

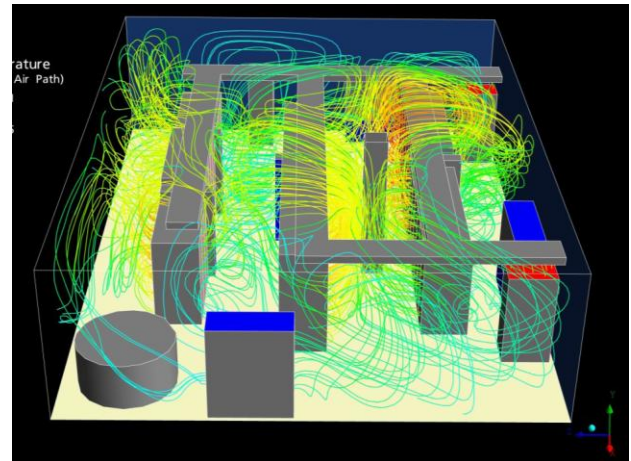
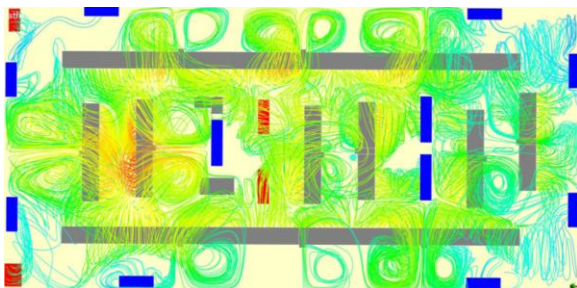


Improve Energy Efficiency, Identify Hot Spots and Future Proof your Data Centre

The primary objective of data center cooling systems is to make sure that the air temperature at rack inlets lies within standard operating guidelines. This requires an adequate supply of cooling air as well as effective distribution to the equipment in the room. Keeping rack inlet temperatures in the safe range reduces downtime, extends equipment life, and optimizes energy costs associated with the air conditioning system.

To help meet this objective, Meritum Technology Limited offers CoolSim™, a software application that allows users to create an airflow simulation of their data center. The simulation is performed using the floor plan and equipment specifications of the data center. After the computer analysis is complete, a thorough report is produced that provides detailed information about the temperature distribution and airflow patterns throughout the entire data center. The results can be used to pinpoint problems such as hot spots, air recirculation into the inlets, or short-circuiting from the CRAC supplies to the returns. The results also can be used to help guide design changes.

CoolSim has been developed using a unique “client-server” architecture. The graphical user interface (GUI) and CoolSim model building environment reside on the user’s computer. Models can be built “offline” for processing at a later time. When the simulation is ready to be performed, the model is automatically encrypted, compressed, and uploaded via the internet to a Remote Simulation Facility for computation on a large, parallel, HPC (High Performance Computing) cluster. The results are returned to the local computer when the simulation is complete, and can be viewed using a browser. In addition to the extensive numerical reports, the 3D graphics can be manipulated with a mouse within the browser environment.



Key Features

- Flexible pricing to meet your usage requirements.
- Easy-to-use interface – no previous CFD experience required.
- An automatically generated comprehensive assessment & cooling report.
- Visual representations of room airflow patterns, temperature distributions, plenum airflow patterns, pressure distributions, and flow distribution through tiles.
- Multiple concurrent simulations using our remote simulation facility.
- Fluent CFD (computational fluid dynamics) solver, the most widely used and validated code
- Irregular footprint room shapes.
- Raised floor or ceiling plenum returns.
- Individual CRACs with different cooling capacities.
- CRAC failure analysis (fan and cooling).
- Library of CRAC units and perforated tiles.
- Rack builder feature with library to build rack with varying heat loads
- Cable cutouts (inside and outside racks
- Obtain a coupled solution for the plenum and room airflow and heat transfer
- Model heat loss from the data center room envelope to adjacent rooms



The CoolSim Process

Three simple steps are needed to obtain a comprehensive report detailing your data center airflow and thermal condition:

Step 1: Build a virtual representation of the data center using CoolSim's drag-and-drop GUI. Use the Data Center Assessment Report to perform sanity checks and balances between supply and demand airflow rates, heat loads and cooling capacities.

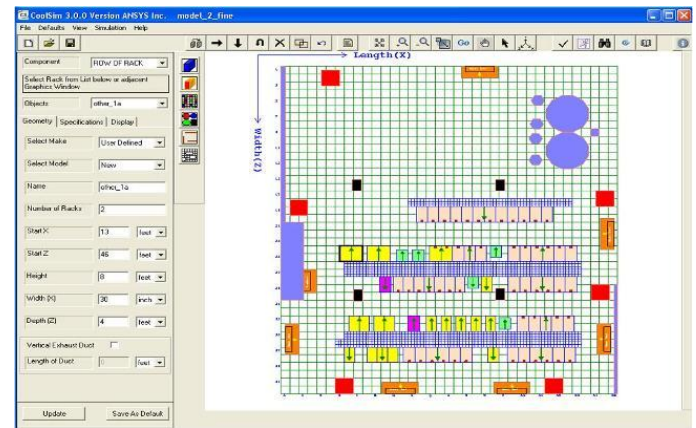
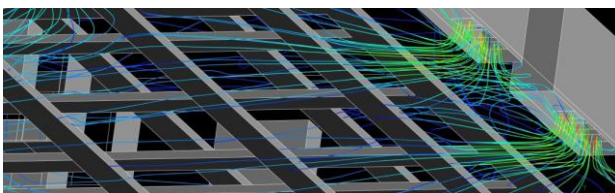
Step 2: Upload the model to our secure Remote Simulation Facility (RSF), for automatic meshing and solving. This generates maps of the air velocity, temperature and pressure in the room, supply plenum, and ceiling plenum are calculated using state-of-the-art CFD technology operating on an HPC parallel cluster.

Step 3: Download the results from the RSF as soon as the calculation is complete. The results, in HTML format, include:

- A summary report with flow and temperature details associated with all equipment in the room
- Highly detailed 3D Graphics for temperature and pressure contours, temperature clouds, pathlines showing the flow of air from the CRAC supplies, floor tiles, and rack returns
- Highly detailed animations illustrating the progress of the flow from the CRAC supplies and rack returns; iso-thermal clouds from cold to hot; and planes of temperature progressing in the X, Y and Z directions.

In addition to the HTML summary report, the CoolView option in CoolSim provides colour-coded results of the data center in plan view. These include:

- CRACs: Average supply and return temperatures along with cooling capacity
- Racks: Minimum, maximum, and average inlet temperatures, average exit temperatures, and power consumption
- Vent Tiles, Ceiling Grills, and Cable Cutouts: Flow rates



Purchase Options

CoolSim users will purchase a subscription based on the size of their data center and number of simulations they expect to carry out over the annual period. The subscription will cover the licensing and technical support of the CoolSim application as well as the total computational capacity, including bandwidth, intermediate storage, and parallel processing. The use of the CoolSim Model Builder and Post-Processing Reports are performed offline and therefore have unlimited use.

All CoolSim customers are invited to participate in an on-line one hour training session at no additional cost. Local training seminars are also available upon request.

Hardware / Connection Requirements

- Windows 2000, XP, or Vista OS
- 256 MB RAM required; 512 MB recommended
- 500 MB swap space
- High-speed internet connection

For more information, or to schedule a demo, contact:

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