Data Sheet

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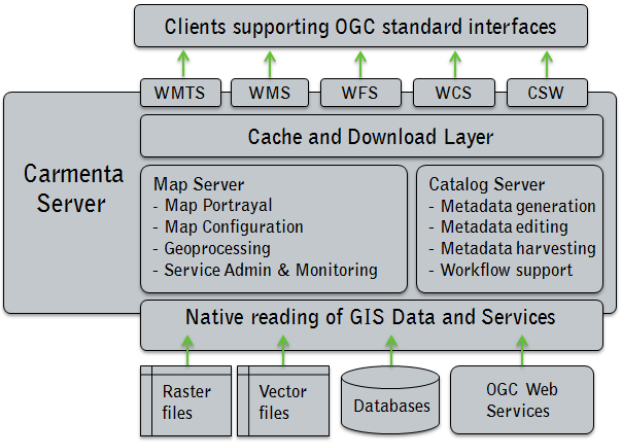
Carmenta Server 4.2

GENERAL

- Carmenta Server provides a complete solution for making geospatial data available through **standard web services.**
- It has broad support for open industry and de-facto standards with certified compliance for many **Open Geospatial Consortium (OGC)** interface specifications.
- Designed for use in mission-critical solutions, it has a **proven record of reliability** and is used in a number of 24/7 installations.
- A clear and straightforward setup with tools that **ease integration** into various IT infrastructures.
- Powered by a very fast map engine core and with efficient use of hardware resources, it delivers **excellent performance** when deployed in high-capacity websites.

TECHNICAL FEATURES

- **Native reading** of geospatial data from more than 70 GIS file formats and spatial databases. No need for offline format transformations.
- Built on top of a powerful map engine capable of performing advanced **on-the-fly geoprocessing**. Uses both raster and vector data for calculations and can combine and analyse data from multiple data sources simultaneously.
- Create and maintain data catalogues over GIS datasets and services with standardised **catalogue and metadata tools**. The catalog server supports automatic and time-scheduled metadata harvesting from multiple sources and it can be extended through plug-ins for adding new sources for harvesting. Once harvested, the metadata can be rapidly searched, categorised and filtered in a range of different ways.
- All system administration tasks are carried out with an easy-to-use web-based tool. With the settings safely stored in a database, **version upgrades is easy and hassle-free.**
- Easy-to-use tools enable you to import new maps, create views and publish services. Services are added and removed **without having to restart** the map server. ISO metadata is automatically generated when publishing new services and it can be changed and extended using the built-in editor function.
- A smart **disk and memory tile caching utility** is fully integrated. Map tiles can be dynamically generated from any geodata source that may be used to further improve performance and handle high-capacity sites. All settings, such as tile-size and tiling schemes are easily configured and time constraints can be set on the cache to automatically re-load tiles.
- A built-in **proxy utility** can be used to "cascade" data from external OGC services and re-publish as hosted services. "White-lists" of authorised services are used to ensure that only trusted sources are connected.
- Carmenta Server comes with a rich set of ready-to-use **JavaScript user interface components**. It has controls for common tasks, such as zoom/pan, mini-map overviews, and has tools for the flexible handling of layers and feature editing in the client.
- GUI components are also included to ease setup of **Geoportal browser clients**. These can be used to keep track of datasets as well as of available online services. The Geoportal client includes tools that allow free text searches, setting category filters, spatial filters or a combination of these.



Carmenta Server Overview

- A full-feature **Software Development Kit (SDK)** is available for rapid map website development and configuration. It contains documentation, sample projects and "Carmenta Studio", Carmenta's powerful map configuration tool, which is used to set all parameters that control map rendering and connections to data sources. The tool is also used to set scale intervals for layer visibility in clients and uses a graphical data-flow tool to setup and configure geoprocessing "pipelines" for more advanced services. The SDK is also used to test and fine-tune map configurations before deployment in production environments.

REALIABILITY AND SECURITY

- The **security framework** is a vital part of the Carmenta Server product. It uses a central administration server to handle the login process for all Carmenta Server components. It can also be connected to various backend authentication servers locally or over TCP/IP.
- Several types of login from a web client can be used, including a **forms login** with ticket/cookie based sessions or a challenge-based login such as NTLM.
- It is possible to restrict **user access** to map services, or even layers in a service based on user roles. Services that are unavailable to a user are hidden and don't appear in any of the web interfaces. The tile cache utility is integrated in the security system to allow the cache to be part of the overall security solution.
- Extensive **logging and data collection** is performed in runtime to monitor server performance. It is possible to measure server usage, data transfer volumes and count transactions. All data can be used for subsequent statistical analysis or report generation. Alarm levels can be set for automatic email notification of errors.
- Published services can be **monitored and controlled** via the administration web page. Services can be published, unpublished and re-published with a single click. Services are added and removed without the need to restart the map server.
- Carmenta server is optimised to take full advantage of **multithreading and multi-core processor** architectures. It is well adapted for deployment in virtual and cloud environments and is available in both **32-bit and 64-bit native versions.**

INTEROPERABILITY AND STANDARDS

Carmenta Server offers compliant support for the following OGC standards:

- A high-performance **Web Map Service (WMS)** can be setup for publishing geodata from any GIS data source. Carmenta Server has compliant support for OGC WMS1.1.1 and 1.3.0 with flexible layer control and auto-publishing of dynamic legends. It has an integrated **Feature Portrayal Service** (FPS) capable of rendering features from external feature services. **Styled Layer Descriptor/Symbol Encoding (SLD/SE)** can be used to update map portrayal from clients.
- **Tiled Map Services** are fully supported through either the WMS-C interface or the OGC WMTS. These interfaces benefit greatly from Carmenta Server's built-in tile caching utility.
- Geodata from any vector data source can be published through a very flexible **Web Feature Service (WFS)**. It has compliant support for the OGC WFS 1.1.0 service interface and already supports the upcoming WFS 2.0 specification. The WFS can publish feature data, either as GeoJSON, GML or binary objects, which is easily controlled via settings in the map configuration. Multiple vector data sources can be read simultaneously and all data model and coordinate transformations are done on-the-fly. **Automatic GZIP compression** can be invoked in the service to reduce package size.
- **INSPIRE** compliant download services can be easily launched through the WFS interface, and the product contains a framework for setting up **automatic transformations** from customer specific data models to the Data Theme models mandated by INSPIRE requirements.
- A **Transactional Web Feature Service (WFS-T)** is also included in the Carmenta Server's WFS. This enables creation, deletion and updating of feature data on the server, typically stored in a relational database. The WFS-T service is fully integrated with the overall login handling in Carmenta Server with single-sign-on and possibility to restrict access based on users and roles.
- **Web Coverage Services (WCS)** can be used to retrieve or download raster or matrix data such as elevation data, meteorological grids or maritime depth data. Carmenta Server has compliant support for the OGC WCS 1.1.1 interface, but also supports the 1.1.2 specification. It automatically transforms any source raster format to those mandated by the WCS specification. GeoTIFF is normally used as a transport format.
- Compliant support for the OGC **Web Map Context** (WMC) service gives WMC-enabled clients an automatic start-up bookmark, which removes the need for manually setting up many of the client's start parameters.
- Carmenta Server offers an integrated **Catalog Server** solution for gathering, searching, updating and publishing information about GIS data and metadata. ISO standard metadata models (ISO19115/19139) are used. Compliant support for **Catalogue Service for Web (CSW)** 2.0.2 is included and **distributed search** can be used when connected to other CSW services. Automatic and time-scheduled harvesting of metadata can be invoked to keep the data catalogue updated.

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