**SuperMap iServer 9D**

- Cloud GIS Application Server

SuperMap iServer 9D is a cloud GIS application server based on high-performance GIS kernel. Advanced edition, professional edition and standard edition are provided. SuperMap iServer possesses 2D & 3D integrated service publishing, managing and clustering capabilities and it offers multi-level extension development ability, iServer constructs GIS cloud & client integration system by providing multiple development SDK tools for multiple mobile, web, PC.

![iServer Cloud & Client Integration System](image)

**Who Needs SuperMap iServer 9C?**

- Organizations involved in smart city construction and application
- Organizations involved in construction and application of GIS public or private cloud;
- Developers and user organizations involved in developing B/S architecture GIS application and mobile GIS application based on SOA architecture.

**Why SuperMap iServer 9D?**

- Based on cross-platform GIS kernel, high-efficiently supports Windows, Linux, Unix, iServer can construct a more secure, high-efficient, available, better performing GIS application system. SuperMap iServer 9D+Linux is recommended;
• Embedded multi-layer intelligent cluster technology, breaking the limits of only supporting the same operation system, the same service type or the same node level of traditional GIS cluster technology. Also supports services between multi-node and data automatic synchronous deployment;

• Embedded parallel tiling technology, supporting 2D & 3D tiling, which improved the performance of tiling; Embedded parallel spatial analysis technology, saving the time of analysis like overlay analysis, interpolation analysis, optimal path analysis, etc.;

• Provides 3D services, 3D data display like multiple scenes, multi-effect. Also provides 3D network analysis and 3D spatial analysis.

**Product Features**

1. **Cross-platform**

   SuperMap iServer supports 32bit and 64bit Windows operation system, 64bit Linux, 64bit Unix, multiple types of commonly used middle-ware, which enables clients to make use of the concurrent accessibility, better performance, high security capabilities of Linux compatible with existing servers at the same time to reduce cost.

   P.S. AIX platform supports Oracle, SuperMap UDB and other universal image formats, not supporting other database engines yet (including SQL Server, Oracle Spatial, DB2, PostgreSQL, MySQL, etc.)

2. **Spatial Big Data Storage Management Ability**

   SuperMap iServer 9D provides iServer DataStore, an independent data storage application, the program embeds multiple SQL and NoSQL databases, providing multiple spatial data integration storage ability.

   • Multi-data type integration storage. PostgreSQL, Elasticsearch databases embedded, supporting MongoDB database and integration storage relation, tile and spatio-temporal data.
   • Distributed deploying supported. Multiple iServer DataStore can be deployed, realizing spatial big data distribution, lowering storage pressure of iServer DataStore nodes.
   • Web setting configuration deployment, easy for user for quick deployment
   • Win64 and Linux64 supported.

   Data register function embedded of SuperMap iServer 9D can easily integrate various data storage, lowering the cost of data format transforming and data shifting.

   • Supports catalog sharing, HDFS distribution file registered s big data file sharing.
   • Supports registering Oracle and PostgreSQL as spatial database library.
SuperMap iServer 9D embeds data catalog services, providing unified management and access ability for multi-source, multi-type spatial data.

- Supports integration management and unified access on iServer DataStore, big data file sharing, relation, tile, spatio-temporal data in spatial database
- Data in catalog service can service as GIS service source, also can be used for distribution spatial analysis.

3. Spatial Big Data Analysis Ability

SuperMap iServer 9D provides distribution analysis service, acquiring distribution calculation technology, realizing distribution spatial analysis and data processing ability on massive amount of spatial data. Comparing with traditional spatial analysis services, distribution analysis service brings over 10 times improvement in performance, and when calculation nodes grow approaching linear, the multi-machine calculation and storage resource can be more effectively used, which improves the work efficiency.

- Powerful functions, including spatial analysis like cluster analysis, reginal summary analysis. Routine spatial analysis like overlay analysis, density analysis and data processing like vector cutting, etc.
- Easy to use. Spark running library embedded, the distributed analysis environment can be constructed through iServer cluster.
- More flexible, can quickly integrate current Spark cluster, lowering the cost of user system transferring.
- Supports multi-source data, including relation data and spatial data in spatio-temporal in relation data, spatio-temporal data, big data file of iServer DataStore can be used for distribution analysis.
- Analysis results support multiple outputs, including output analysis results into local disk, iServer DataStore and spatial database. Users can dynamic adjust output objectives through API.

![Fig 2: Distribution Spatial Analysis Results](image-url)

4. Real-time Processing Ability

SuperMap iServer 9D provides real-time data service, using Spark Streaming running library,
supporting accessing multiple format data in transmission protocols, supporting distributed real-time filtering and processing on stream data, outputting the results to multiple targets. It supports accessing and processing 100,000 spatial objects and the processing performance will be improved with number of nodes increasing.

- Supports WebSocket, TCP, HTTP0 and Kafka protocols and mainstream data formats like CSV, JSON, GeoJSON
- Supports real-time attribute and spatial relation filtering on stream data, making users focus for location and events
- Supports quick response on real-time event. It also send alarm when the location changes.
- Supports storing stream data on iServer DataStore, the data stream can also be sent to different clients for real-time displaying.

5. Automatic Intelligent Cluster Technology

SuperMap iServer 8C realizes distributed cluster architecture of geographic information service, featured with flexible multi-layer structure, supporting clustering heterogeneously, supporting multi-layer cluster (Patent Number: 200910237230.9). Cluster system can monitor, manage, automatically scale in cluster nodes, automatically deploy, and automatically synchronize.

- Quick construction of GIS cluster. Unified template, one-button deployment.
- Enhanced scalability. Scalable loading balance layer to improve the usability and performance of loading balance layer;
- Better availability. Server automatic fault-tolerant and supports offline maintenance.
- Lower cost. Comparing with multi-processor system, multiple low-cost servers will lower cost.
- Extension supported. Combining with business, iServer helps realizing distribution calling.

![Intelligent cluster diagram](image)

Fig 3. Intelligent cluster diagram

6. Multi-instance based on micro-service framework
SuperMap iServer 9D provides multiple instance mechanism based on micro-service framework, supporting visualization configuration, making GIS server in single machine extend to GIS system with multiple working nodes. Every GIS service can automatically extend to multiple service instance with same copies. The instances will copy mutually, which improved the reliability of GIS services. In addition, multiple service instances constructed service cluster, which utilizes hardware resources, digging system potential, improving GIS service parallel performance.

![Fig 4 iServer in Micro-service Framework](image)

7. Service Extension Ability

SuperMap iServer 9D provides not only full angle GIS services, but also provides DSSE, a platform level extension mechanism

- REST Service Extension

  The extension services of REST include: Custom resources, extension description generator, extension parameter resolver, extension security mechanism, etc.

- Spatial Information Service Extension (DSSE)

  Provides extension mechanism based on core container level, combining industrial functions and GIS service platform.

8. Unified Kernel Client of Web and Mobile - iClient

SuperMap iClient is the unified client in SuperMap server series products. Web terminal and mobile terminal oriented iClient provides multiple SDK development packages like 3D, Android, Flash, Flash3D, iOS, Java, JavaScript, Silverlight, Windows Store apps, Windows Phone 8, helping users quickly construct rich web client terminal and light-weight mobile GIS applications.
• Unified infrastructure, mastering one SDK development can convert into other developments.
• Micro-development library, GIS application package is small, easy to distribute and deploy
• Rich map visualization display, providing 3D map, visualization of temporal data, dot map, grid map, vector map, attribute map, heat map, cluster map and smooth mouse and gesture interaction operations, which can construct beautiful map applications.
• Personalized vector data map configuration, vector map layer provides map configuration solution, which allows quickly and flexibly configure personalized maps instead of fixed base map on the server.

9. **SuperMap iClient for JavaScript 9D**

Is brand new cloud GIS network client development platform. It integrates leading open source library, visualization library and the core code is in Apache2 protocol and completely open source, linking with SuperMap and open source community. It provides brand new big data visualization, real-time streaming visualization functions, the product realizes quick browser viewing and beautiful, smooth map displaying and spatial analysis on mobile.

• Integrating common map library and chart library like Leaflet, OpenLayers, Mapbox GL JS, ECharts, MapV, etc.
• Completely reconstructed based on modern technologies like H5, WebGL, WebSocket, ES6, RequireJS, ReactJS, etc.
• Provides API and visualization like distribution analysis service, real-time data service for SuperMap iServer 9D, also supports multiple visualization rendering methods like heat map, honeycomb map, grid map, scatter map, vector tiles, etc.
• Unify access and authentication interfaces of SuperMap iServer, iExpress, iPortal, iManager, Online, providing easier API and other function support.