

CityGRID[®] Database setup MS SQL Server 2012-2016 (32/64 bit)

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This document describes the installation of a CityGRID[®] database to SQL Server 2012-2016 Express, but can also be applied to SQL Server 2017.

- 1. Installation of SQL Server
- Select "New SQL Server stand-alone installation". Accept terms and Product Updates and start installation.



Fig. 01: SQL Server Installation

- Accept license terms, click next.
- Use Microsoft Updates to check for Updates, click next
- SQL Installation Feature Selection: Database Engine Services, SQL Server-Replication, SQL Server Client Connectivity SDK and Management Tools-Basic.

SQL Server 2012 Setup Feature Selection Select the Express features to	install.		
Setup Support Rules License Terms Feature Selection Installation Rules Instance Configuration Disk Space Requirements Server Configuration Database Engine Configuration Error Reporting Installation Configuration Rules Installation Progress Complete	Eeatures: Instance Features SQL Server Replication Shared Features SAL Client Connectivity LocalDB Redistributable Features	es on ssic SDK	Feature description: The configuration and operation of each instance feature of a SQL Server instance is isolated from other SQL Server instances. SQL Server instances can operate side-by-side on the same computer. Prerequisites for selected features: Already installed: Microsoft .NET Framework 4.0 Windows PowerShell 2.0 Microsoft .NET Framework 3.5 To be installed from media: Microsoft Visual Studio 2010 Shell
	Shared feature directory (<u>x</u> 86):	C:\Program Files\Micr C:\Program Files (x86)	osoft SQL Server\
	4	< <u>B</u> ack	<u>N</u> ext > Cancel Help

Fig. 02: Feature Selection

• Define Instance Name, ID and Install directory for MSSQL Server instance. (Use default settings)

SQL Server 2012 Setup Instance Configuration Specify the name and instance	n e ID for the instance of SQL	Server. Instance	ID becomes part of t	ne installation path.	
Setup Support Rules Feature Selection Installation Rules	 <u>D</u>efault instance <u>Named instance</u>: 	SQLExpress			
Instance Configuration Disk Space Requirements Server Configuration Database Engine Configuration	Instance <u>I</u> D: Instance <u>r</u> oot directory:	SQLEXPRESS D:\apps			
Error Reporting Installation Configuration Rules Installation Progress Complete	SQL Server directory: Installed instances:	D:\apps\MSSQ	L11.SQLEXPRESS		
	Instance Name	Instance ID	Features	Edition	Version
	<shared compone<="" td=""><td></td><td>SSMS</td><td></td><td>10.51.2500.0</td></shared>		SSMS		10.51.2500.0
			< <u>B</u> ack	Next > Car	ncel Help

Fig. 03: Instance Configuration

• Keep Default settings for initial user accounts.

Server Configuration	d collation configuration.				
Setup Support Rules Feature Selection Installation Rules	Service Accounts Collation	use a separate account for each	SQL Server servi	ice.	
Instance Configuration	Service	Account Name	Password	Startup Type	:
Disk Space Requirements	SQL Server Database Engine	NT Service\MSSQL\$SQL		Automatic	•
Server Configuration	SQL Server Browser	NT AUTHORITY\LOCAL		Disabled	-
Installation Progress Complete					

Fig. 04: Server Configuration

 Specify Authentication Mode, define System Password and User: Select mixed authentication mode, create System Password (e.g. C1ty@grid) and add all SQL Server administrator users. Then carry out installation with the default settings until the end.

Database Engine Confi Specify Database Engine authe	iguration	administrators and data directories.	
Setup Support Rules Feature Selection Installation Rules Instance Configuration Disk Space Requirements Server Configuration Database Engine Configuration Error Reporting Installation Configuration Rules Installation Progress Complete	Server Configuration Specify the authent Authentication Mod <u>Windows authen</u> <u>Mixed Mode (SQ</u> Specify the password: <u>Enter password:</u> <u>Confirm password:</u> Specify SQL Server a	Data Directories User Instances FILESTREAM tication mode and administrators for the Database de tication mode 2L Server authentication and Windows authentication rd for the SQL Server system administrator (sa) acc ••••••• administrators	Engine. on) ount.
	UVMSYSTEMS\whe	e (Wolfgang Henebichler)	SQL Server administrators have unrestricted access to the Database Engine.

Fig. 05: Database Engine Configuration

- 2. Setting up database instance with SQL Server Management Studio.
 - If necessary, install SQL Server Management Tools from the SQL Server Installation Center



Fig.06 Install SQL Server Management Tools

- Start *MS SQL Server Management Studio Express* from Windows Start Menu and use Windows Authentication to log in.
- Right click on Security → Logins and select New Login (e.g. cityman owner). Choose SQL Server Authentication. In case an easy to remember password should be used, uncheck Ensure password policy.

The login gets default schema of *dbo* assigned automatically, which is created during installation. This cannot be changed later. For this reason, a second login is created and it is possible to assign this login a self-created schema or user. Leave *Default Database* temporarily to *master.* (Fig. 06) Skip this action if cityman_owner user has already been created during a previous installation!



Select a page P General	🔊 Script 🔻 🚺 Help		
Server Roles User Mapping Securables Status	Login name: <u>Windows authentication</u> <u>SQL Server authentication</u> Password	eityman_owner	Sgarch
	Confirm password:	•••••	
	Old password: Enforce password policy Enforce password expire User must change pass	ition vord at next login	
	 Mapped to certificate Mapped to asymmetric key 		*
Connection	Map to Credential		▼] [<u>A</u> dd
Server: MAGNI\SQLEXPRESS Connection: UVMSYSTEMS\whe Provide the connection properties	Mapped Credentials	Credential Provider	
Progress			Remove
Ready	Default <u>d</u> atabase: Default language:	master English	•

Fig. 07: Login properties

• Right click on *Security* -*Logins* and select *New Login* to create a second Login (e. g. cityman). Use *SQL Server Authentification* again uncheck *Ensure password policy*. Use your previously specified password.

Skip this action if cityman user has already been created during a previous installation!

- Right click on *Databases* and select *New Database*: (e. g. cg_test):
- Use cityman_owner as *Owner*. (Fill in in corresponding form and click *Browse*)
- Set Initial Size to 500 MB.
- Optionally change *Path* to a different location. Mind that folders have to be created *outside MSSQL Management Studio*!
 - IMPORTANT!! Switch to page *Options* and set *Collation* to a case

sensitive (CS) entry (e. g. Latin1_General_100_CS_AS)

• Klick *OK* to finish database creation process.

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Object Explorer	▼ ₽ ×	New Database							x
	7 🛃 🔏	Select a page		Script 🔻 🚺	Help				
MAGNIN SQLEAPR	New Database Attach Restore Database Restore Files and Filegroups Deploy Data-tier Application Import Data-tier Application Start PowerShell	Filegroups	2	Database name: Qwner: Use full-text in Database files: Logical Name cg_test cg_test_log	file Type Rows Log	cg_test cityman_ov Filegroup PRIMARY Not Applicable	Initial Size (MB) 500 2	Autogrowth / Maxsize By 1 MB. Unlimited By 10 percent, Unlimited	
✓ VC ▲ cit ▲ cityma ⊕ 🔁 Server Role	Refports Refresh	New Database		Script 👻 🎼	Help				×
 	5	Filegroups	3	Collation: Recovery model: Compatibility leve Containment type Other options: () () () () Auto Shrink Auto Update Auto Update 4 Containment	l: :: = Statistics = Statistics As ant	Latin 1_ Simple SQL Se None	General_100_CS_ erver 2012 (110) False True False	AS	

- Fig. 08: Create Database
- Open newly created database in *Object Explorer* and right click on Security ->Schemas. Select New Schemas and assign "CITYMAN" as name (mind case sensitivity!!). Leave Owner empty for the moment.

🛃 Schema - New	
Selecta page General Permissions Extended Properties	Script V Help A schema contains database objects, such as tables, views, and stored procedures. A schema owner can be a database user, a database role, or application role. Schema name: CITYMAN Sghema owner: Search Search
Connection	
Server: MAGNI\SQLEXPRESS Connection: UVMSYSTEMS\whe	
Progress	
O Ready	
	OK Cancel

Fig. 09: Define Schema

- Right click on Security→User in the newly created database and create New User (e. g. citymanDB):
 - Set Login name as defined in step 9 (cityman).
 - Set *Default Schema* of new User to schema defined in step 10 (CITYMAN)
 - Switch to page Owned Schemas and obtain ownership for schema CITYMAN.

 Switch to page Membership. Important!!: User must have roles of db_backupoperator and db_ddladmin to have all needed rights for usage in CityGRID[®].

Microsoft SQL Server Management Studio (Administrator)	🔋 Database User - New	
Datei Bearbeiten Ansicht Debuggen Extras Fenster Hilfe	Select a page	Script 👻 🔀 Help
Object Explorer	 Owned Schemas Membership Securables Extended Properties 	User type: SQL user with login
Databases Mask traditional and the foreignment of the foreign	2	User name: citymanDB Login name: otyman Default schema: CITYVAN
C_Lest C_Lest	Database User - New Select a page General Owned Schemas Membership Securables Extended Properties	Script
e 🚍 Urere e 🚍 R New User	Database User - New	
Image: Security Filter Image: Security Facets Image: Security Start PowerShell Image: Security Reprication Image: Security Refresh	Select a page General Owned Schemas Membership Securables Extended Properties 4	Script V Belp Database role membership: Role Members db_accessadmin db_backupoperator db_datareader db_datawriter db_datawriter

 Right click on Security→Logins and the Login created in step 8 (cityman) and select Properties. Assign created database (cg_test) as Default Database.

😑 🚞 Security _ C _× Login Properties - cityman 🕀 🧰 Users Select a page 🗉 🧰 Roles 🔄 Script 🝷 🛐 Help General Server Roles User Mapping Securables Status 🕀 🧰 Schemas 🗉 🚞 Asymmetric Keys Login <u>n</u>ame: cityman Search. 🕀 🧰 Certificates 🗄 🧰 Symmetric Keys O Windows authentication 🖃 🚞 Security ③ SQL Server authentication E D Logins Password: ##MS_PolicyEventProcessing
 ##MS_PolicyTsqlExecutionLog Confirm password: NT Service\MSSQL\$SQLEXPF
NT SERVICE\SQLWriter Specify old password Old password NT SERVICE\Winmgmt NT-AUTORITÄT\SYSTEM Enforce password policy sa UVMSYSTEMS\whe User must change pa ord at next login VORDEFINIERT\Benutzer Mapped to certificate Mapped to asyr New Login.. + Carver Rol Map to Credential Add Connection 🗄 🧰 Credentia Script Login as . Mapped Credentials Credential Provider Server: MAGNI\SQLEXPRESS Policies • Facets 🗉 🚞 Management Connection: UVMSYSTEMS\whe Start PowerShell View connection properties Reports Progress Remove Rename Ready Delete cg_test -Default database: English -Refresh Default language: Properties OK Cancel

Fig. 11: assign default database

3. Creating Tables and importing schema

Import CityGRID[®] Schema by usage of create_schema.bat

- Navigate to the folder containing the create_schema.bat with cd
- Select the create_schema.bat with TAB
- use your login data in this format:



Fig. 12: Run create_schema.bat

- Mind that server typically has got "\SQLEXPRESS" attached to the machine name itself! –
- Textures of CityGRID[®] models are not stored directly into database, only the reference to the images is inserted. Images are all stored in specified texture folder (e.g. \\mycomputer\Data\Textures\Textures_CityGRID_test)
 The images folder can be defined on every machine, as long as the folder can be addressed in network and CityGRID[®] software has got read/write privileges. Application of UNC path is recommended.

After schema installation has come to an end, the log file will open up in default text editor. Check logfile for any errors and continue with further steps only for log is error free!

4. First connection with CityGRID Administrator

Establish connection to database by help of CityGRID[®] Administrator and apply schema update. Don't create a database dump! Click Yes at all further questions.

Import Default DTM in CityGRID[®] Administrator under Import \rightarrow CityGRID XML. See Manual Administrator for further assistance.

Provider:	SQL Server OLEDB
Server:	magni\sqlexpres
Datenbankname:	citygrid_test
User:	cityman
Passwort:	****
Schema:	CITYMAN
Anmol	ten Schließen

If necessary further users can be created (with restricted rights). Authentication has to be set to *SQL Server Authentication* every time.

5. Possible Issues

In case remote access to the Database is not possible check

- Remote Access is enabled in Management Studio
 - Right click on SQLExpress Instance and select Properties
 - Check the Checkbox Remote connections is set



- Enable TCP/IP Connection and static Port in SQL Configuration Manager
 - Launch SQL Configuration Manager from Windows Start Menu (Start→ Microsoft SQL Server XXX→ Configuration Tools
 - Select SQL Server Network Configuration → Protocols for SQLEXPRESS

Datei Aktion Ansicht ?		
🏟 🖄 🗐 🖓 🕞		
🕵 SQL Server-Konfigurations-Manager (Lokal)	Protokollname	Status
SQL Server-Dienste	🕉 Shared Memory	Aktiviert
SQL Server-INetzwerkkonfiguration (32 Br	🚡 Named Pipes	Deaktiviert
SQL IVative Client 11.0-Konfiguration (52 SQL Server-Netzwerkkonfiguration SQL Protokolle für "SQLEXPRESS"	≩ TCP/IP	Aktiviert
▷		

- Double Click TCP/IP

Protokoli IP-Adressen		
Enabled	Ja	-
Keep Alive	30000	
Listen All	Ja	

- Double Click TCP/IP
- Switch Enabled to "Yes"

	TCP Dynamic Ports	0	^
F	ICF FOIL		
-	Active	Ja	
	Enabled	Nein	-
	IP Address	fe80::5efe:192.168.60.199%4	_
	TCP Dynamic Ports	0	
	TCP Port		
Ξ	IP9		
	Active	Ja	
	Enabled	Nein	
	IP Address	fe80::5efe:192.168.141.1%8	
	TCP Dynamic Ports	0	
	TCP Port		
Ξ	PAII		
	TCP Dynamic Ports		
	TCP Port	1433	
A	c live	UD Address is patient	

- Change to Tab IP-Addresses
- Scroll down to section *IPALL* and delete value for *TCP Dynamic Ports* and set *TCP Port* to 1433
- Click "Apply" and "OK"
- Switch to SQL Server Services and restart SQL Server (SQLEXPRESS)

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 SQL Server-Konfigurations-Manager (Lokal) SQL Server-Dienste SQL Server Netzwerkkonfiguration (32 Bi SQL Native Client 11.0-Konfiguration SQL Server-Netzwerkkonfiguration SQL Server-Netzwerkkonfiguration SQL Server-Netzwerkkonfiguration SQL Server-Netzwerkkonfiguration SQL Server-Netzwerkkonfiguration 	Name SQL Server (SQLEXPRESS) SQL Full-text Filter Daemon Launcher (SQLEX SQL Server Launchpad (SQLEXPRESS) SQL Server Reporting Services (SQLEXPRESS) SQL Server-Agent (SQLEXPRESS) SQL Server-Browser

- Prepare Windows Firewall
 - Open Firewall from Windows Control Panel
 - Click Advanced Settings



- Click Inbound Rules and click on New Rule

<i>@</i>	Windows-	Firewall mit erweiterter Sig	herheit	- 🗆 🗙		
<u>D</u> atei Ak <u>t</u> ion <u>A</u> nsicht <u>?</u>						
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Mindows-Eirewall mit enweitert	Eingehende Regeln			Aktionen		
式 Eingehende Regeln	Name	Gruppe	Profil 🔥	Eingehende Regeln		
🚳 Ausgehende Regeln	🐼 1433 TCP		Alle	🐜 Neue Regel		
Verbindungssicherneitsrege	🖉 Autodesk 3ds Max 2013 64-bit		Öffen			
Derwachung	🖉 Autodesk 3ds Max 2013 64-bit		Öffen	Y Nach Profil filtern		
	🖉 backburner 2.3 manager		Öffen	V Nach Status filtern		
	🖉 backburner 2.3 manager		Öffen	🕎 Nach Gruppe filtern 🕨 🕨		
	🖉 backburner 2.3 monitor		Öffen	Ansicht		
	🕑 backburner 2.3 monitor		Öffen			
	🕑 backburner 2.3 server		Öffen	Q Aktualisieren		
	🕑 backburner 2.3 server		Öffen	📑 Liste exportieren		
	🔇 CodeMeter Runtime Server		Öffen	Hilfe		
	🕑 CodeMeter Runtime Server		Privat	-		
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	🕜 FME Desktop 2015.1.0.1 win64 (Build 154		Alle			
	🕑 FME Desktop 2016.1 win64 (Build 16492)		Alle			
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- Select *Program* and use Path "C:\Program Files\Microsoft SQL Server\ MSSQL13.SQLEXPRESS\MSSQL\Binn\sqlservr.exe". Allow any connection for all three Network situations in the following dialog and assign a name to the rule (SQL - sqlservr.exe)
- Repeat this procedure for TCP und UDP Port 1433. Select *Port* instead of *Program* on the first window of *Rules* wizard