",
```

```
                        "CONTRACT_NUMBER"
                    ],
                    "joinCondition": {
                        "columnName1": "W_BUDGET_F.PROJECT_OBJECT_ID",
                        "columnName2": "W_CONTRACT_D.PROJECT_OBJECT_ID"
                    }
                }
            ]
        }
    ]
}
```