Energy Exemplar

April 2026

AURORA

Install Guide

Version 17.0.100

Confidential

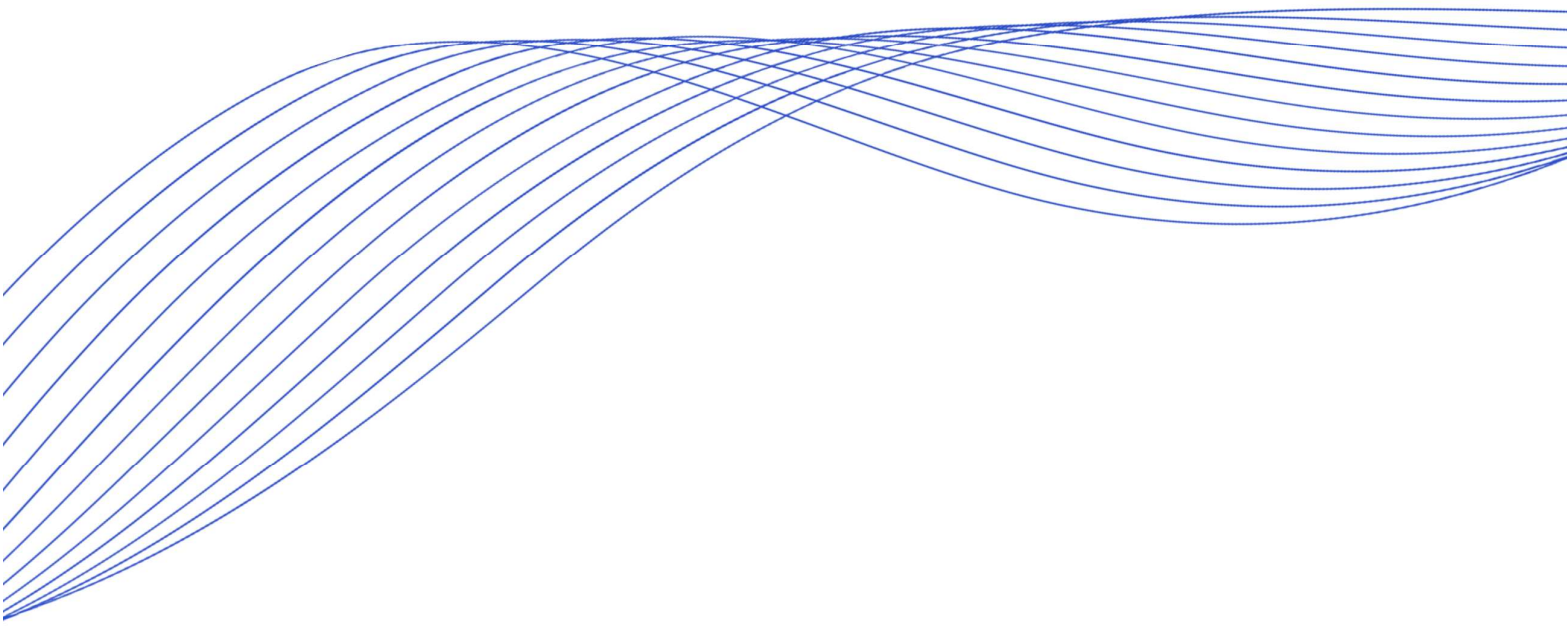

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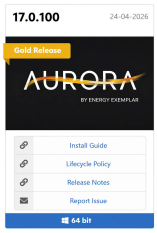
Table of Contents

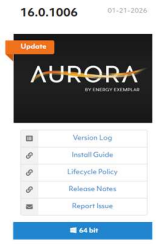
1. SETUP INFORMATION

1.1 Installation File and Instructions

This Installation Guide provides installation steps to use the file containing Aurora version 17.0.100, which you can obtain from the Energy Exemplar Client Portal. You can also download example project files there.



Major Aurora releases (those with a .1001 version number, e.g., 17.0.1001) must be installed using a full installation package downloaded from the Energy Exemplar Client Portal. These releases cannot be applied as patches over an existing installation and require running the complete installer obtained after logging in to the portal.



Interim updates, including software patches and optional data packages (those with a .1002 or above version number, e.g., 16.0.1006), are provided as additional support resources and are also available for download through the Energy Exemplar Client Portal. Access to the portal requires valid credentials, which are obtained by contacting Energy Exemplar if you do not already have them.

Download the appropriate installer, patch, or data package by selecting the appropriate links and review the Enhancement Log for the target Aurora version.

2. SYSTEM REQUIREMENTS

As you prepare to install Aurora, consider the types of studies and capabilities you plan to use, such as Multi-year Risk studies, Long-Term Capacity Expansion (LTCE) studies, or Nodal studies. These place significantly different demands on system resources.

While Aurora specifies minimum system requirements, Energy Exemplar strongly recommends installing Aurora on systems that meet the recommended hardware and software specifications, particularly for memory- and computation-intensive workflows. Adequate RAM, fast processors, and sufficient disk space are critical to ensuring stable performance, reasonable run times, and the ability to handle large input and output datasets—especially for nodal models and long-term expansion analyses.

We provide detailed guidance on selecting appropriate hardware based on your intended modeling use cases.

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*Aurora requires **1.65 GB of free disk space for installation, with 1.5 GB on the system drive** (the remaining 150 MB may be located elsewhere). Carefully configure output reporting to manage disk usage and performance. Output databases can be very large depending on reporting selections and require additional disk space and virtual memory.*

Software Requirements

- Windows 64-bit Operating System

Software Recommendation

- Windows 11 Professional
- Microsoft Office Excel
- Microsoft SQL Server 2019 Full or Express Edition

Operating System Compatibility

- Windows 11
- Windows 10 Pro
- Windows Server 2019 or 2022
- Windows 8.1 Pro or Enterprise

3. Application Recommendations

3.1 Zonal Studies

For memory-intensive zonal studies—such as granular systems (e.g., Eastern Interconnect), constrained dispatch, or long-term studies with many new resource candidates—at least **8 GB of RAM** are recommended.

3.2 Nodal Studies

For nodal studies**, 16 GB of RAM** is required for most systems, with 32 GB recommended for large Eastern Interconnect models.

3.3 Performance

Energy Exemplar recommends using systems with the fastest available processors and low-latency RAM for optimal performance.

An example of an optimal system capable of performing all study types is shown below.

High Performance 64-bit Systems

WORKSTATION	
PROCESSOR	Intel® Core i9-9960X @ 3.10GHz
RAM	32GB

Additionally, **overclocking** (or **HyperClocking™**, depending on the manufacturer) can improve performance by increasing a CPU's clock speed beyond its factory-rated setting.

3.4 Remote Access

Aurora is well suited for remote access environments and can be installed on remote servers and accessed by multiple users via tools such as Remote Desktop or Terminal Services.

Minor GUI performance impacts may occur (e.g., slower window switching or chart creation); this is **not** the same as running Aurora in a virtualized environment.

3.5 Virtualization (Hardware/Software)

Aurora can run in virtualized environments such as VMware, Citrix XenDesktop/Server, Microsoft Hyper-V, or Parallels Desktop for Mac.

Testing has shown **minor performance impacts**, such as longer run times, which may vary based on output reporting volume, concurrent users, and other system factors.

Because performance can vary widely across environments, Energy Exemplar recommends **testing Aurora in the intended virtual environment** before committing to full-scale production use.

For maximum performance, Aurora is best run-on dedicated servers or workstations (in non-virtualized environments).

3.6 Output Database Formats

Output database formats are xmpSQL, SQL Server, MySQL, XML, zipped XML, and CSV.

For SQL Server use, **SQL Server Express** is recommended on client machines running Aurora, while the **full SQL Server edition** should be installed on a **dedicated central server**. Running a full SQL Server installation on the same machine as Aurora is not recommended, as SQL Server's memory usage can significantly reduce Aurora performance.

3.7 Input Database Formats

Delivered input databases are provided in **xmpSQL (.xdb) format** and can be easily converted to other formats, including **zipped XML** or **SQL Server**.

Zonal input databases are typically under **100 MB**, while nodal databases may be larger.

3.8 Data Backup

Aurora input and output data should be backed up to meet user requirements.

3.9 Network Bandwidth/Data Storage

Bandwidth requirements depend largely on the volume of output data written to non-local storage (e.g., network shares or server-based databases). For large studies, bandwidth demands can be significant, and storage should be located close to users or supported by high-bandwidth connections. Output database sizes vary by use case and can reach hundreds of gigabytes for certain model applications.

3.10 Multi-CPU

Multi-core or multi-processor systems allow multiple Aurora simulations to run simultaneously when sufficient memory is available, reducing total batch run time even if individual runs take slightly longer. When running a single simulation, Aurora can utilize all available processors.

Enabling **Use Parallel Processes** in Simulation Options can improve run times by **10–50%** on multi-core machines, depending on study settings. For multi-year zonal studies, **Parallelize the Run Across Years** can further reduce overall run time by running years concurrently. Despite these capabilities, Energy Exemplar generally recommends systems with **higher single-thread performance** rather than a larger number of slower cores.

3.11 Multi-Core/Multi-User Environments

Multiple Aurora instances can run in parallel on **multi-core servers or workstations**, making these systems well suited for **multi-user environments**. However, memory and CPU usage scale linearly, with no shared-memory efficiencies across instances.

For example, if a single study requires 6 GB of RAM, running 8 parallel instances would require 48 GB of RAM. Similarly, if one study uses 25% CPU, running more than four simultaneous studies will exceed available CPU capacity and result in slower run times for all simulations.

Memory requirements for Aurora vary by use case, particularly in multi-core or multi-user environments. Factors that can significantly increase memory demand include:

- Large nodal simulations (e.g., Eastern Interconnect)
- Long-term expansion studies with many resource candidates
- Higher in-memory record limits for large outputs
- More granular topologies (e.g., solving hourly prices for many WECC zones vs. fewer)
- Very large input databases with high record counts (e.g., > 50,000).

CPU usage does not scale linearly: each additional Aurora instance introduces processing overhead, and limited memory and I/O bandwidth can become bottlenecks, leading to degraded performance as concurrency increases.

Performance degradation depends on hardware configuration, the number of simultaneous Aurora instances, system size (e.g., number of zones), and project settings. Energy Exemplar recommends **testing Aurora in the intended multi-core environment** to determine the optimal configuration for maximum productivity.

3.12 Gurobi Optimizer

If you license Aurora using the Central License Manager (User Sign-In method), the Gurobi Optimizer is licensed automatically, no separate activation is required.

When running Gurobi Optimizer on a virtual machine, some of these identifiers may change if you "copy" the virtual machine. To migrate a virtual machine to a new host, select the option in your virtualization system to "move" the virtual machine rather than "copying" or "cloning" it.

3.13 User Access Rights

Aurora uses all standard program folders recommended for Microsoft Operating Systems. In some IT environments with enhanced user access security, it may be necessary to give users rights to certain folders on the system. Users will need read, write, and modify access to the following folders:

- C:\Users\Public\Documents\Aurora (or C:\AURORAxmp for legacy installs)
- C:\Program Files\Energy Exemplar
- C:\gurobi (when licensing the Gurobi solver)
- C:\Users\[username]\AppData\Local\Energy Exemplar\Aurora, C:\ProgramData\Energy Exemplar\Aurora and. C:\ProgramData\EPIS\Aurora

Aurora connects to the internet at launch to check for the current software version and to load the Welcome Page, which provides users with important information such as updates, patches, data releases, and upcoming events.

Although internet access is not required for Aurora to function, it is recommended that IT departments allow access to both of the following sites:

- Welcome Page – **Address:** https://aurora.energyexemplar.com/welcome/
- Version Checker **- Name:** auroraxmp.cloudapp.net **Address:** 191.239.11.138

4. Aurora Installation

4.1 Before Installation

Locate your company's registration credentials. Contact Energy Exemplar support at (208) 255-3993 if you need assistance.

It is recommended to exit all other programs before running the setup program.

Decide how you will manage your project/data directory:

- The data/project file destination directory is **C:\Program Files\Energy Exemplar\Aurora #.#\ (or C:\AURORAxmp** for legacy installs), but files may be moved later to an alternate location, like a server.

Review your file management before installing data packages to ensure you do not lose your work. Dataset releases do not follow the software release schedule. While project files and input databases in each data package are delivered with uniquely named files (see below), it is possible that data files could be overwritten on install. Project files include a date stamp appended to the project file name. For example, 'ERCOT Default' will be delivered as 'ERCOT Default yyyymmdd' where 'yyyymmdd' represents the year, month, and day of project creation.

4.2 Registration

Aurora Registration screen uses your company's registration credentials. Contact Energy Exemplar support at (208) 255-3993 if you need assistance.

Example project files are installed to **C:\Program Files\Energy Exemplar\Aurora ##.0\ (or C:\AURORAxmp** that will contain references to other files in that location. After installation, these files can be copied to a new location.

5. Getting Started

5.1 Launching Aurora

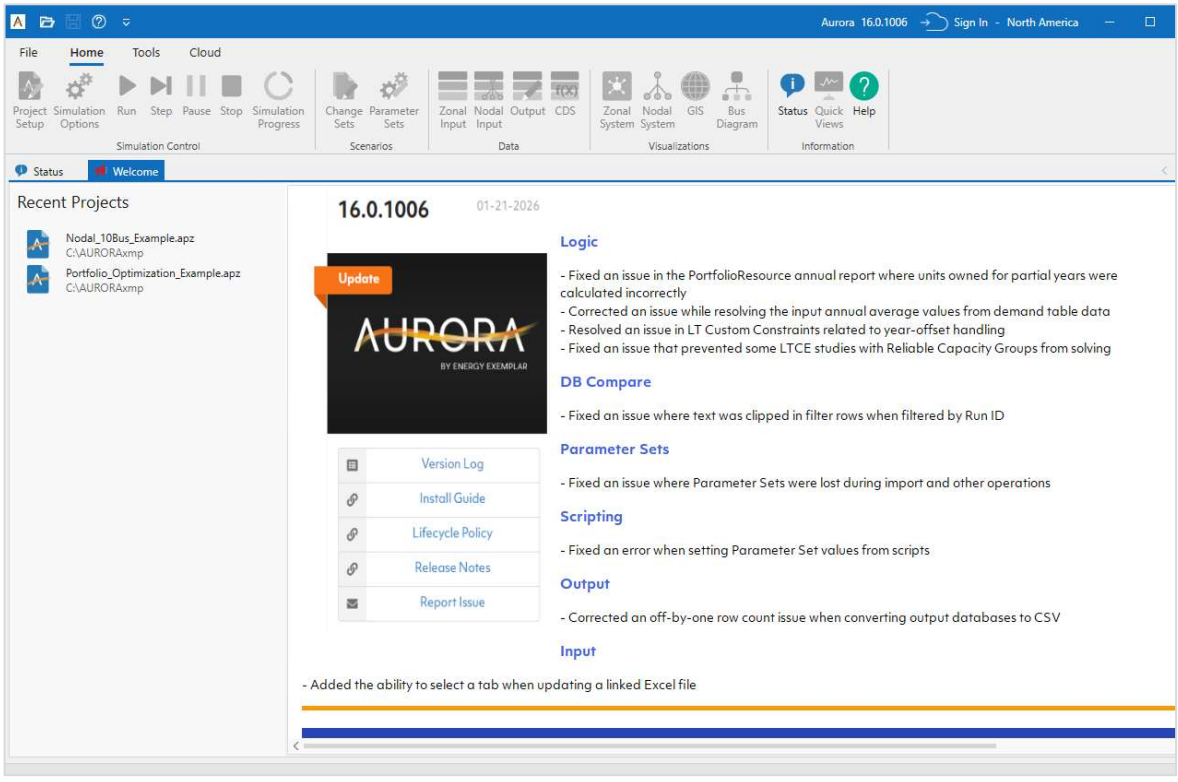
Aurora

Select the Aurora shortcut on your desktop or click the **Start** button on the Microsoft Windows taskbar, and then select **Aurora** from the program list.

An **Aurora splash screen** appears, **then the Welcome page**, followed by the main program window.

When you access the **Status** tab, the first message in the Status window will be a date/time stamp followed by the version of Aurora that has been installed, and copyright information.

Version information is also always available in the top title bar. Be sure to review the Welcome page for tips or announcements from Energy Exemplar.



Loading an Aurora Project and Running a Simulation

Before performing a simulation, you must first load an Aurora project file (.apz).

- **Open a Project File**

You can open a project in one of the following ways:

- **From the Welcome Screen**:
  Select a recent project from the list.
- **Using the Open Button**:
  1. Click **Open**.
  2. Navigate to one of the following directories:
     - C:\Users\Public\Documents\Aurora
     - C:\AURORAxmp (for legacy installations)
     - A custom directory (if project files were moved)
  3. Select the desired **apz project file**.
  4. Double-click the file to open it.

For an overview of the Aurora interface, access the Help systemsee Getting Started, Navigation, Run Management topics in the integrated Help,.

Additionally, check out the Introduction Training to Aurora video in the xPert Learning center of our **Client Portal**.

5.1.1 Running a Simulation

To start a simulation:

1. Click the **Run** button.
2. This initiates a study using:
   - The data in the current Aurora input database
   - The selected study period
   - Dispatch hours
   - Other study assumptions

The Aurora Status window and the Simulation Progress window provide important messages about the operation of Aurora.

6. Support Information

For support on technical questions, please contact Customer Support at (208) 255-3993, or send an email to support@energyexemplar.com.