



BI4Dynamics AX Installation Requirements

Last update: October 2019
AX version 7.2.0
Document revision 1

1. SYSTEM REQUIREMENTS

BI4Dynamics can run on premise and in cloud Platform as Service (PaaS).

Note:

It is of utmost importance that all system software used in BI project is of latest version and constantly updated. Any neglect of this task might result in inability of BI4Dynamics to be installed or properly operate.

1.1. Accounts and Permissions

- Be (local) administrator with remote login permission on the windows server where BI4Dynamics is installed.
- Read permissions on the AX database.
- Read permissions on the master database of the source database SQL Server (only required if the AX license is uploaded to the SQL server).
- Create database and linked server permissions on MS SQL Server where the BI4Dynamics DWH will be deployed.
- Granted Server role on MS SQL Analysis Services where the BI4Dynamics OLAP cubes will be deployed. Additionally the Analysis Server service should run under BI4Dynamics domain account.
- SQL Agent job Service user account needs all of the above stated permissions.

Note:

We recommend to join All six (6) permissions under one (1) Windows domain account.

1.2. Windows Server

Hardware

- **CPU:** 2 – 4 Intel® processors or equivalent (at least 2GHz), the more cores the better as SSIS option can run parallel on as many cores as there are available. Using SSIS option can speed up processing Stage and Data warehouse by 30 to 50%
- **RAM:** minimum recommendation:
 - 16 GB RAM for AX database size < 50 GB
 - 32 GB RAM for AX database size 100 ... 250 GB
 - 64 GB RAM for AX database size 250 ... 500 GB,
 - 128 GB RAM for AX database size 500... 1000 GB,
 - 256 GB RAM for AX database size 1000..2000 GB,
 - 384 GB RAM for AX database size 2000..4000 GB,
 - 512 GB RAM for AX database size > 4000 GB,

Consult us for larger databases as our recommendations depend on table structures
- **HDD** space depends on the size of AX database, we recommend:
 - 1.25 x size of Dynamics AX database used when no SSIS option is used
 - 2 x size of Dynamics AX database used with SSIS option is used;

SSIS options needs more space as more tables are processed at the same time so more disk is needed for temporary calculations. The result – size of BI4Dynamics DW - will be about 30-50% of AX database.

If possible, use SSD hard drive, which processes data about 30 – 50 % faster than standard 15k disks

Notes:

AX database vs number of BI users

Hardware configuration should correspond to the size of Microsoft Dynamics database (this is important) and to lesser extent to the number of analytical users.

Rules for fast processing:

Enough RAM: RAM amount under the recommended size will significantly affect the processing speed.

Fast disks: Most important parameter as large set of data are read and written each time.

Good CPU with many cores

Software

- Windows Server version 2008 R2 SP1, 2012, 2012 R2, 2016 and 2019 or
- Windows version Windows 7 SP1, 8, 10
- **.NET Framework 4.7.1**,
- Network availability:
 - **Online servers:** Server is connected to the Internet with port 80 opened (if the server is under proxy, the application needs access to our authorization web service)
 - **Offline servers:** special offline license is required; please contact support@bi4dynamics.com for further assistance.
- UAC should be disabled or the application needs to be installed somewhere outside Program Files folder,

1.3. SQL Server

All BI4Dynamics features run on **Standard** SQL Edition. It is understood that it can run also on BI or Enterprise edition.

- Microsoft SQL Server **Standard** Edition from version **2012** and above with
 - Database Engine
 - Analysis Services (**Multidimensional option**, Tabular is not supported)
 - SQL Agent
 - Integration Services (optional): to run processing parallel; if not installed or selected then loading stage tables and processing DW tables is running sequentially, one table after another
- All services run under the windows domain user with appropriate permissions
- Separate Partitions for Data + Log + Temp

Notes:

To introduce additional speed improvements it is recommended to put data files on a RAID 5 for fast read speeds and log & temp files on RAID 1 for fast write speeds. For Microsoft Dynamics AX databases the collation of the data warehouse server should match the collation of the AX server

Processing cubes by cube partitions

This feature has been available since Microsoft SQL Server 2016 introduced 3 partitions as a part of **Standard** Edition. BI4Dynamics can process cubes by partitions. System requirements are:

1. Analysis Services on Microsoft SQL Server Standard edition **2016** and above
2. Integration Services on Microsoft SQL Server
3. Incremental processing option available in BI4Dynamics AX
4. BI4Dynamics AX license current on Enhancement (BREP, software assurance)

1.4. Source database AX

- Working AX license needs to be running on AX server (and saved to the master database of SQL instance)
- There has to be at least one entry in Currency and Country tables per Company (only applies to companies you intend to use in BI4Dynamics)
- If you use non-default SQL port (1433), then you have to add SQL port number when adding the data source in BI4Dynamics. SQL port number must be added after SQLServerName and must contain prefix ",". Example "SQLServerName,SQLPort \ SQLInstance".

2. SETTING UP AX SERVICES

2.1. Use AX Web services connector in BI4Dynamics

In order to use AX web services connector in BI4Dynamics these should be set accordingly:

- Activated Financial Dimension Services on AX server
- Access to AX AOT (Administrator permissions) with current Windows user under which BI4Dynamics is running (Windows Authentication)

AX 2009

At instance creation, application user will also need the following information:

- **Object Server** (where AX AOT is installed)
- **Proxy Username** (only use if the user with AX permission is different to BI4Dynamics user)
- **Proxy Password**

AX 2012 and newer

At instance creation, application user will also need the following information:

- AX Server address
- **Port** (default value is **8201**)
- **Alias** (default value is **AXSVC**)
- **Domain** (the domain where AX system is hosted at)

Activate financial dimension services

To activate financial dimension services follow these procedures:

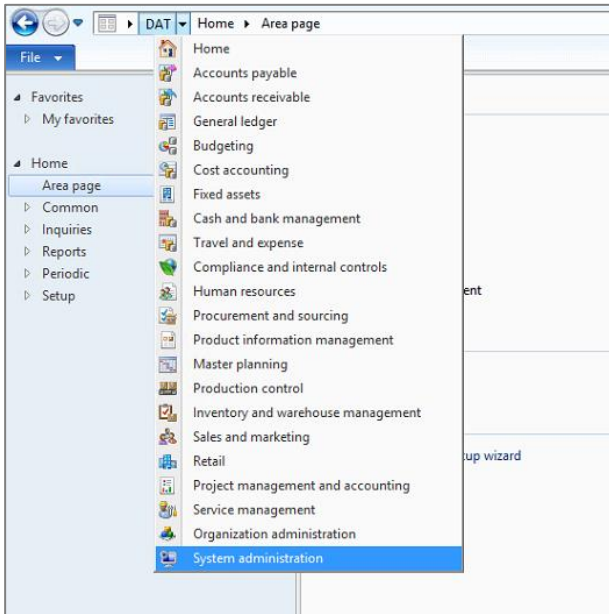
Notes:

Batch servers needs to be in halt mode while enabling services!

Inbound port activation can lead to AX crash, if batch jobs are running.

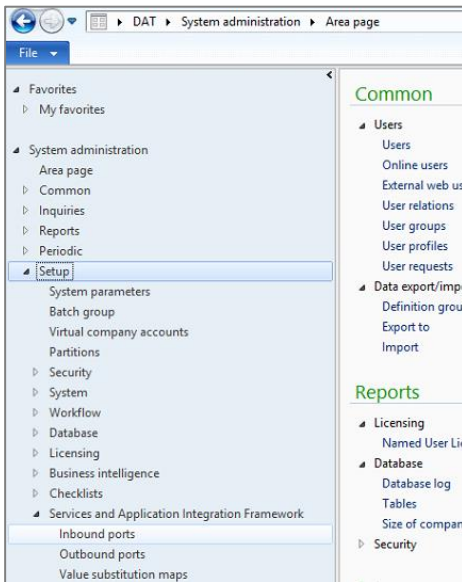
First turn off batch servers and check if batches are running. Only when they are not running, activate inbound port and reactivate batches.

1. Open AX client and click System Administration



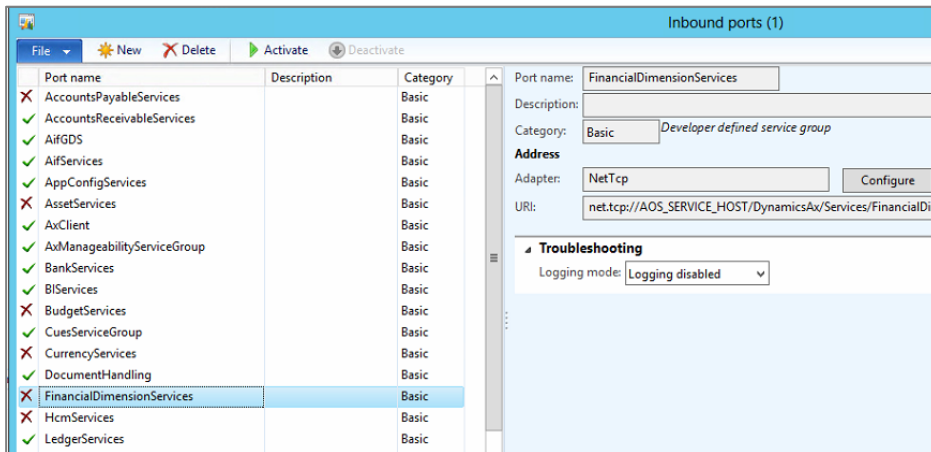
Picture 1 : Opening System Administration

2. Expand Services and Application Integration Framework located under Setup
3. Click Inbound ports, which opens a new window



Picture 2 : Opening services configuration

4. Locate FinancialDimensionServices in the list
5. In order to activate the service click Active on top of the window



Picture 3 : Disabled financial dimension service

3. RECOMMENDATIONS

We recommend having a dedicated infrastructure for BI stack. However, it is good to consolidate this decision with your IT services experts to determine the optimal configuration for your environment.

Dedicated BI infrastructure stack

With modern VM infrastructure in place, it is easy to have an independent and dedicated BI environment up and running within few hours. If your company uses virtualisation, you can create a windows server machine that can host a dedicated BI SQL Server instance.

- With a dedicated environment we can achieve greater separation of concerns and resources
- It is also easier to meet requirements in terms of system orchestration as there are no existing ports and configurations to worry about
- It's a good practice to check for any maintenance jobs running at your source DB server and set the BI4Dynamics daily job according to current source schedule to achieve greater efficiency

Shared BI infrastructure stack

It is not always feasible to allocate additional VM resources. In such case, it is also possible to use the product in existing environment.

- It is advisable to allocate some extra hardware resources on existing machines for BI purposes.
- All running agent jobs needs to be aligned with the BI4Dynamics agent jobs in order to avoid accidental interlocking issues