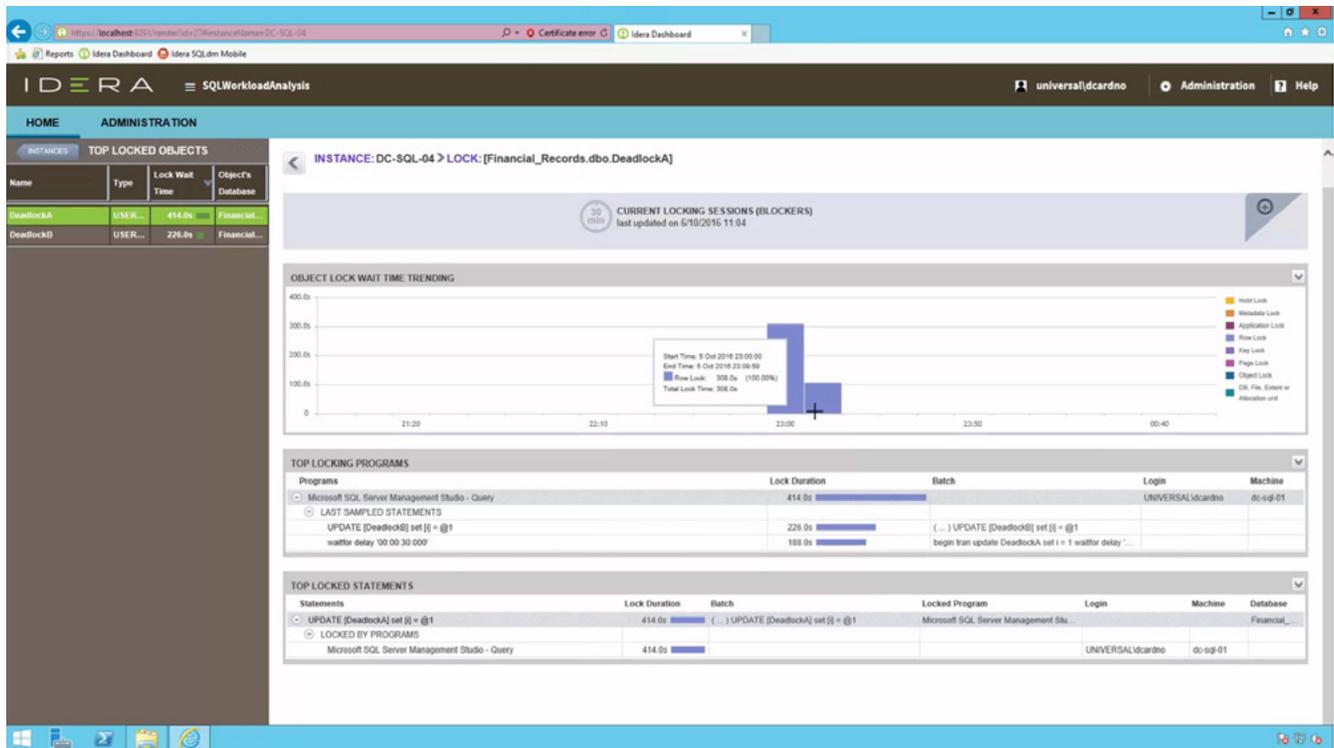


# INTRODUCTION TO SQL WORKLOAD ANALYSIS

# WHAT IS SQL WORKLOAD ANALYSIS?

It is an add-on to SQL Diagnostic Manager and a component of the IDERA Dashboard. This dashboard is the central portal for several tools from IDERA. These tools include tools for security, backup, business intelligence, and inventory management.



**Figure 1:** In the IDERA Dashboard, view (for example) the top instances by alert count and by sessions for SQL Diagnostic Manager, the environment alerts for SQL Compliance Manager, the longest-running backup jobs for SQL Safe Backup, the tags for SQL Inventory Manager, and the overall status for SQL BI Manager.

# WHAT DOES SQL WORKLOAD ANALYSIS DO?

Identify where SQL Server issues exist. Then, drill down into periods of latency. This way, correlate all of the contributing factors to establish the root cause. Immediately know what databases are processing, drill into SQL statements, and receive actionable advice.

## EXPLORE TOP MONITORED INSTANCES

*With very few clicks access lots of relevant real-time data and insightful historical trends from frequent sampling.*

The web-based user interface presents a consolidated view of various key indicators of performance. By default, the unified view displays the collected data for the last day. Show longer or shorter periods by selecting the corresponding control buttons.

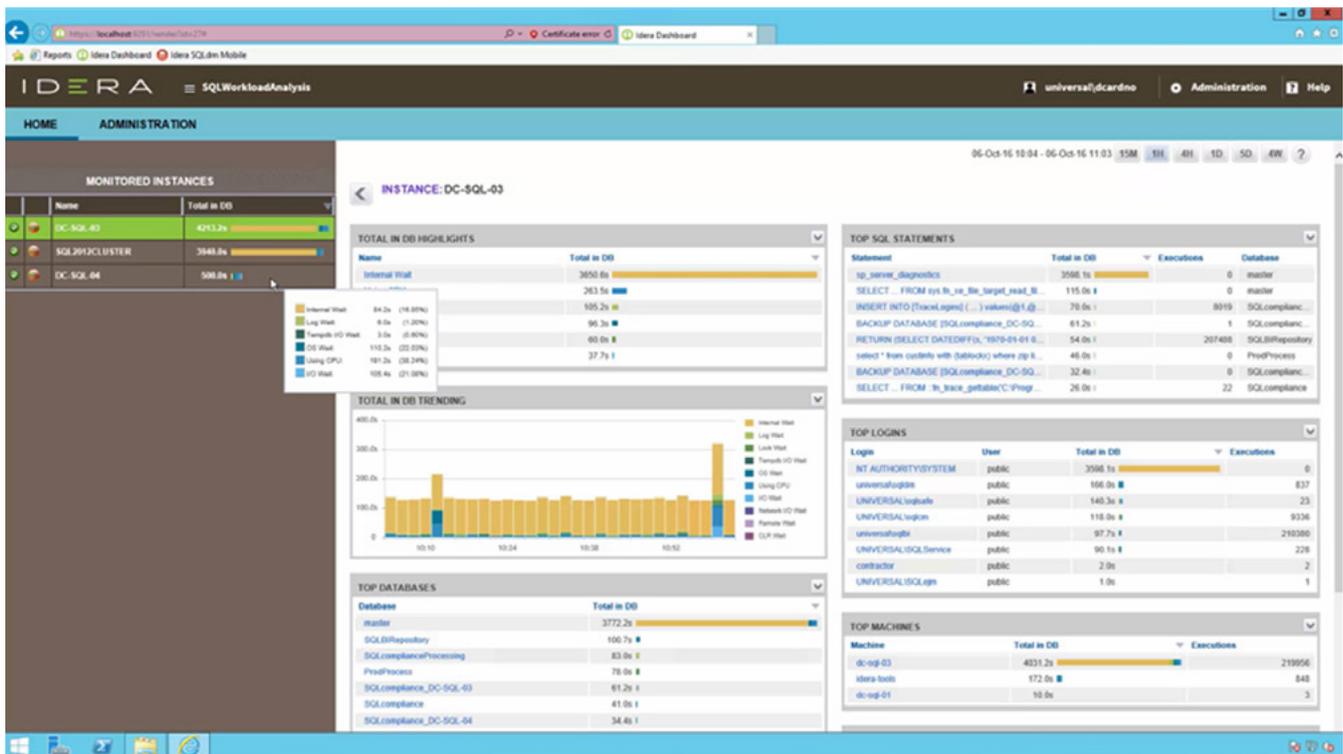


Figure 2: List the top monitored instances. For a selected monitored instance, see the top waits and their trends, the top databases, the top SQL statements, the top logins, and the top machines.

# FOCUS ON PROBLEMATIC OCCURRENCES

*With very few clicks drill-down to critical time intervals (for example, from 4 weeks to 5 minutes).*

Drill into a more detailed perspective where there are noticeable spikes regarding the system performance. Drill in further by drawing a band around the problematic zone to reassess the contributing factors from that time.

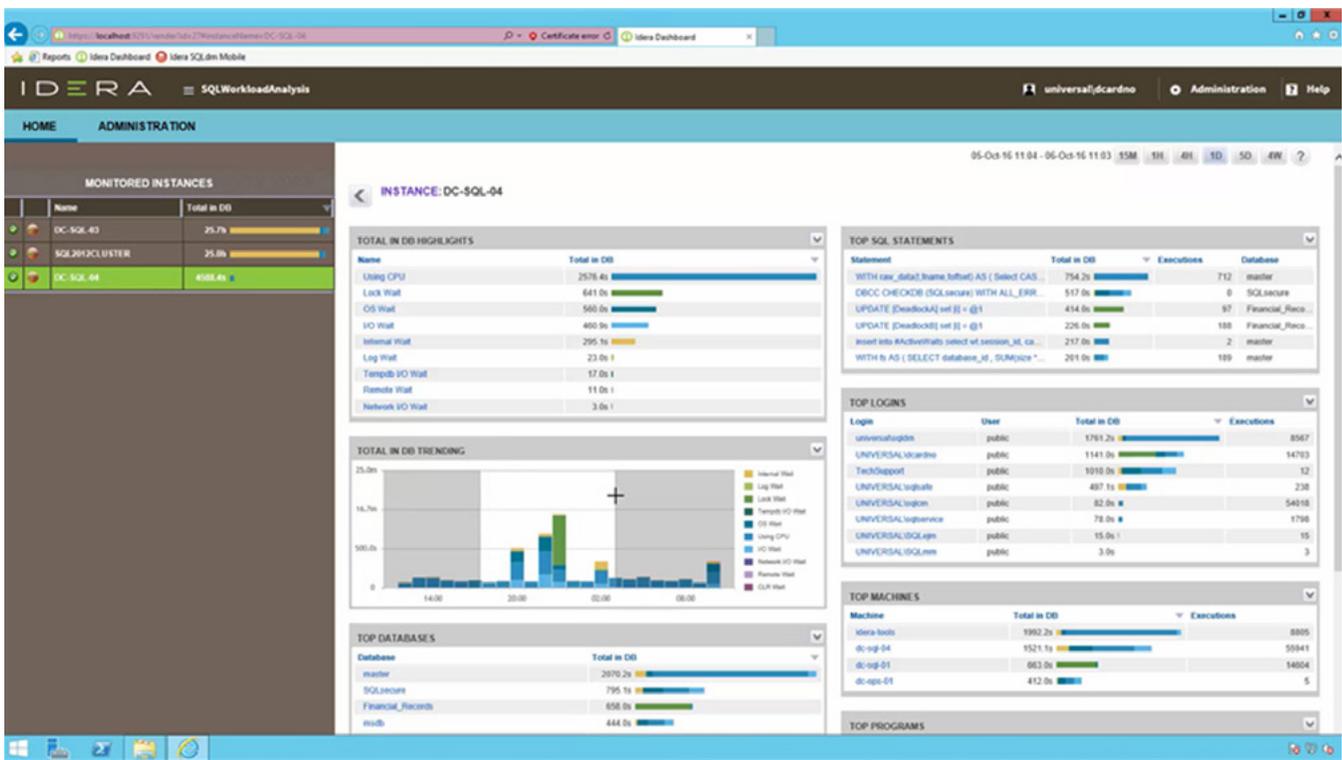
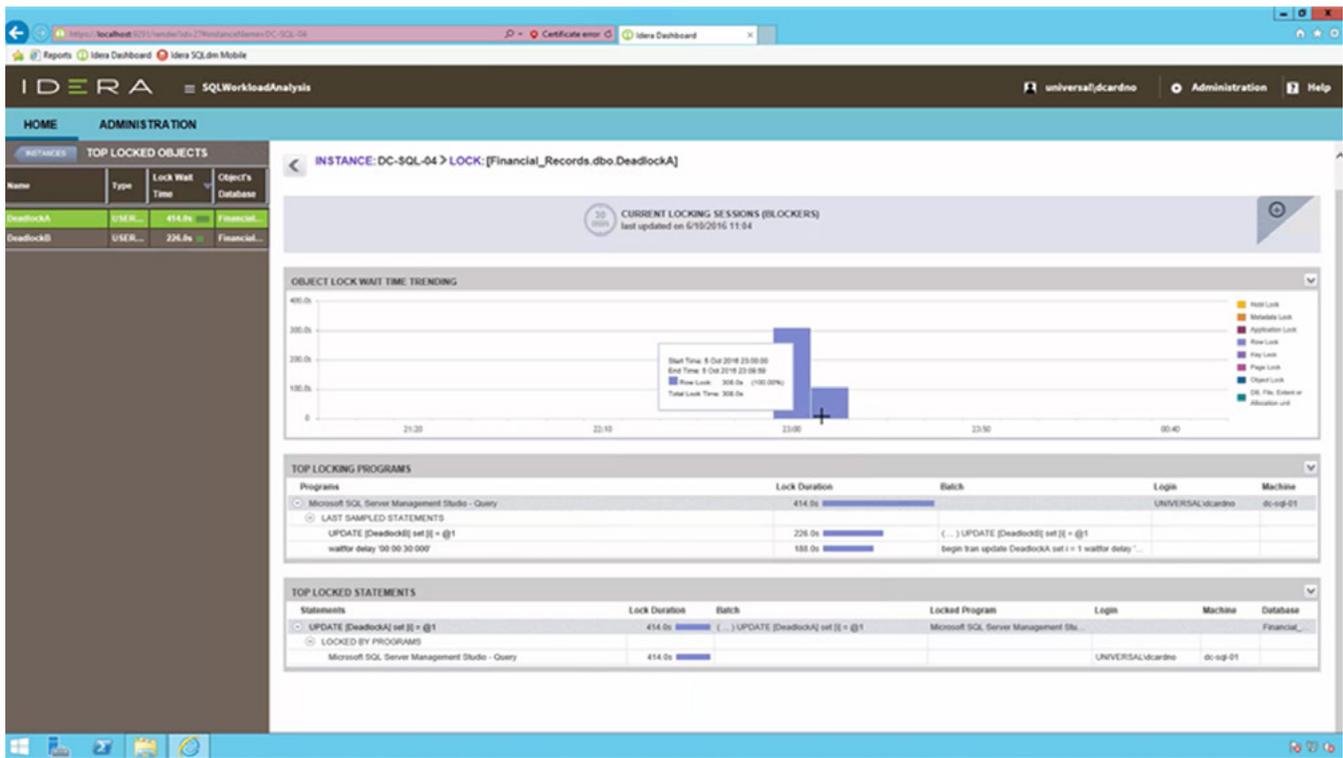


Figure 3: Using any trend chart, zoom into a time interval by clicking and dragging a rectangle over the relevant sub-domain.

# EXPLORE TOP LOCKED OBJECTS

*With very few clicks drill-down from problems to their root cause.*

See the impact regarding queries, CPU, and lock waits. Select a hyperlink to identify the SQL statements, the corresponding users, and the application detail. This view also shows how long the issue persisted for any given category.

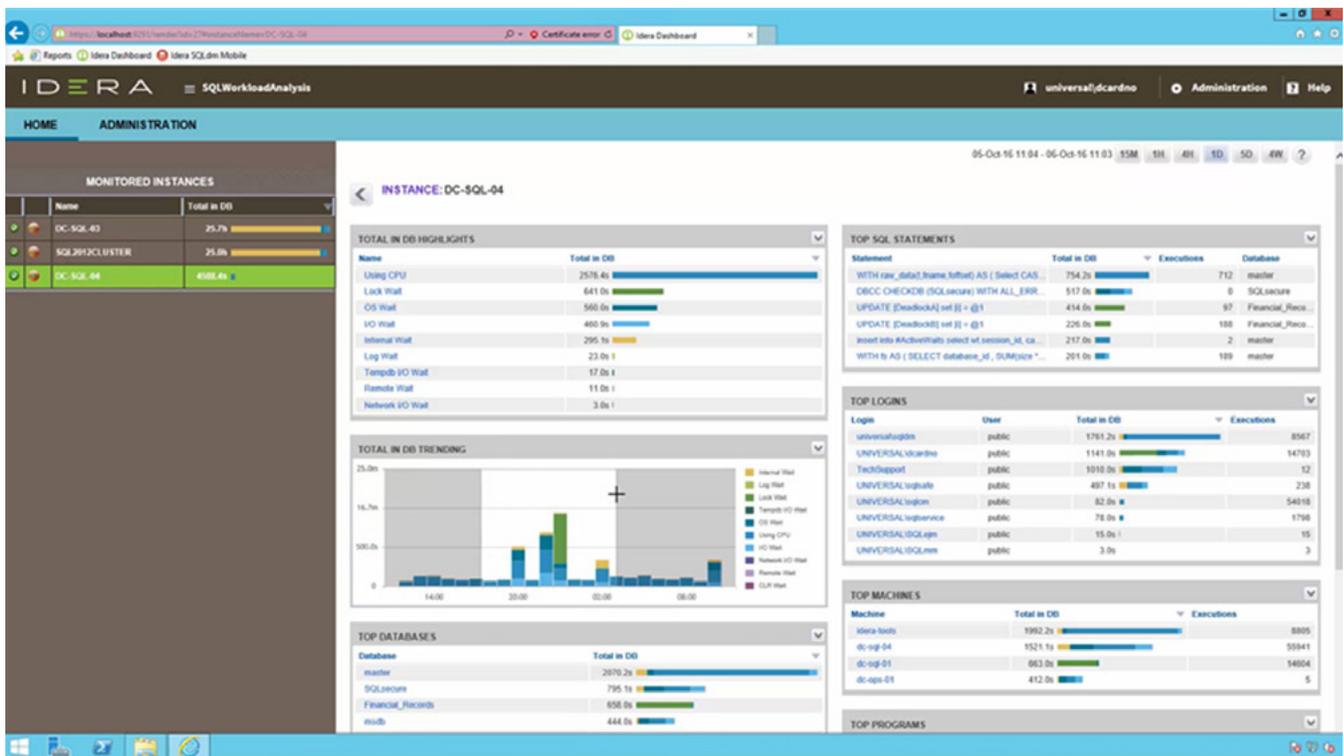


**Figure 4:** List the top locked objects. For a selected locked object, display the trend for the wait times, the top locking programs, and the top locked statements.

# EXPLORE TOP LOGINS

**Back out of the previously selected period to show user-specific information.**

This information identifies where the user was accessing the system from and other associated SQL statements. Cycle through additional users in this view.

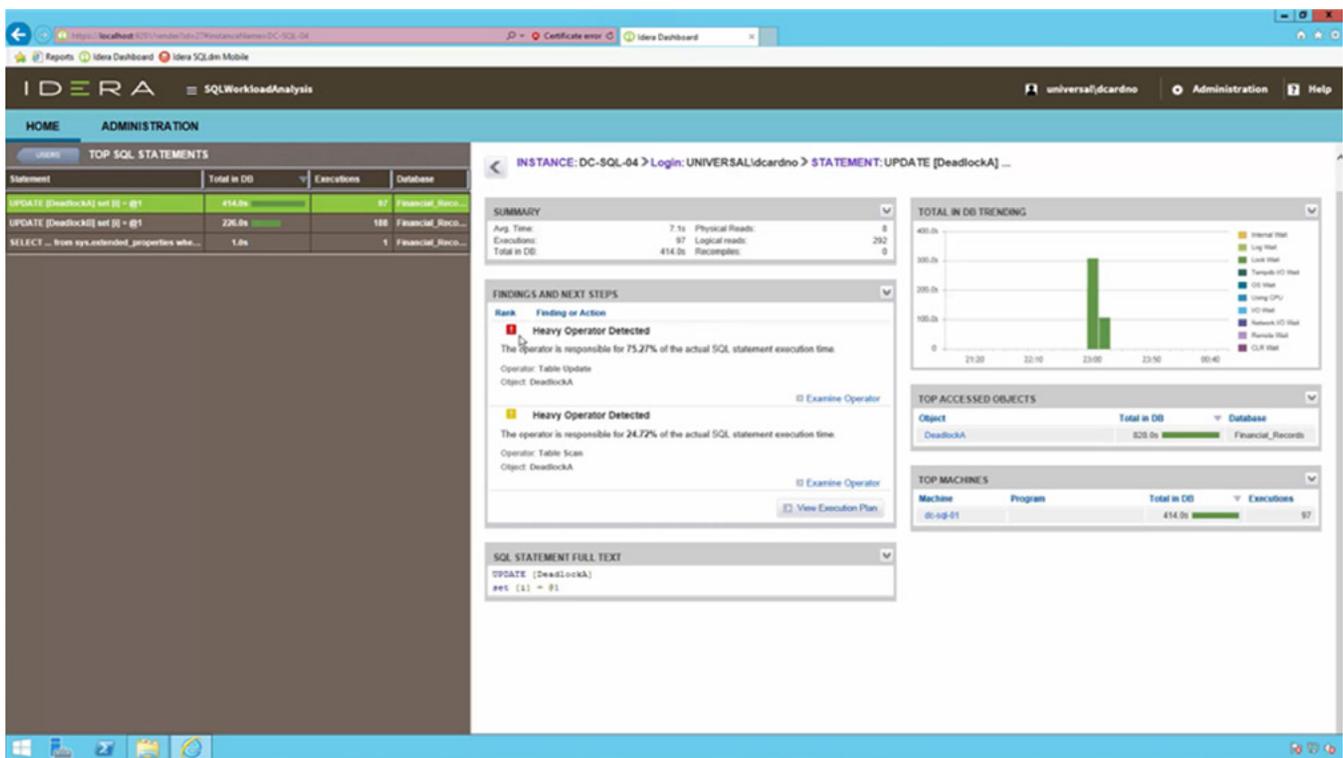


**Figure 5:** List the top logins. For a selected login, show the top waits and their trends, the top databases, the top SQL statements, the top machines, and the top programs.

# EXPLORE TOP SQL STATEMENTS

*With very few clicks drill-down to actionable recommendations to improve query performance.*

Select the top SQL statements to drill into more detailed query information. These details include what specifically are the heaviest operators per query and what percentage of the execution time they consume.



**Figure 6:** List the top SQL statements. For a selected SQL statement, view its performance summary, any findings (such as heavy operators) and next steps, the full text of the SQL statement, the trend of the waits, the top accessed objects, and the top machines.

# EXPLORE TOP SQL STATEMENTS

*With very few clicks drill-down to query execution plans.*

Break down the execution plan to show the specific components and the associated cost to performance. View heavily nested SQL statements with many factors contributing to the overall performance.

The screenshot displays the IDERA SQL Workload Analysis interface. The top navigation bar includes 'HOME' and 'ADMINISTRATION'. The main content area is titled 'INSTANCE: DC-SQL-04 > Login: UNIVERSAL\dcardno > STATEMENT: SELECT ... from sys...'. It is divided into two main sections: 'EXECUTION PLAN' and 'SQL STATEMENT FULL TEXT'.

The 'EXECUTION PLAN' section shows a tree view of the query execution plan. The root node is 'Actual Execution Plan as of 2016-10-06 04:00'. Below it, various operators are listed with their associated costs and cardinalities. The 'Filter' operator is highlighted, showing a cost of 0.000001 and a cardinality of 0. The plan includes several nested loops, hash matches, and clustered index seeks.

The 'SQL STATEMENT FULL TEXT' section displays the full SQL query text, which is a complex SELECT statement with multiple CASE expressions and subqueries. The query is as follows:

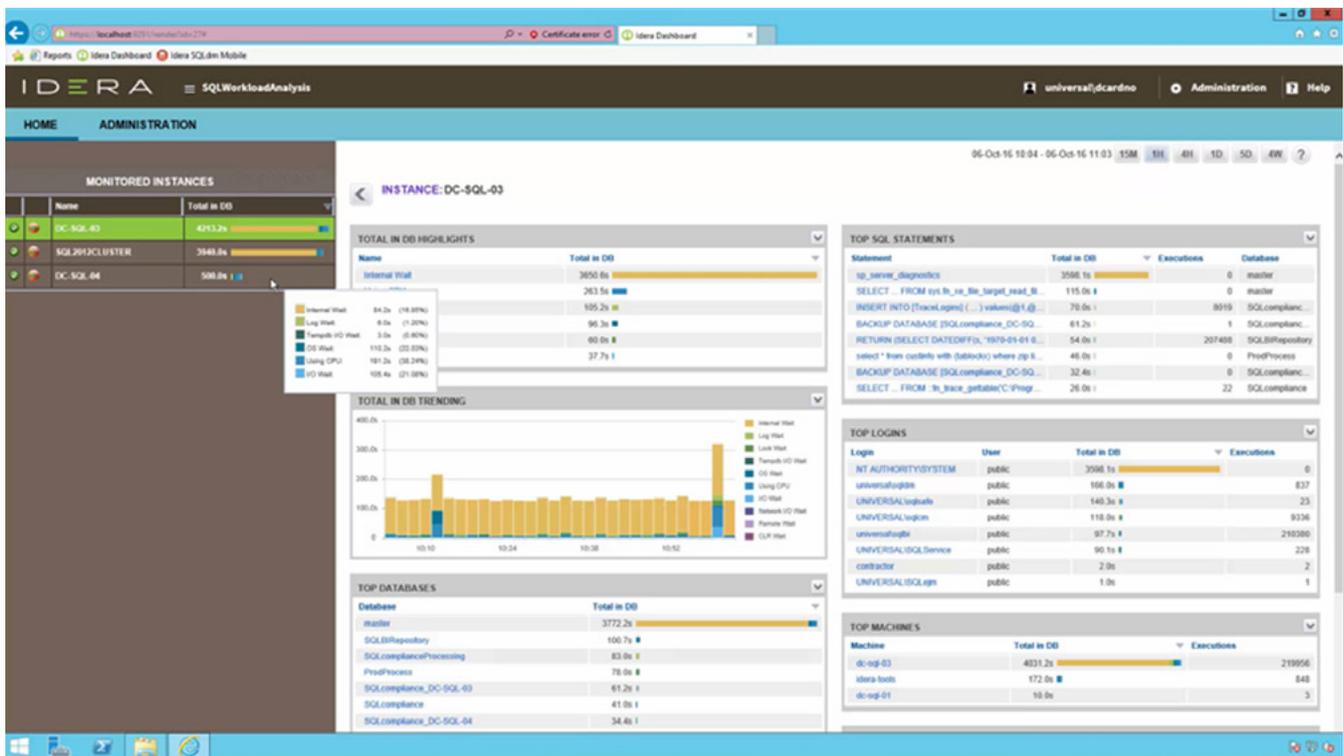
```
SELECT SCHEDA_SCHEMA(udf.schema_id) AS [Schema], udf.name AS [Name], udf.object_id AS [ID], (
CASE
WHEN 'FS' = udf.type then 1
WHEN 'FS' = udf.type then 1
WHEN 'IF' = udf.type then 3
WHEN 'IF' = udf.type then 2
WHEN 'FT' = udf.type then 2
ELSE 0
END) AS [FunctionType],
CASE
WHEN udf.type IN ('FS','IF','IF') THEN 1
WHEN udf.type IN ('FS','FT') THEN 2
ELSE 1
END AS [ImplementationType], CAST(
CASE
WHEN udf.is_as_shipped = 1 THEN 1
WHEN (
SELECT major_id
FROM sys.extended_properties
WHERE major_id = udf.object_id
AND minor_id = 0
AND class = 1
AND name = N'microsoft_database_tools_support'
) IS NOT NULL THEN 1
ELSE 0
END AS bit) AS [IsSystemObject], CAST(
CASE
WHEN ISNULL(enuuf.definition, enuuf.definition) IS NULL THEN 1
ELSE 0
END AS bit) AS [IsEncrypted], CAST(ISNULL(OBJECTPROPERTY(udf.object_id, N'IsSchemaBound'),0)
AS bit) AS [IsSchemaBound], udf.name AS [DataType], ISNULL(haset.name, N'') AS [SystemType],
CAST(
CASE
WHEN haset.name IN ('nchar', 'nvarchar')
AND ret_param.max_length <= -1 THEN ret_param.max_length/2
ELSE ret_param.max_length
END AS int) AS [Length], CAST(ret_param.precision AS int) AS [NumericPrecision], CAST(
ret_param.scale AS int) AS [NumericScale], ISNULL(isret_param.name, N'') AS
```

Figure 7: For a selected SQL statement, see its execution plan and its full text.

# EXPLORE TOP PROGRAMS

*Pull the detail from the noisy applications into focus and drill into the impact that they had at that time.*

Consolidate all of the key performance indicators.

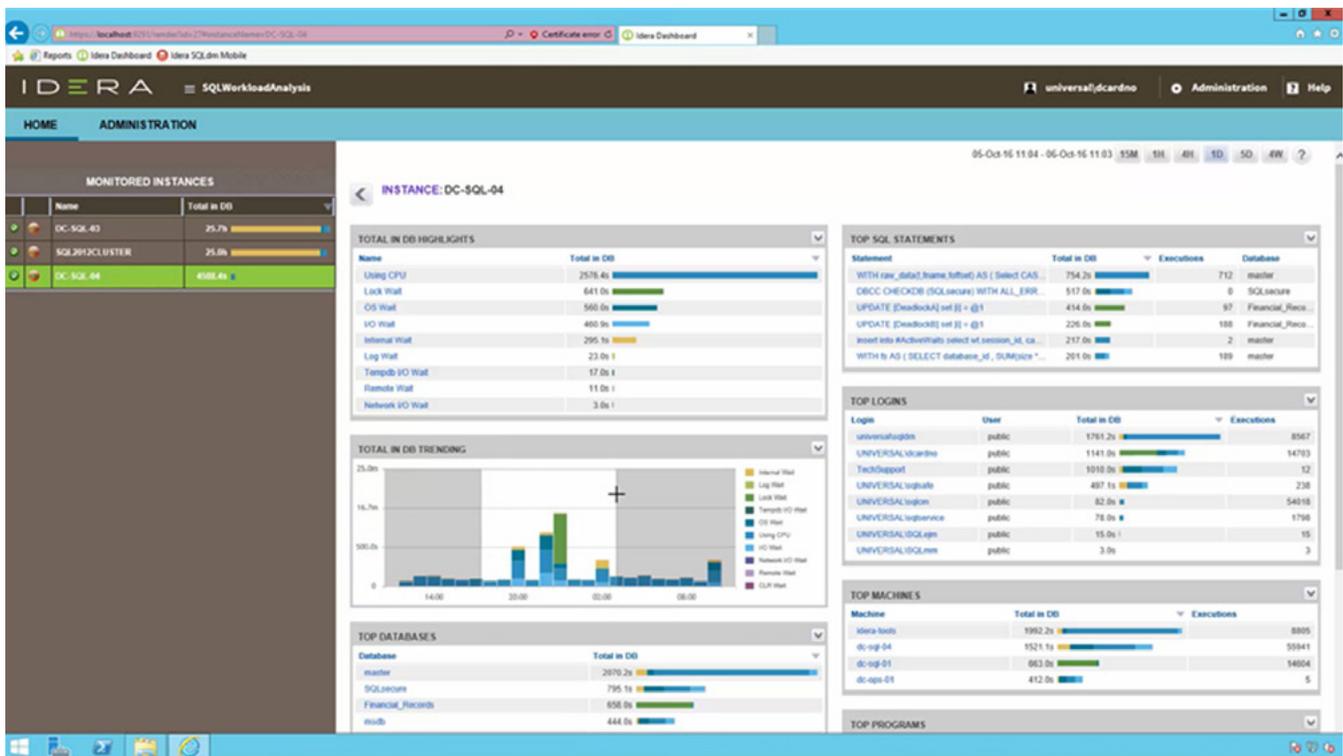


**Figure 8:** List the top programs. For a selected program, show the top waits and their trends, the top databases, the top SQL statements, the top logins, and the top machines.

# CUSTOMIZE THE LAYOUT

*From the top-level, configure the components. Manipulate panels to highlight and focus on areas of concern.*

In the user interface, display prominently the items that matter most.



**Figure 9:** Customize any dashboard layout by moving, closing and opening each panel to display the most relevant information in the most convenient location.

## FINAL THOUGHTS

### **Effortlessly manage the performance of complex SQL Server environments.**

With SQL Workload Analysis, apply continuous sampling to provide a real-time view of entire databases. Quickly drill down to isolate slow SQL statements, analyze execution plans, and see automated recommendations to tune problem statements. Improve application performance with built-in recommendations, and arrive at root cause fast with the integrated operational and transactional diagnosis.



# Boost the performance monitoring power of SQL Diagnostic Manager with detailed transactional application monitoring.

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