



MAXGAUGE REALTIME MONITOR

Instance Name Business Name

OVERALL

ORA102
JAPAN
CHINA
...

MAXGAUGE for SQL Server v4.5

PRODUCT DOCUMENTATION



- **Product Overview**

- Monitoring Methodology
- MaxGauge Structure
- Performance Indicators
- Installation Environment

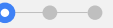
- **Main Functions**

- Real-time Monitoring
- Performance Analysis
- Additional Functions

- **Success Stories**

- Overseas Project
- Customer Voice
- Customers





Product Overview

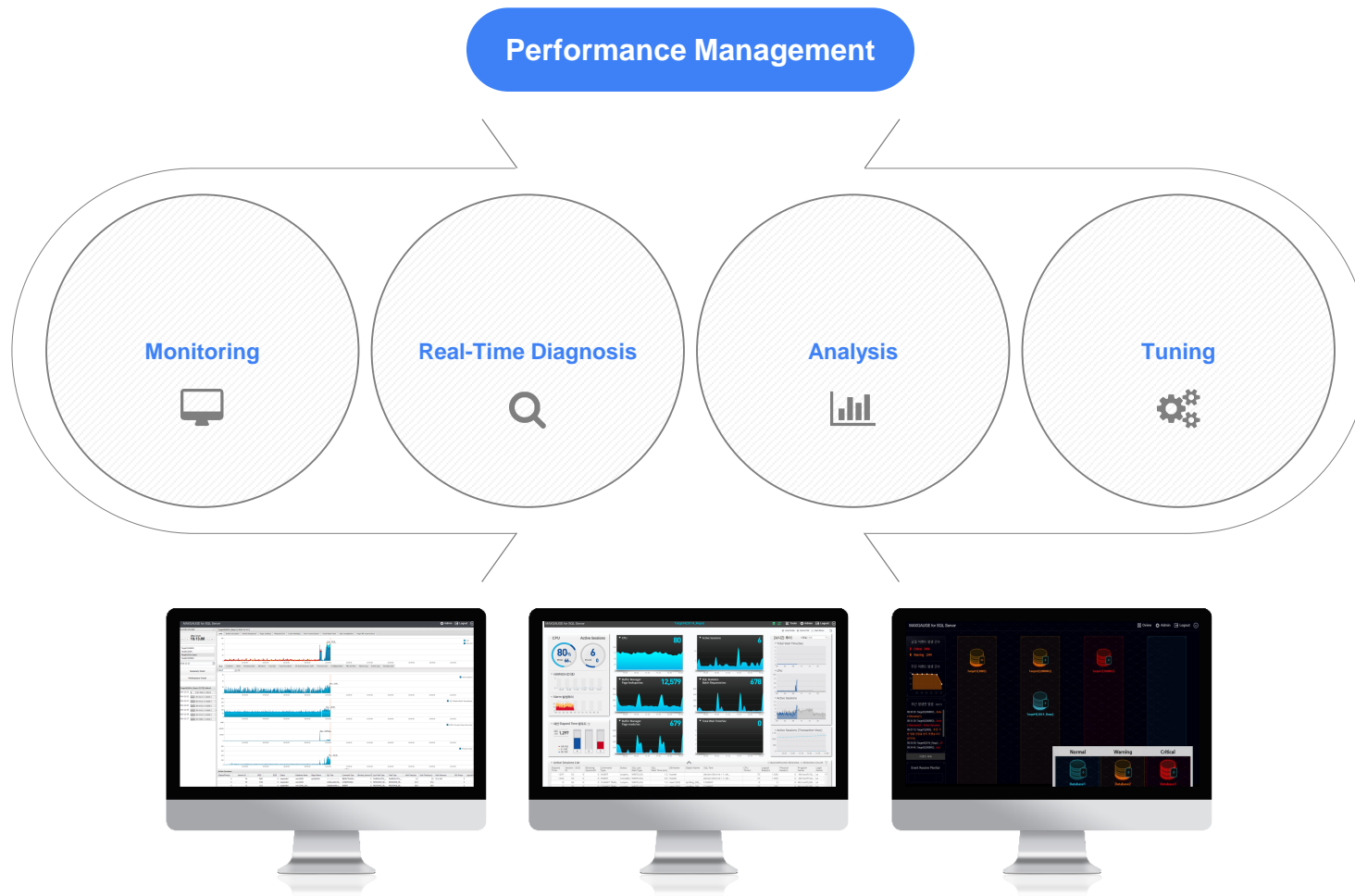
Monitoring Methodology
MaxGauge Structure
Performance Indicators
Installation Environment



Database Performance Monitoring SW

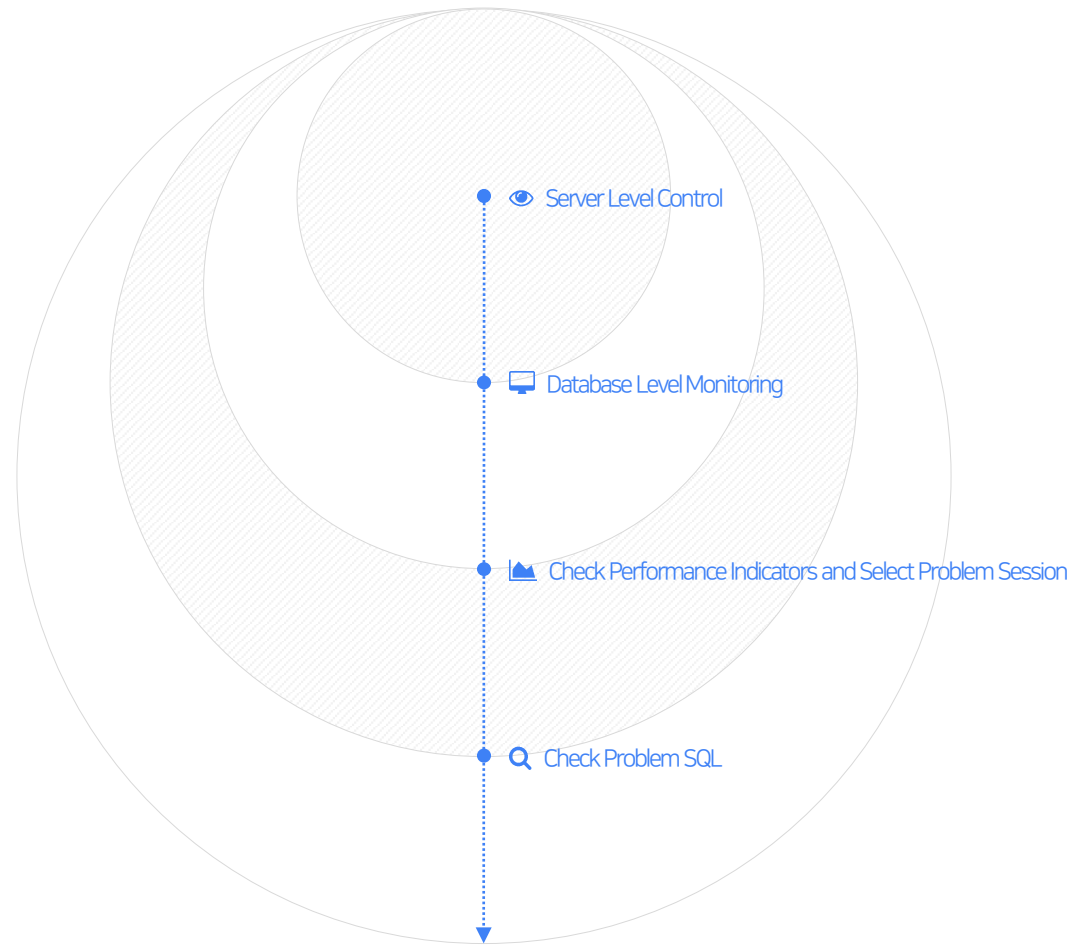
Database Real-Time Monitoring, Operation Information Collection

Diagnosis, Analysis and Performance Tuning

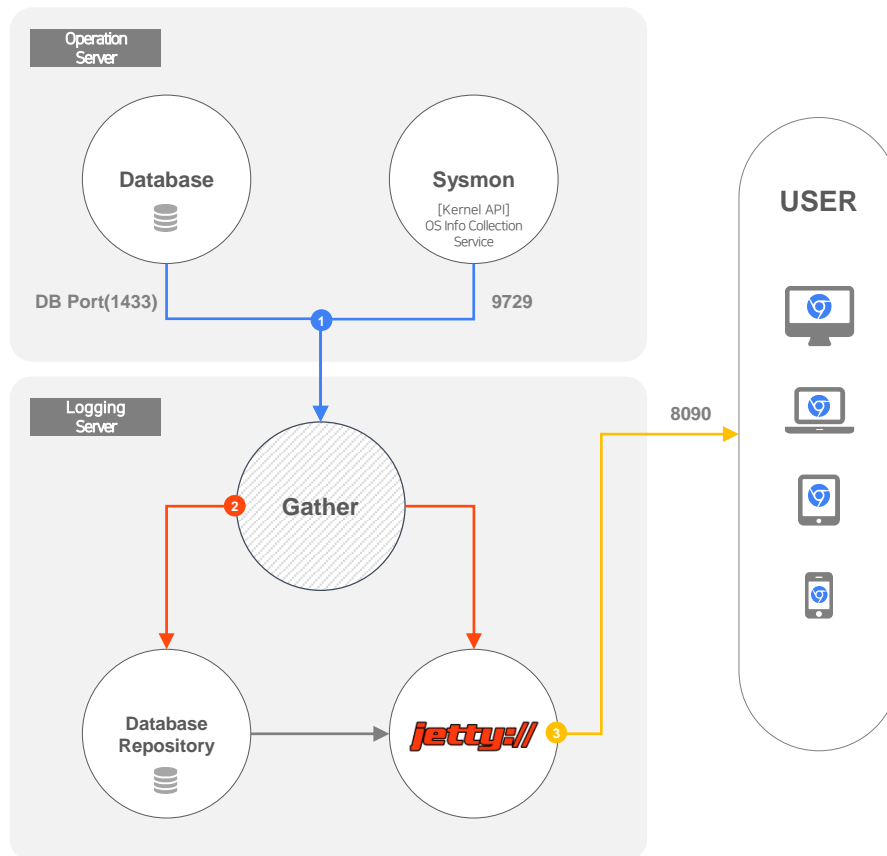


Top-Down Approach

[Server Level → Database Level → Session Level → SQL Level] Intuitive Access UI



MaxGauge for SQL Structure Diagram



①

Data Gather collects real-time information as follows: DB related information through SQL communication, and OS related information through the “OS Information Collection Service” and by socket communication.

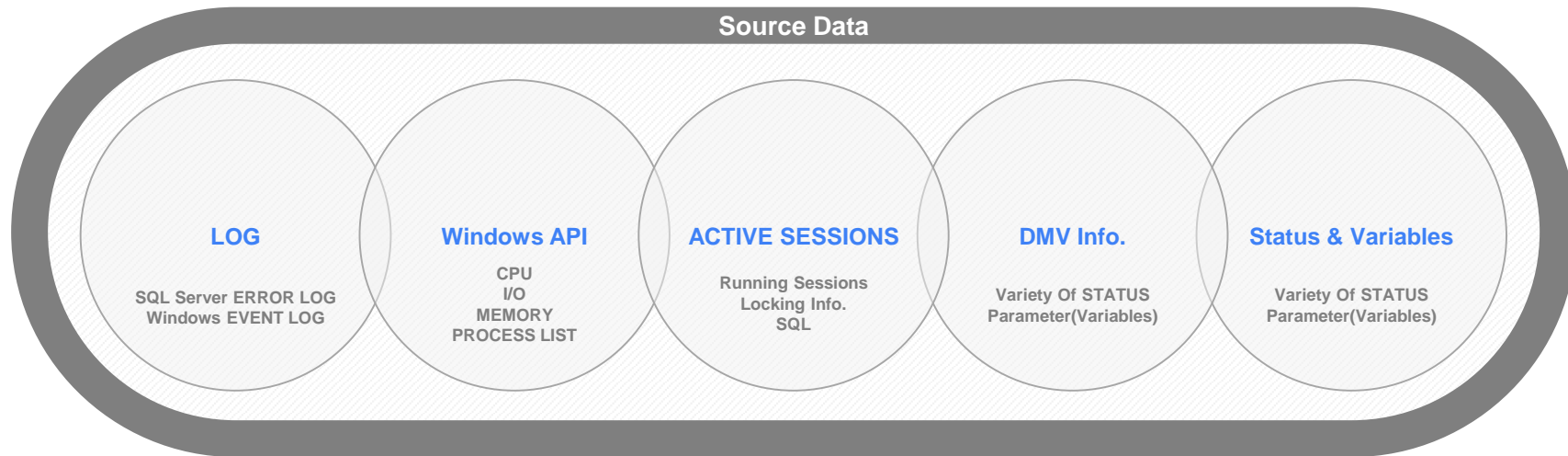
②

The information collected by Data Gather is sent to the browser and saved to the Repository Database.

③

Lookup real-time data through WAS and execute monitoring.
Lookup Repository Database’s data through WAS and execute post-analysis.

MaxGauge for SQL Performance Collection Data



DB Server / Repository / Client Installation Environment

DB Server

· System

- OS Platform : Windows Server 6.0(2008) or Higher
- SQL Server Version : 2008 or Higher

· Network

- SQL Server Communication Default Configuration : 1433 (TCP Port changeable)
- *SYSMON Communication Default Configuration : 9729 (TCP Port changeable)

*SYSMON

An agent service which collects the OS information of the monitoring target database. Below 1% CPU usage based on 4 CORES. Approximately 10 MB of memory usage.

Repository

· System

- OS Platform : Windows Server 2008R2 or Higher
- Log Collection SQL Server Version : 2008 or Higher (SQL Server 2012 or Higher Recommended)

· Hardware

- CPU : 2 CORE (Minimum) / 4 CORE (Recommended)
- RAM : 4 GB (Minimum) / 8 GB (Recommended)
- Disk : 20 GB (For 1 month, Approximately 500 MB logging data per server per day)

· Network

- Log Collection SQL Server Communication Default Configuration : 1433 (TCP Port changeable)
- WAS Communication Default Configuration : 8090 (HTTP and WebSocket changeable)

Client

· System

- OS Platform : Windows 8 or Higher
- Chrome Browser : 44.x or Higher (50.x or Higher Recommended)
- Graphics : 1024*768 (1920*1200 Recommended)

· Hardware

- CPU : 2 CORE or More
- RAM : 4 GB or More
- Graphics Card (GPU) Use Recommended

· Network

- WAS Communication Default Configuration : 8090(HTTP and WebSocket changeable)



Main Function

Real-time Monitoring
Performance Analysis
Additional Functions



Check **Current Server Status** Through Alarms and Events

The screenshot shows the MAXGAUGE for SQL Server dashboard. It features a top navigation bar with 'View', 'Admin', and 'Logout' options. The main content area is divided into several sections:

- Today and Weekly Event Count:** A summary box on the left showing 'Critical 2406' and 'Warning 1344' events, along with a line graph for weekly trends.
- Recent Alarm Generation:** A list of recent alarms with details like timestamps and target names.
- Instance Management by Group:** A grid of server instances labeled Target1(2005), Target2(2008R2), Target3(2008R2), and Target4(2014_Repo).
- Alert Indicated by Level:** A legend at the bottom right showing 'Normal', 'Warning', and 'Critical' levels with corresponding database icons.

Annotations with arrows point to these sections from the left and right sides of the image.

Check Status Details of a Single Server



Total CPU usage and SQL Server CPU, Active Session, Lock

Distribution of Execution Time of Active Session

Active Sessions List

Compare past performance data with The present performance data

Active Sessions X-View

Real-time Status of Multiple Servers

Current CPU, Active Sessions

CPU Trends

Instance list

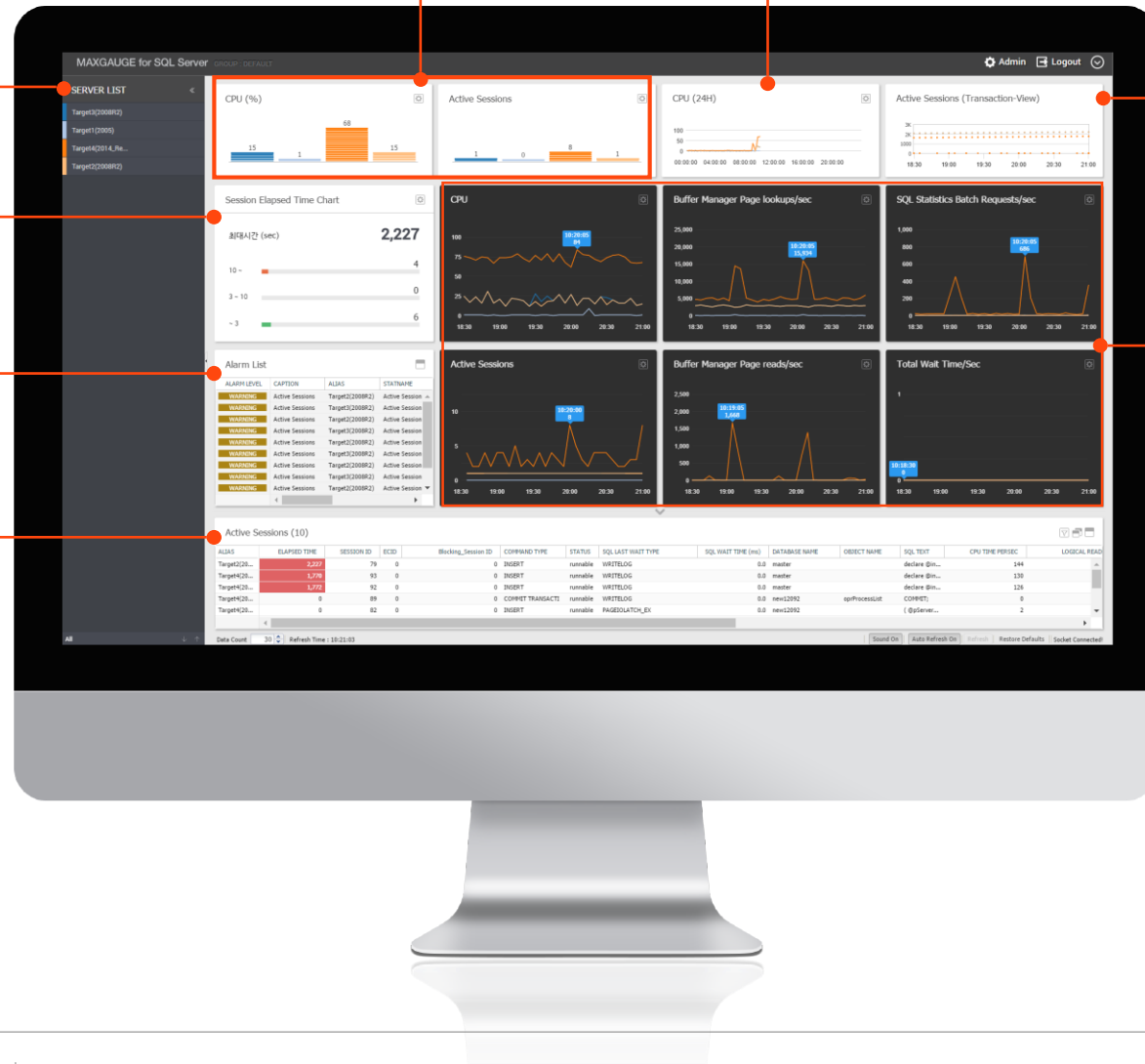
Active Sessions X-View

Active Sessions Elapsed Time Chart

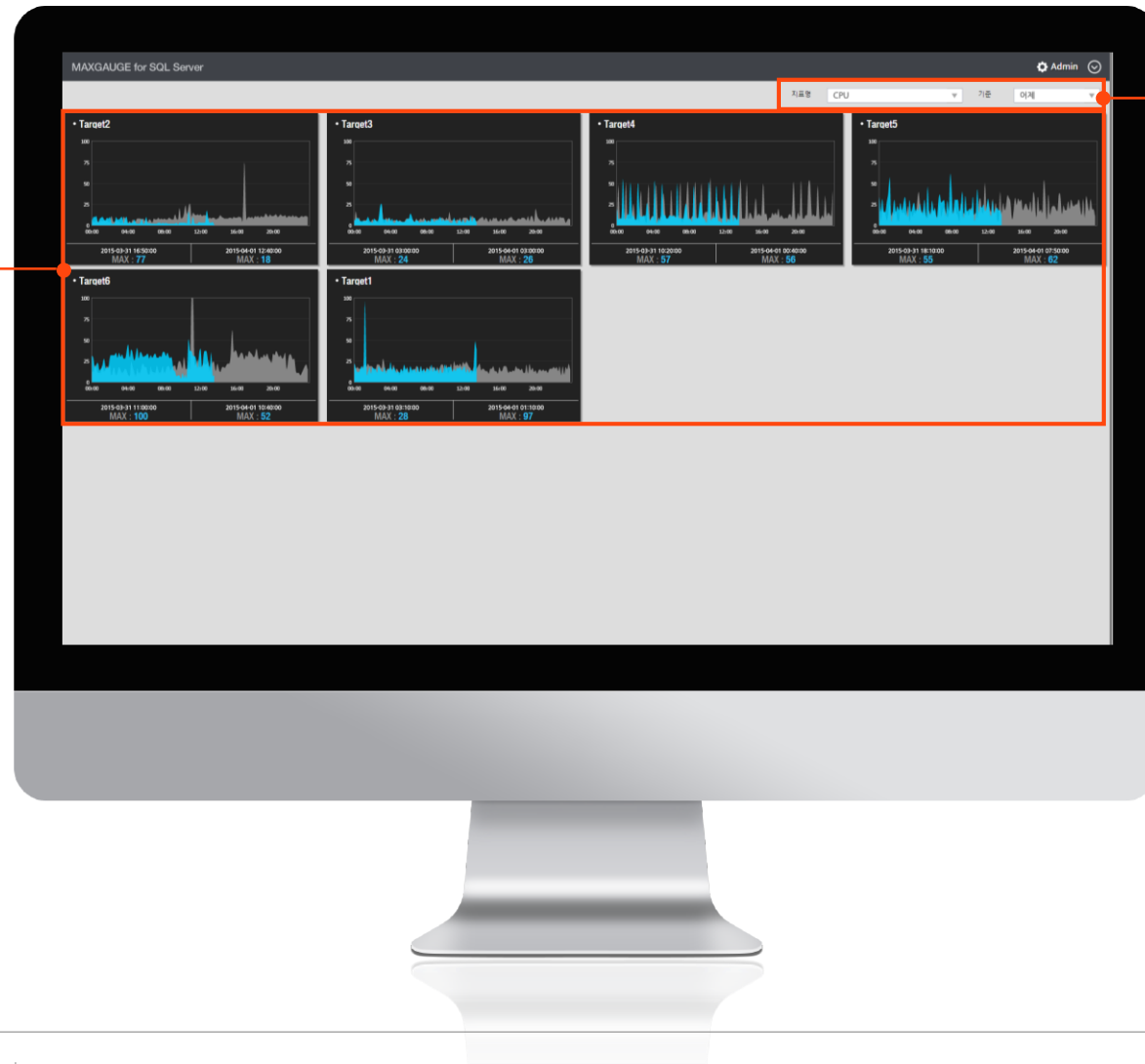
Alarm List

Graph of 6 main indicators which can be customized

Active Sessions List



Trends Graph by Indicators of Multiple Servers



Check and Compare Indicator Trends by each Server

Select indicator and date you wish to check

A query Tool Through which you can **Write SQL,** and **Check the plan and Object information**

Individual Explorer
Check Object Status
(Function, Procedure,
Table, Trigger, View)

Check table structure

Check Index Status within the Table

Check SQL Plan

index_column_id	table_name	index_name	column_name	is_unique	is_primary_key	is_desc	max_length	column_size	scale
1	Customers	City	City	N	N	ASC	30	0	0
1	Customers	CompanyName	CompanyName	N	N	ASC	80	0	0
1	Customers	PK_Customers	CustomerID	Y	Y	ASC	10	0	0
1	Customers	PostalCode	PostalCode	N	N	ASC	20	0	0
1	Customers	Region	Region	N	N	ASC	30	0	0

ordinal_position	column_name	data_type	is_nullable	column_size
1	CustomerID	nchar	NO	5
2	CompanyName	nvarchar	NO	40
3	ContactName	nvarchar	YES	30
4	ContactTitle	nvarchar	YES	30
5	Address	nvarchar	YES	60
6	City	nvarchar	YES	15
7	Region	nvarchar	YES	15
8	PostalCode	nvarchar	YES	10
9	Country	nvarchar	YES	15
10	Phone	nvarchar	YES	24
11	Fax	nvarchar	YES	24

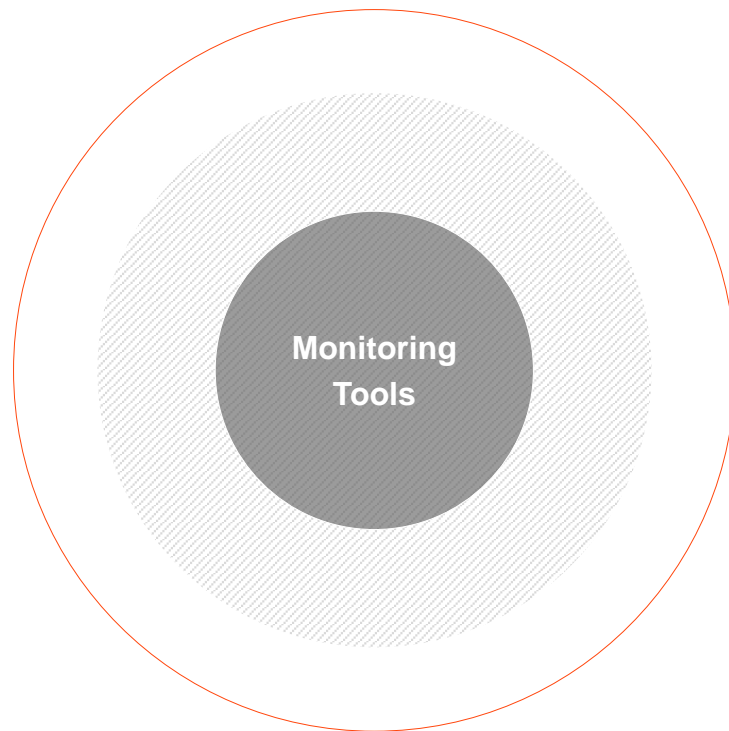
SQLmini - Explain Plan - Chr...
192.168.123.140:8090/sqlm/explain.html

Explain Plan [Plan Download]

SELECT

Clustered Index Scan
[Customers].[PK_Customers]
Cost: 100%

Expanded Monitoring, Tools

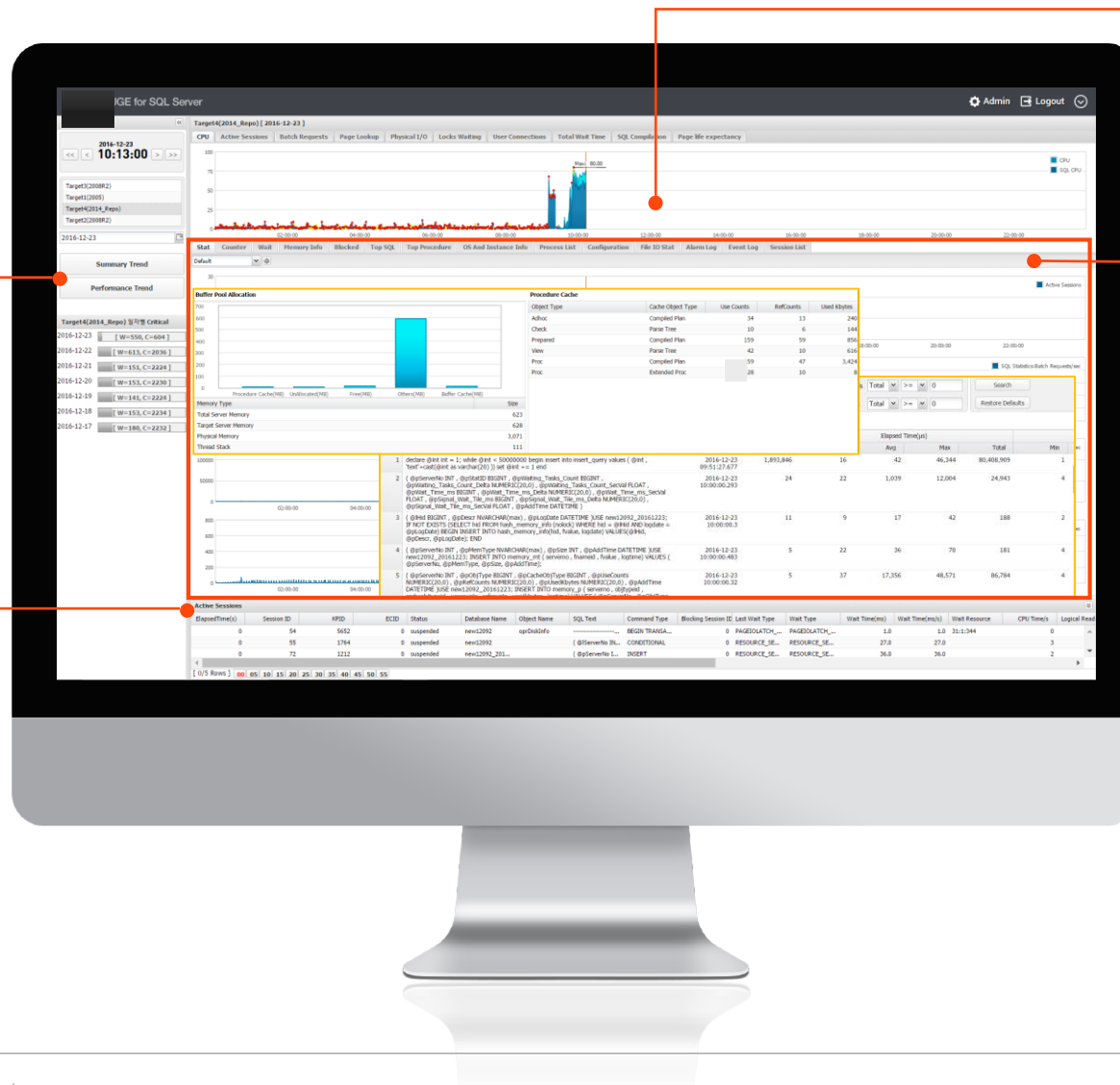


- **Count / Wait** Check the values of all the collectible Counts and Waits data
- **Session Manager** Check and manage active sessions currently being executed
- **Top SQL** Identify the most frequently used SQL
- **Database Size Info** Check the Database and Database File information
- **Memory Info** Check on memory usage status of the SQL Server
- **File IO Stat** Check on I/O Status of the Database File
- **OS And Instance Info** Check the default configuration information of OS and Instance
- **Job List** Check the Failed Jobs.
- **Resource Monitor** Check Resource Status(CPU, RAM, DISK)
- **Process List** Check the Process List currently executing
- **Profiler** Create Trace File by filtering based on Duration or Reads

Based on the Performance Data Logged in the Repository, Identify **Issues Occurred in the Past** by Date

Check the distribution of alarm Generation by date

Active Sessions



Graph Illustration of Main Indicators

Allows you to analyze the problem from various different angles through the performance log data such as Stat, Wait, Memory, Top SQL, Lock Tree and etc.

Summary Trends by Date for the Selected Indicators

A tool which allows you to check the trends by each indicator by showing the daily average and the maximum values, and identify the specific date and time at which the issues occurred.

Summary Trend

날짜	요일
<input checked="" type="checkbox"/>	2015-03-10 Tue
<input checked="" type="checkbox"/>	2015-03-11 Wed
<input checked="" type="checkbox"/>	2015-03-12 Thu
<input checked="" type="checkbox"/>	2015-03-13 Fri
<input checked="" type="checkbox"/>	2015-03-14 Sat
<input checked="" type="checkbox"/>	2015-03-15 Sun
<input checked="" type="checkbox"/>	2015-03-16 Mon
<input checked="" type="checkbox"/>	2015-03-17 Tue
<input checked="" type="checkbox"/>	2015-03-18 Wed
<input checked="" type="checkbox"/>	2015-03-19 Thu
<input checked="" type="checkbox"/>	2015-03-20 Fri
<input checked="" type="checkbox"/>	2015-03-21 Sat
<input checked="" type="checkbox"/>	2015-03-22 Sun
<input checked="" type="checkbox"/>	2015-03-23 Mon
<input checked="" type="checkbox"/>	2015-03-24 Tue
<input checked="" type="checkbox"/>	2015-03-25 Wed
<input checked="" type="checkbox"/>	2015-03-26 Thu
<input checked="" type="checkbox"/>	2015-03-27 Fri
<input checked="" type="checkbox"/>	2015-03-28 Sat
<input checked="" type="checkbox"/>	2015-03-29 Sun

선택옵션

확인

Summary Trend

Excel Download

CPU

Date	Peak	Average
2015-03-10	15.0	1.9
2015-03-11	10.0	0.7
2015-03-12	98.0	1.3
2015-03-13	13.0	1.0
2015-03-14	11.0	0.6
2015-03-15	13.0	1.3
2015-03-16	19.0	1.5
2015-03-17	19.0	2.5
2015-03-18	64.0	8.0

Active Sessions

Date	Peak	Average
2015-03-10	0.0	0.0
2015-03-11	1.0	0.0
2015-03-12	0.0	0.0
2015-03-13	0.0	0.0
2015-03-14	0.0	0.0
2015-03-15	0.0	0.0
2015-03-16	0.0	0.0
2015-03-17	0.0	0.0
2015-03-18	0.0	0.0
2015-03-19	10.0	0.0
2015-03-20	0.0	0.0
2015-03-21	0.0	0.0
2015-03-22	0.0	0.0
2015-03-23	0.0	0.0
2015-03-24	0.0	0.0
2015-03-25	0.0	0.0
2015-03-26	0.0	0.0
2015-03-27	0.0	0.0
2015-03-28	0.0	0.0
2015-03-29	0.0	0.0
2015-03-30	0.0	0.0
2015-03-31	0.0	0.0
2015-04-01	0.0	0.0

Locks Waiting

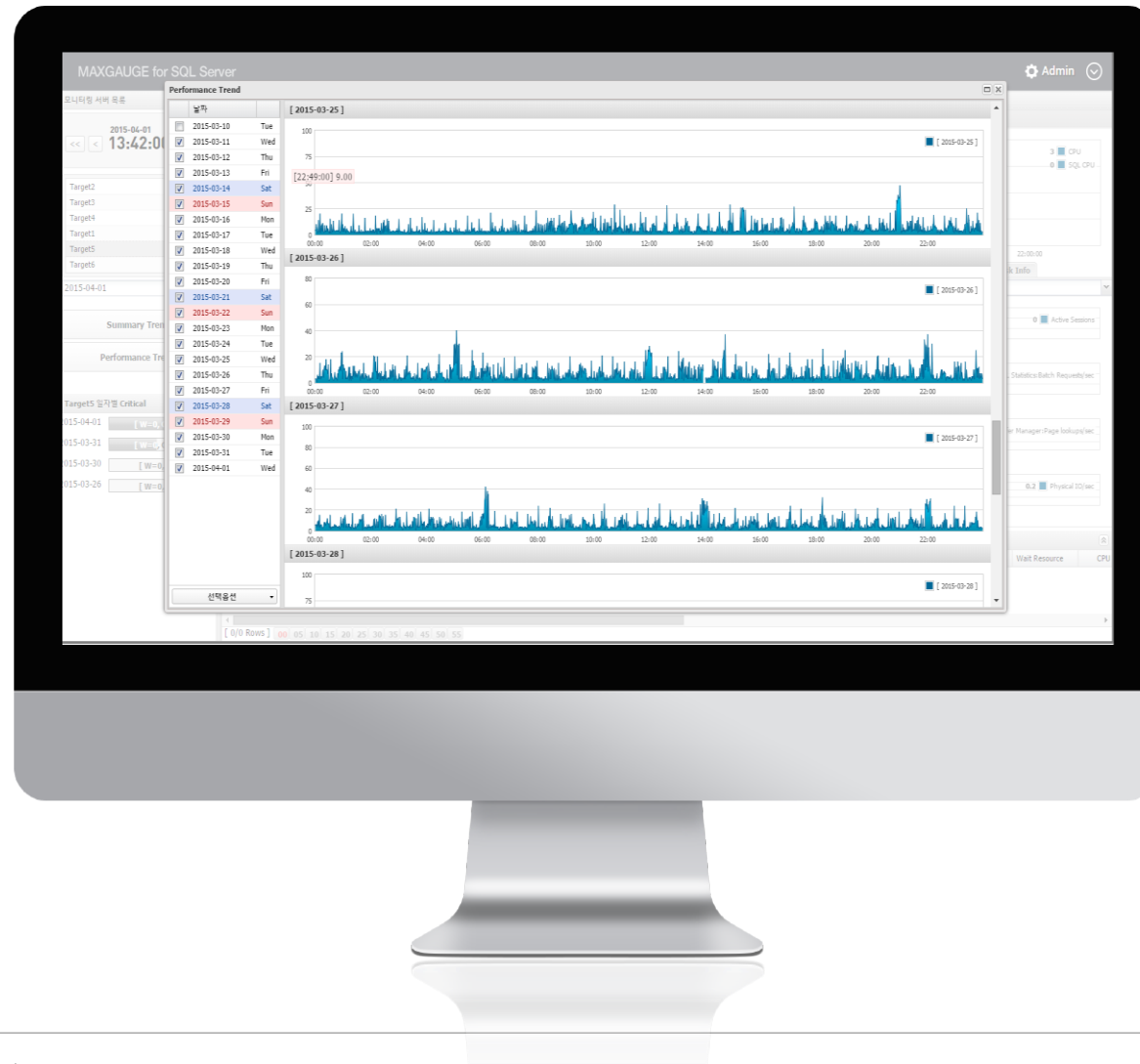
Date	Peak	Average
2015-03-10	0.0	0.0
2015-03-11	0.0	0.0
2015-03-12	0.0	0.0
2015-03-13	0.0	0.0

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Comparison of Graphs by Date of a Single Performance Indicator

A tool which allows you to compare the trends of graphs by date in regards to a selected performance indicator.



Search the Collected **Session Text and Plan**

Connect to SQL mini through Session List, Top SQL, or Lock Tree

And check the SQL Text and the Plan.

The screenshot displays two browser windows from SQLmini. The left window, titled 'SQLmini - Chrome', shows the SQL editor with the following query:

```

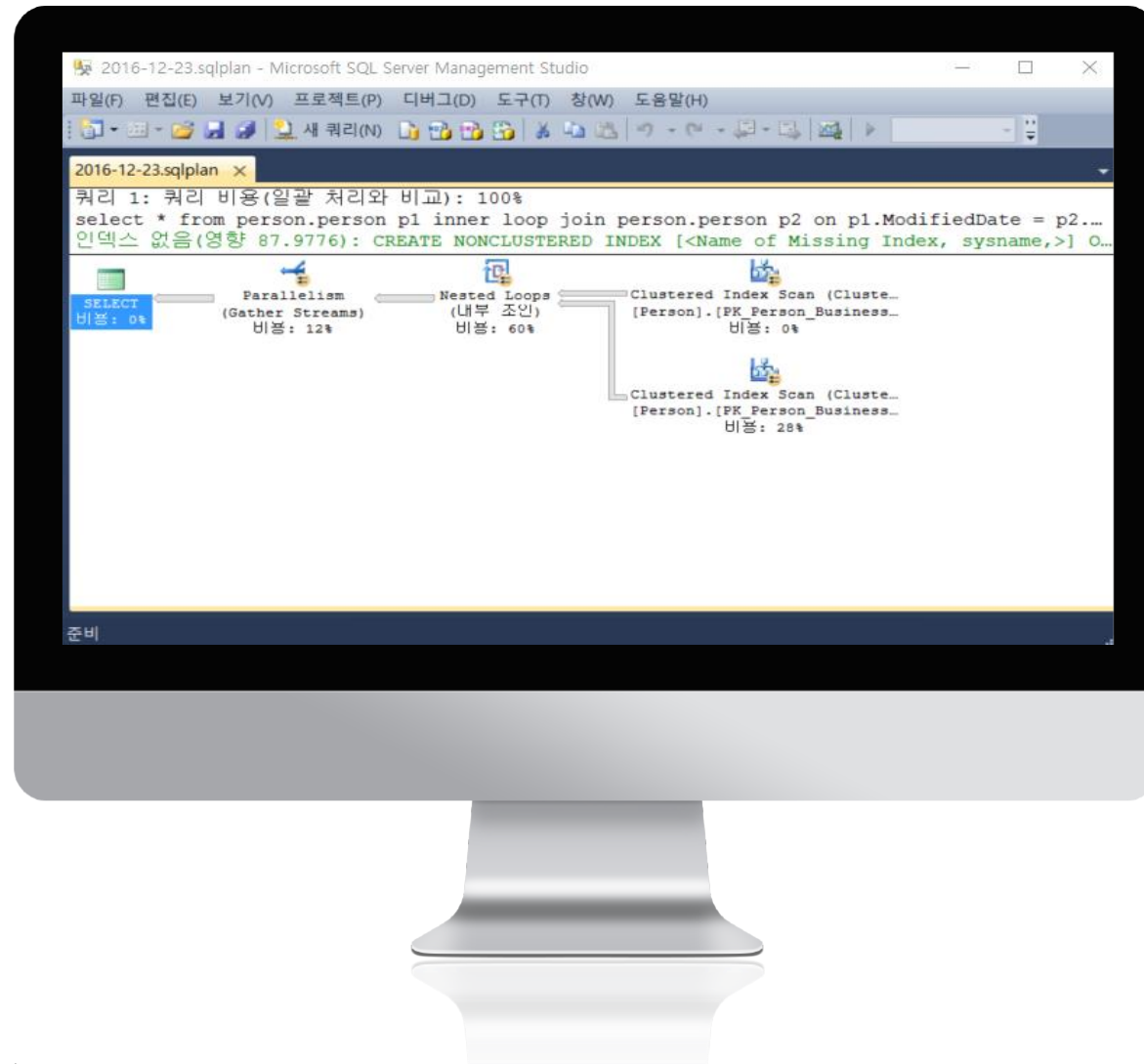
1 select *
2 from person.person p1 inner loop join person.person p2
3 on p1.ModifiedDate = p2.ModifiedDate
    
```

The right window, titled 'SQLmini - Explain Plan - Chrome', shows the execution plan for the query. The plan consists of the following steps:

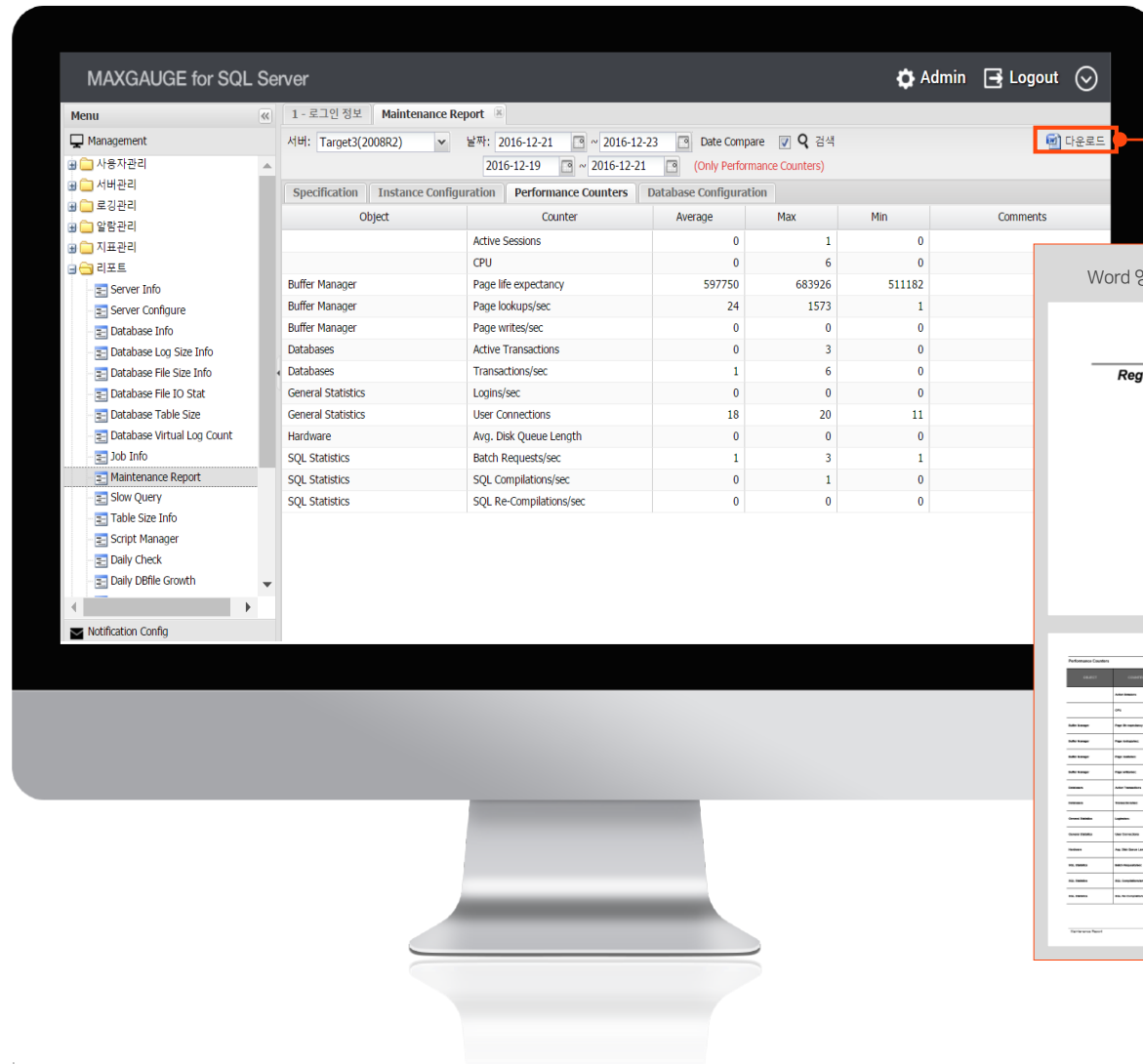
- SELECT** (Cost: 0%)
- Parallelism (Gather Streams)** (Cost: 12%)
- Nested Loops (Inner Join)** (Cost: 53%)
- Clustered Index Scan [Person]. [PK_Person_BusinessEntity] ...** (Cost: 0%)
- Clustered Index Scan [Person]. [PK_Person_BusinessEntity] ...** (Cost: 0%)

Plan Download

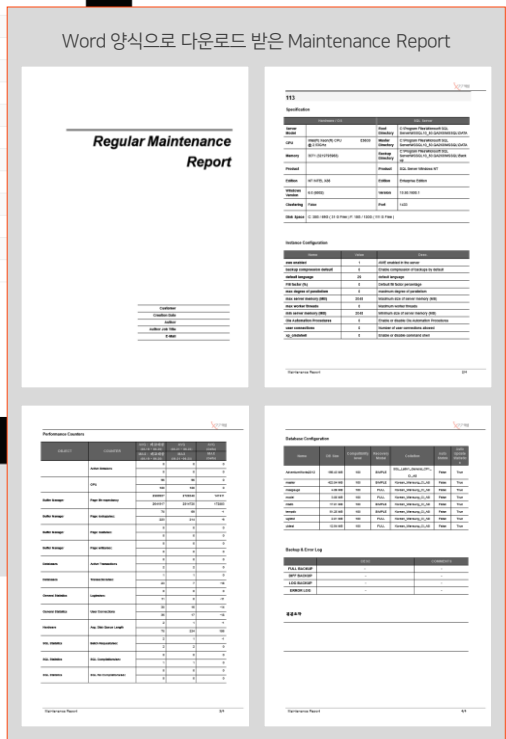
Download the Plan and view the graphic execution plan through SSMS.



Provides **Convenience in Server Management and Inspection** by Providing Various Reports such as Maintenance Report, Slow Query, and ETC.

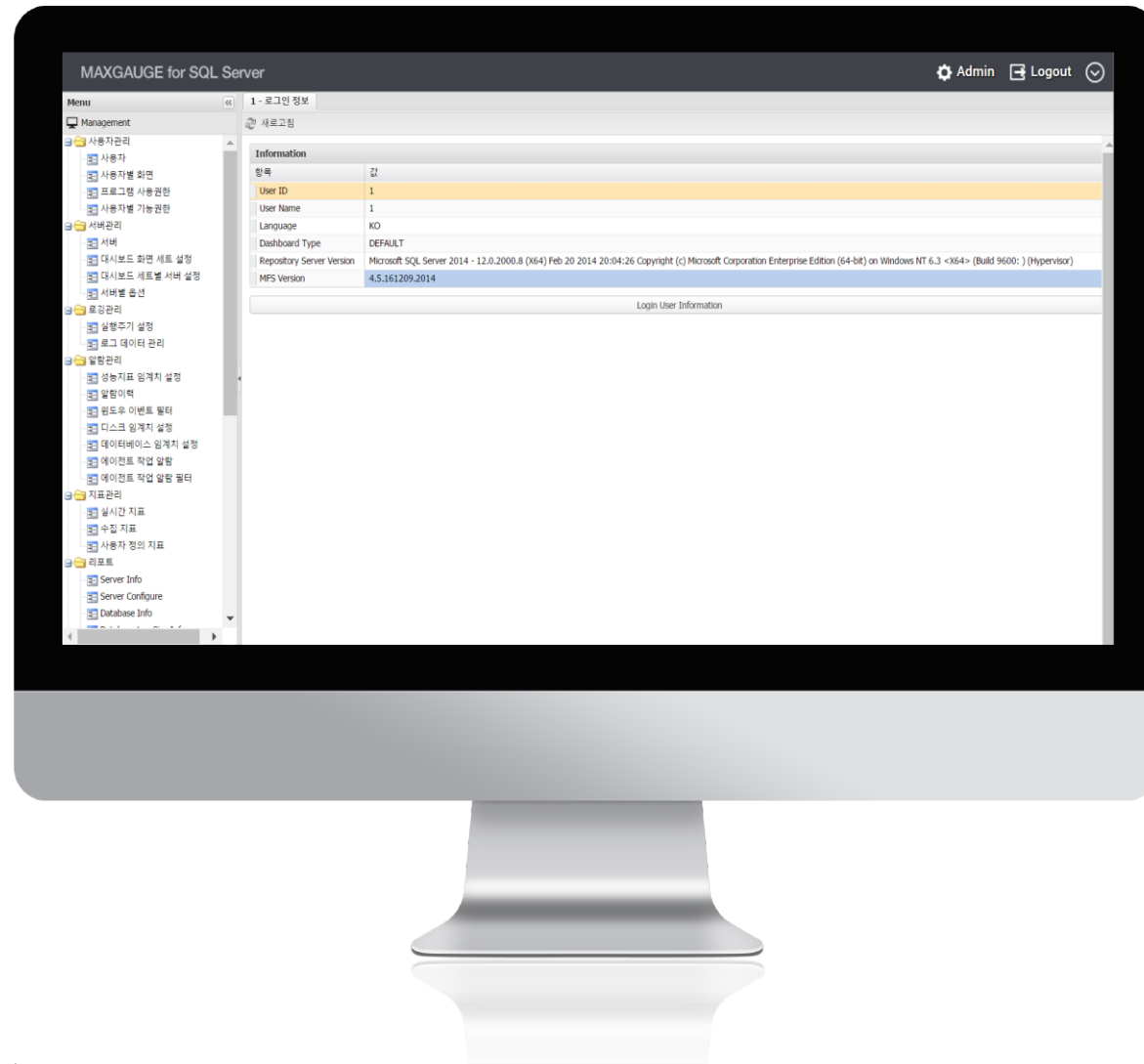


You can download all report results In Word or Excel file.

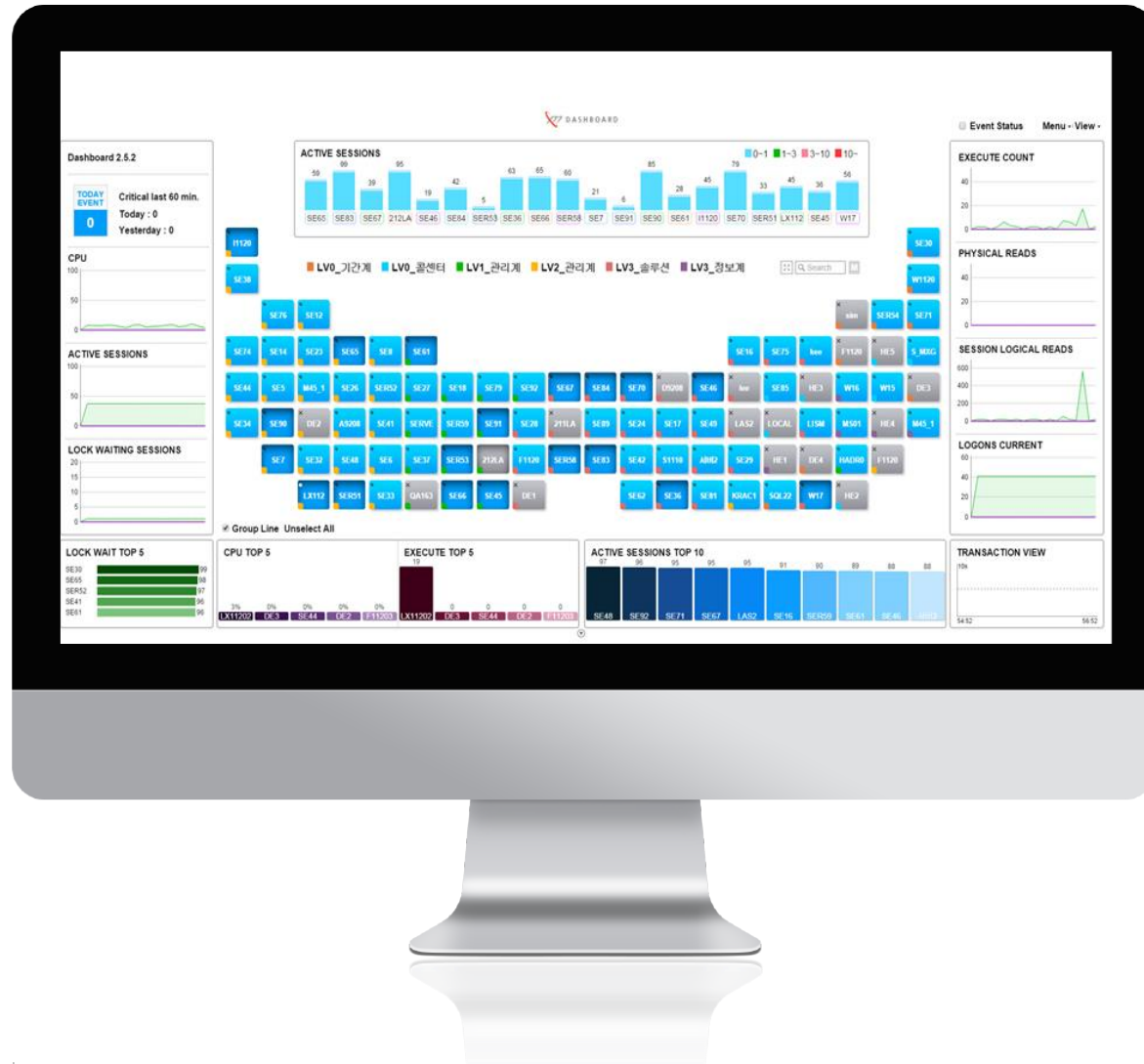


Provides Detailed Management Function

By **User, Server, Logging, Events, Indicators**, and ETC.

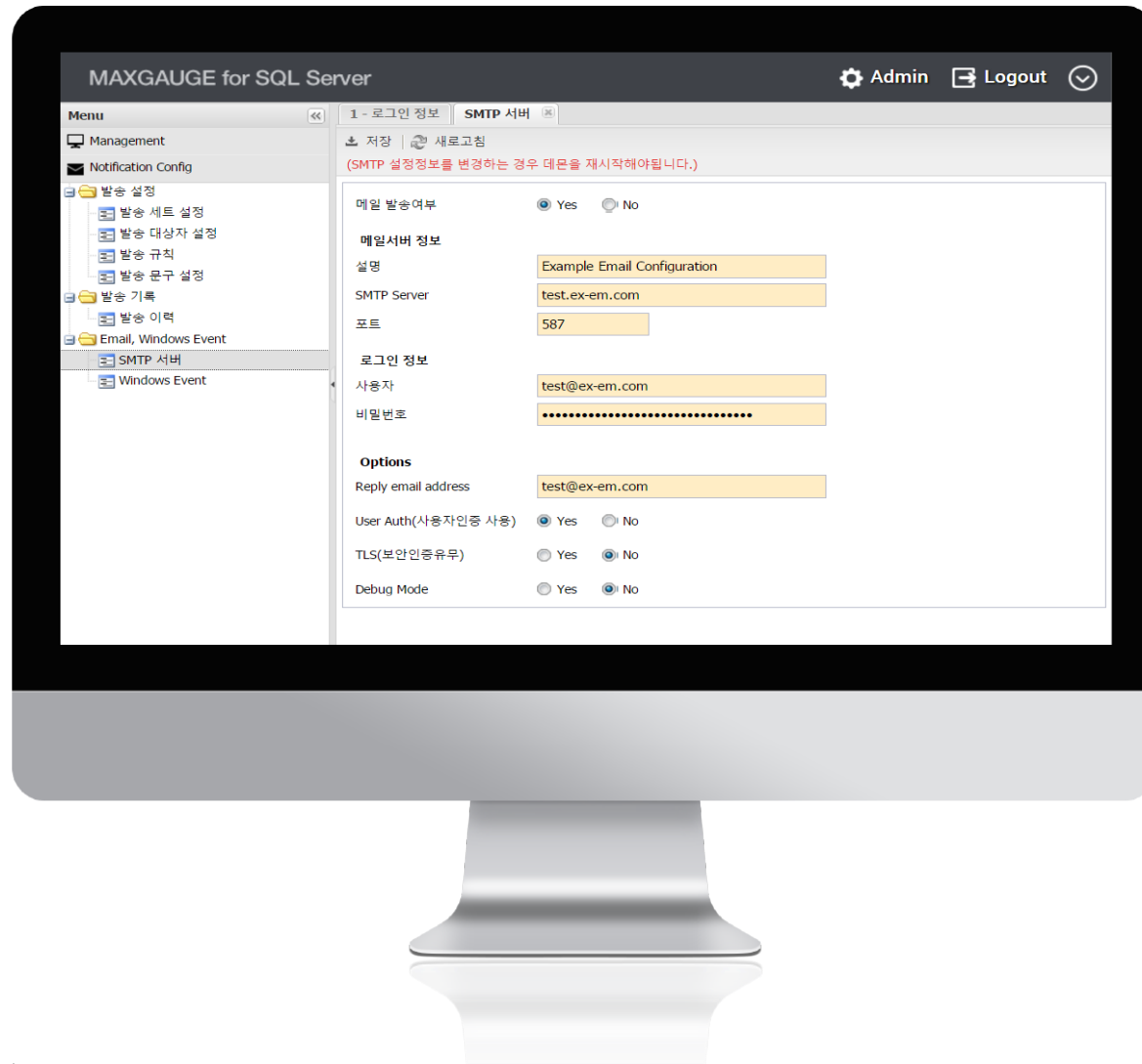


Different Kind of Multiple DB System **Integrated Control**



Sending E-mail Alarm

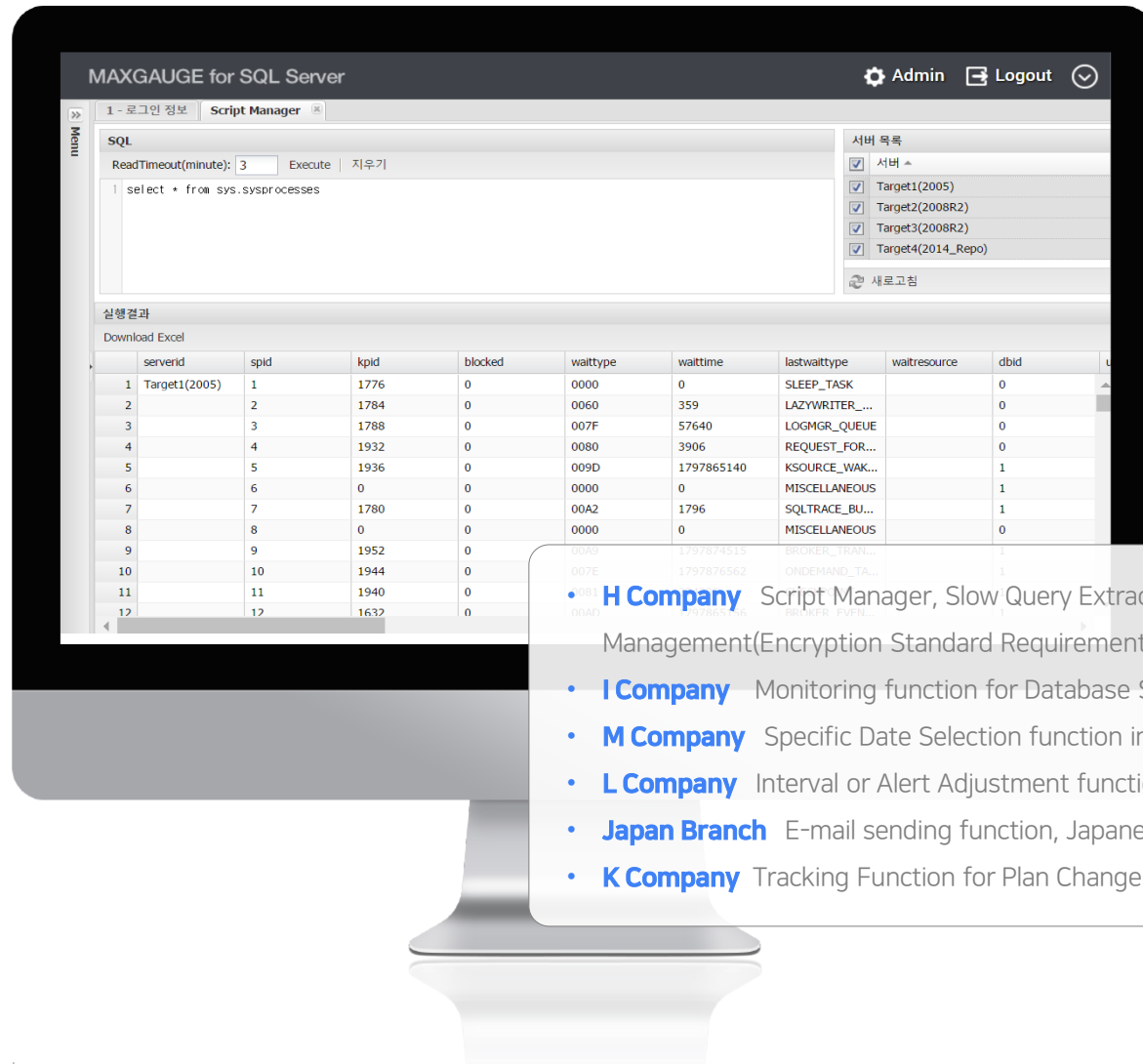
A function which sends e-mail alarms when such events set in the event management Occur by registering in the SMTP server.



Strong Support for Customizing MaxGauge for SQL Server to Meet the **Various Needs and Demands of the Customers**

Use the T-SQL Text for several servers at once and SELECT

Script Manager



- **H Company** Script Manager, Slow Query Extraction, User Management(Encryption Standard Requirement) Function
- **I Company** Monitoring function for Database Size, Disk Size Full
- **M Company** Specific Date Selection function in 24 Hour Trends Comparison
- **L Company** Interval or Alert Adjustment function in Alert Configuration
- **Japan Branch** E-mail sending function, Japanese Language Support
- **K Company** Tracking Function for Plan Change

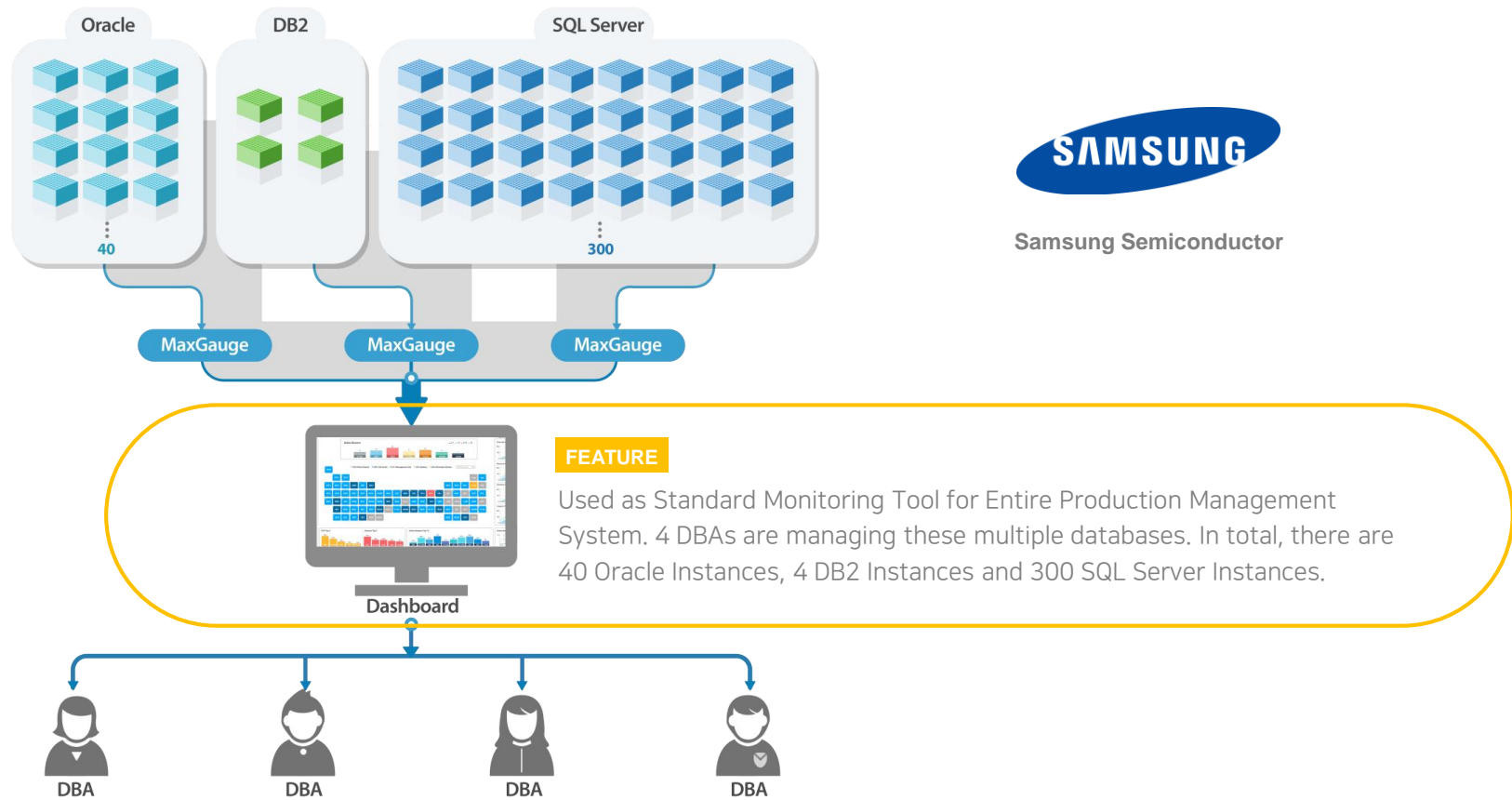
Success Stories

Overseas Project
Customer Voice
Customers



Overseas Project **Integrate Control**

· Customer : Samsung Semiconductor (Brazil) | · System: Semiconductor Manufacturing Automation System



Core Fields, **Customer experience** from customer

Government



LA County Department Azam Popalzai Chief Director of Information Technology



"As a performance management tool, MaxGauge is a **very small footprint** and offers so much more information than what we expected... "

"After using MaxGauge, we could figure out at particular time who did what and which SQL was running at that time... actually gave us more visibilities..."

Manufacture



Samsung Semiconductor (Texas Austin) Nghi Nguyen Principal Engineer of IT Infrastructure



"We use MaxGauge because it is the Samsung Global Unit standardization. So this is basically a very valuable tool for us to look into the problems and see future improvement of certain query or certain performance of the system."

Finance



WOORI Bank Manager of System Deployment

"MaxGauge is great for viewing the overall flow. And in case something has exceeded the threshold, the alarm sets off and a notification is sent immediately to the administrator. In the case of our system, it has been performed 12 times better with the help of MaxGauge. Operation that took 12 hours before now can be finished within 1 hour, amazing!"

Energy



Korea Electric Power Coporation Assistant Manager of Business IT

"We were able to identify the potential system error issues and therefore improve in our response speed, and reduce the system downtime and the troubleshooting time has had a great impact on us. MaxGauge provides us the data through which we can objectively determine whether it is an issue of system capacity under a normal operation condition, or whether it is due to system overload."

Standard Global Software from Korea, Maxgauge

MaxGauge has been installed in over **4000 Database Servers** worldwide across multiple industries

Including finance, manufacturing, government, telecommunication, healthcare, etc.



Asia

Korea

Samsung Electronics, Samsung Fire, Samsung- Life Insurance, Samsung Card, LG Electronics, LG Telecom, LG Card, Hyundai Motor, Hyundai Life, KT, SK Hynix, SK Telecom, ING, Hanwha, Posco, Woori Bank, Kookmin Bank, Korea Electric Power Corporation

Japan

Sharp, NTT Data, Keihin, Nomura Research, Canon
Oki Electric Industry, Itochu Techno Solutions, Fujitsu Broad Solution & Consulting, Asahi - Corporation, Asahi Kasei Microdevices, NHN- Play Art, Recochoku

China

China Telecom, China Unicom, PICC, China-CITIC Bank, Nanjing Local Taxation Bureau, Nanjing Citizen Card, TCL, Huatai Securities, Nanjing Citizen Card, Zhejiang Quarantine –Bureau

Other Asian Countries

Phoenix Semiconductor(Philippines), Samsung Asia Private(Singapore), Samsung- India Electronics(India), THAI Samsung- Electronics(Thailand), Samsung Display(Malaysia), Samsung Vina Electronics(Vietnam)

America

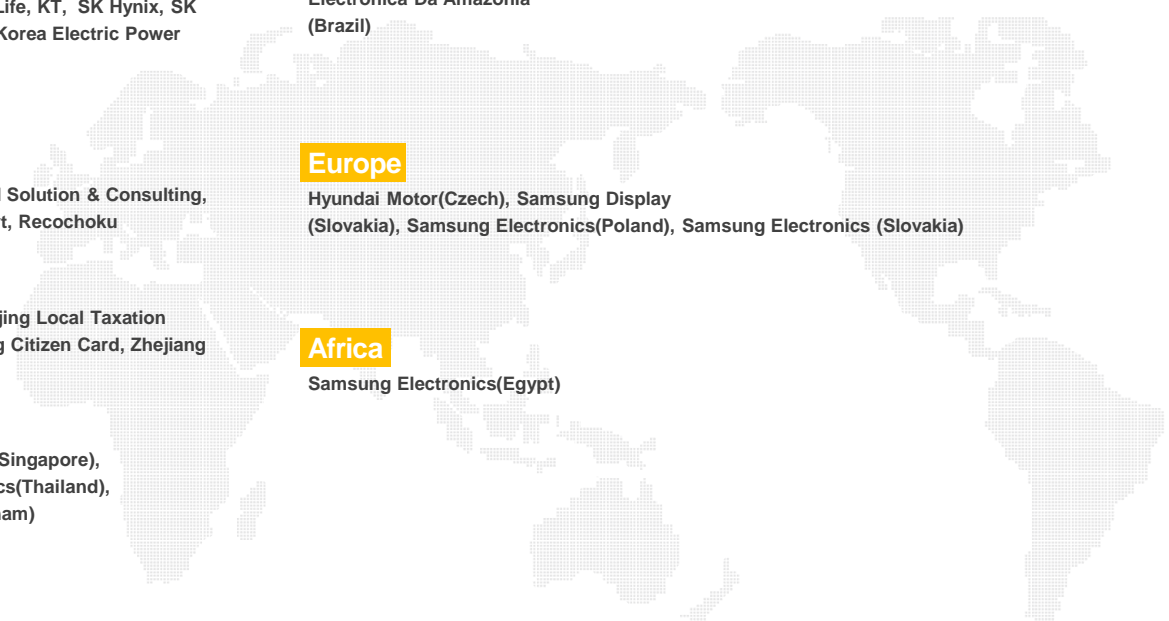
County of Los Angeles, AT&T(Texas), Samsung Semiconductor(Texas), Kia Motors (Georgia), Samsung Mexicana(Mexico), Samsung Electronica Da Amazonia (Brazil)

Europe

Hyundai Motor(Czech), Samsung Display (Slovakia), Samsung Electronics(Poland), Samsung Electronics (Slovakia)

Africa

Samsung Electronics(Egypt)





Thank you

