AutoScanNG 2015
Administrator GUIDE

Galkam
Innovative Software Development

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Introduction

AutoScanNG is a complete image storage and retrieval system for distributed networks using file level operation.

There are two main components: AutoScanNG (the image storage program) and CReq (image retrieval).

This document is concerned with the configuration and deployment of the system.

System Components

Media Server

The AutoScan Media Server (service) resides on a windows computer and accepts images from AutoScan Remote Scanner terminals via the SQL server. The images are copied onto the Primary Image Store (for retrieval by CReq clients) AND digitally signed for permanent storage on the Signed Media Store.

Peer Group Master

For configurations where each of the scanning workstations have the same level of authority over the Database, one workstation is designated a "Peer Group Master." This server will perform the same functions as a Media Server except that there are no remote images to process.

AutoScan Remote Scanners

Windows Workstations fitted with Scanners on which images are scanned, barcode decoded, copied to local Secondary Image stores and transmitted to the SQL server (as a binary object) for processing by the Media server.

Integrated System

This is the general term for systems that integrate with Autoscan. This may be systems like Pathology Laboratory Information Systems (LIS) or Radiology (RIS) systems, or Billing systems (eg MediBILL).

SQL Server

A single Instance of Microsoft SQL Server is used by all AutoScan Remote scanners and the Media server for longitudinal storage of Image Scanning, event and lookup information and for TEMPORARY storage of binary image objects in the queue for processing by the Media Server. It does NOT store the actual images. Typical the SQL server is a domain infrastructure resource and uses redundancy and fail-over technologies to prevent single point of failure scenario.

Primary image store

A windows file store where images are stored (typically in TIF format) available for READ ONLY access by CREQ Clients. This store is populated by the Media Server or by the Scanning workstation in a Peer Group configuration.

Secondary Image stores

A Windows file store within the same LAN as the scanning workstation used for fail over access to images in the case where the primary store is unavailable or where the Media Server process is unavailable. Secondary image store can also be configured as the PRIMARY source for CReq workstations on a LAN. For example, all CReq clients can be configured to go the closest Image store first rather than to the primary store if there is an advantage in network bandwidth to do so.

Signed Media Store

This is a long term network storage resource that the AutoScan Media service uses as its permanent archive. This can be a DVD storage device, or removable or permanent network storage.

CReq Retrieval System

The CReq Retrieval system is a way for a user to access images in the Primary and Secondary Image stores. Images are accessed using Windows file shares and security is implemented via Domain groups. With AutoScan 2011 and later, lookup information is sent to the SQL Server via the SQL Relay agent whenever a CReq user accesses an image (Windows and if possible the Integrated system User details).

SQL Relay Agent

The facilitator that allows the integrated system and CReq to report

Image Storage Pathways

The full pathway for an image as it goes through the system is detailed below:

1. The image is scanned as part of a batch of images when either the SCAN or SCAN more button is clicked on the AutoScan Remote workstation.
2. The Batch is processed by taking each image in turn and attempting to locate an approved Barcode or Barcodes
3. If insufficient barcode information is found, the image is transferred to the PROBLEMS Folder on the AutoScan Workstation for manual attention.
4. If a single suitable barcode/barcode combination is found, excess waste space is stripped off and the image is copied to the DECODED folder on the AutoScan Workstation
5. If more than 1 suitable barcode/barcode combination is found, depending on the setting, excess waste space is stripped and multiple copies or Aliases of the image are copied to the DECODED folder. Alternatively, the image can be sent to the PROBLEMS folder for manual attention.
6. If an Image is sent to the PROBLEMS folder, it must be examined by a person who can then either decide to split the image into multiple copies (if there are multiple barcodes) OR select the single appropriate barcode. Once the manual processing is performed, excess waste space is stripped from the image and it is sent to the DECODED folder.
7. Once Decoded, the SQL database is updated with the image information indicating that the image is SCANNED.
8. Once the SQL Database is updated to SCANNED state, a copy of the image is sent to the LOCAL Image Store for that workstation (which might be the primary or a secondary store). From that point, the image is available to CREQ users to view.
9. At this point, Integrated systems are be able to detect that an image has been scanned for that barcode number/combination via the SQL server "SENT TO SYSTEM" Flag

10. The image is MOVED from the DECODED folder to the BKPIMG folder on the local workstation.
11. Periodically, EACH AutoScan Remote Scanner reviews the status of Images in the SQL database that have NOT been transmitted to the Media Server/Peer Group Master. Each image is copied from the BKPIMG folder to the SQL server as a binary SQL object. The AutoScan Remote Scanner then considers its tasks complete.
12. On the MEDIA Server, images arriving as a binary Object type are selected for processing.
13. Each image in turn is converted back to file format and written to the MEDIA server's DECODED folder. When successfully written to the decoded folder, the binary SQL copy of the image is DELETED from SQL.
14. Images arriving in the Media servers DECODED folder follow the same key steps as the Remote workstation.
15. A copy of each image in the DECODED folder is sent to the PRIMARY Image store. From this point, the image is retrievable by CREQ clients from the Primary store OR the Secondary store
16. The database is updated to reflect that the image is now available on the Primary scanner.
17. The Media Server then copies the image to its BKPIMG folder.
18. MediPath should now detect that the image has changed state and update its scanning records for that Barcode number.
19. Periodically, the Media server selects for images that need to be allocated to a ZIP archive. Each image selected is digitally signed using the Installed certificate and added to the appropriate ZIP archive. If no suitable ZIP archive exists, a new ZIP archive is automatically created.
20. Once a zip archive reaches 100 images OR the Flush Media button is click on the Media Servers User interface, the ZIP archive is copied to the permanent storage device.

21. If the Permanent storage device is a DVD, the MEDIA NAME is used as the reference. If the permanent store is a network storage device, then name of the SUBFOLDER under which the zipfile is stored is used as the reference. For network storage devices, the AutoScan system can be configured to automatically create new subfolders as they are required (eg by week/month/year)
22. Integrated Systems will detect the change in status once the image is permanently archived and update its scanning records for that barcode number
23. Image storage is complete.

Image Retrieval Pathways

There are two key considerations for the configuration of retrieval pathways. Network bandwidth followed by File server load balancing.
It is possible for CReq to be configured to retrieve images from a number of Image stores in specific order. In some network environments, there a differences in network access performance or cost depending on the physical location of the Image stores. In other environments, where there are shared server farms, there may be no speed or bandwidth advantages. In either case, we would usually still configure specific Image stores for specific tasks to distribute workload.
Whether bandwidth is an issue or not, it is preferable for CREQ to be configured to always access the image stores in "most likely to least likely" order.

Scenario 1

Assuming the following Hypothetical configuration:

- Main Site Server farm (2 Image Stores)
    - Primary Image store for ALL sites
    - Secondary Main image store (for images scanned at the Main Pathology Lab)
- Satellite Site server farm (1 Image Store)
    - Secondary Satellite image store (for images scanned at the Satellite Pathology Lab).

In this scenario, Images scanned at the Satellite lab are most likely to be accessed by CReq Workstations in the Satellite site. Sometimes, it may be necessary to access images on scanned on workstations in the Main Site (presumably far less often than the former). The same applies for the Main site – the Main Site workstations will require access to images scanned at the Main site far more often than from the Satellite site.

Should it be the case that one of the image stores becomes unavailable, most likely the site will still have access to any image which should be present in an alternate store.

The best CREQ configuration at the Satellite Site in this scenario would be to set:

Default Image Store: Secondary Satellite Image store
Alternate 1: Primary Image Store
Alternate 2: Secondary Main Image store

This allows images scanned at the Satellite to be accessed at the Satellite site without traversing the WAN. Images scanned at the primary site can be accessed from primary image store. If the Satellite Image store goes down, the Satellite Images can be still be retrieved from the Primary store across the WAN. In the case of a primary image store failure or a Media processing failure, images scanned at either site, can still be located on either of the two secondaries.

At the Main Site the best CREQ configuration under this scenario would probably be:

Default Image Store: Primary Image Store
Alternate 1: Secondary Main Image store
Alternate 2: Secondary Satellite Image store

Although, might also be suitable depending on workloads and timing (remember secondary have the image up to a few minutes BEFORE the primary)

Default Image Store: Secondary Main Image store
Alternate 1: Primary Image Store
Alternate 2: Secondary Satellite Image store

Scenario 2

Alternate scenario where the server farm is shared by both sites and there is no real network bandwidth advantage. IE:

- Central Server farm
    - Primary Image store
    - Secondary Main image store
    - Secondary Satellite image store

The best CREQ configuration at the Satellite would be to set:

Default Image Store: Secondary Satellite Image store
Alternate 1: Primary Image Store
Alternate 2: Secondary Main Image store

For the Main site:
Default Image Store: Secondary Main Image store
Alternate 1: Primary Image Store
Alternate 2: Secondary Satellite Image store

Scenario 3

It is also possible to utilise just single secondary image store where there is no specific bandwidth or load balancing advantages. IE

- Central Server farm
    - Primary Image store
    - Secondary image store

Both sites would have the same CREQ configuration
Default Image Store: Primary Image Store
Alternate 1: Secondary Image store

The difference in this case is that there is a single point of failure at the secondary store.

Installation

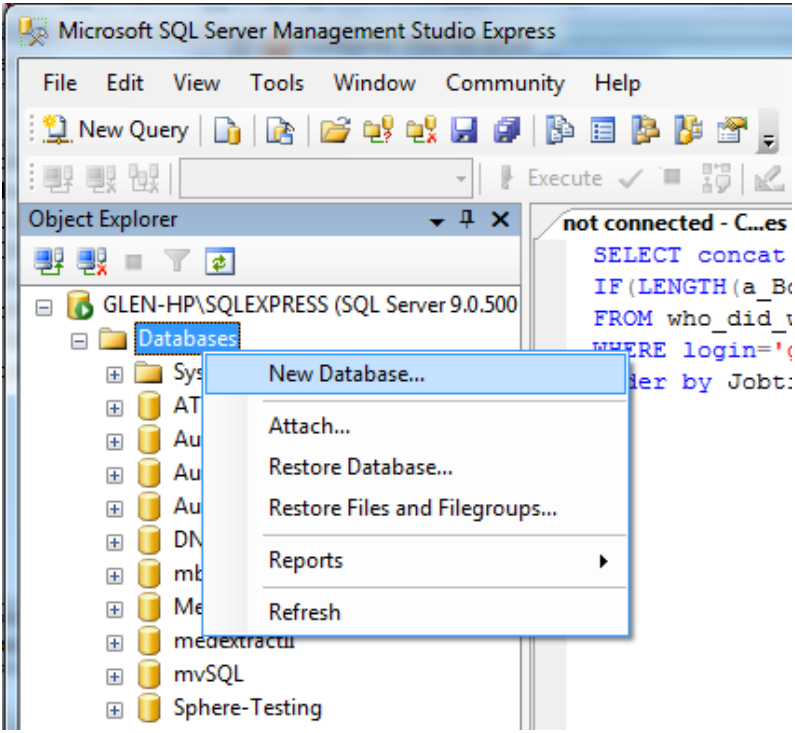
Configuring SQL Server

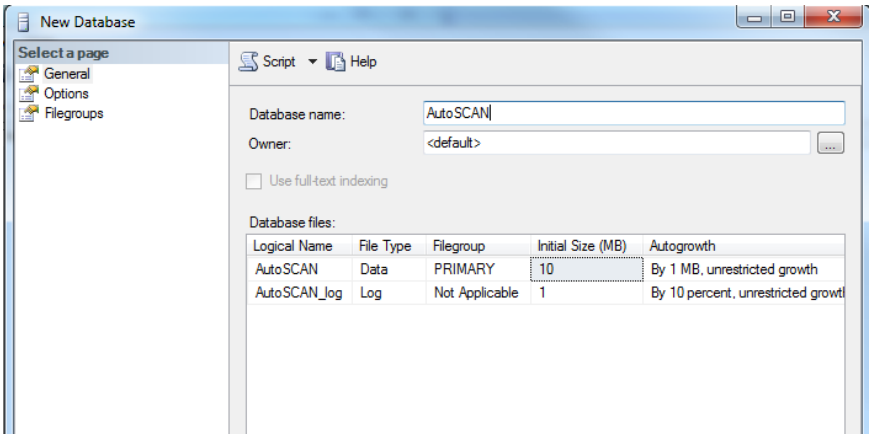
AutoScan Requires Microsoft SQL Server 2005 or later. An instance of SQL Server must be accessible on the network to any workstation that intends to act as a Scanning workstation.

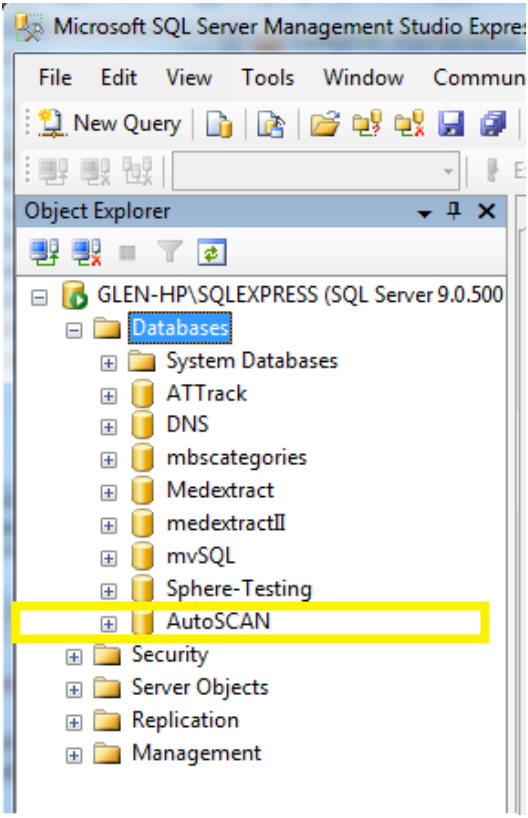
The overhead on a SQL server for a AutoScan system is generally very low. Only the metadata, not the image files themselves, are stored within the database. Typically, systems containing millions of images would require less than 10MB of SQL Space.

In terms of traffic, the largest overhead is the exchange of Binary Image objects from the scanning workstations when running in . The images are uploaded by the workstations to the SQL server and downloaded again by the

Create an Empty Database



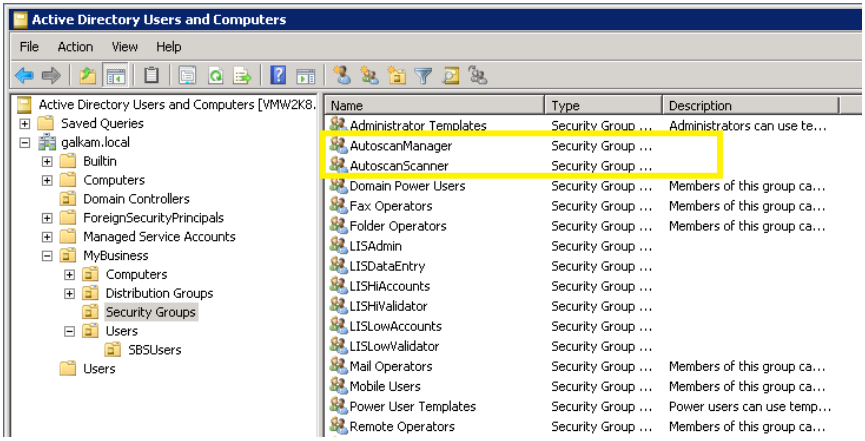




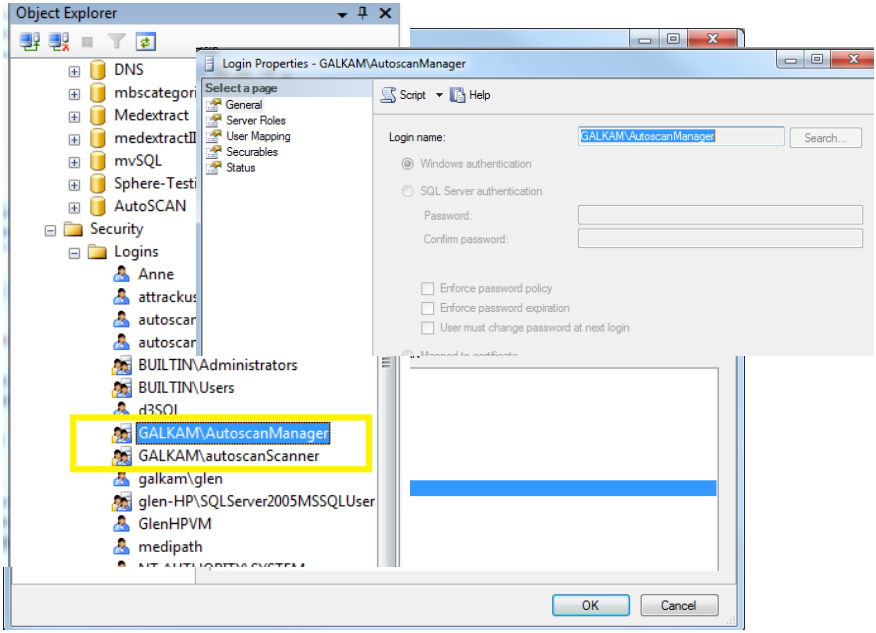
Database Security Settings

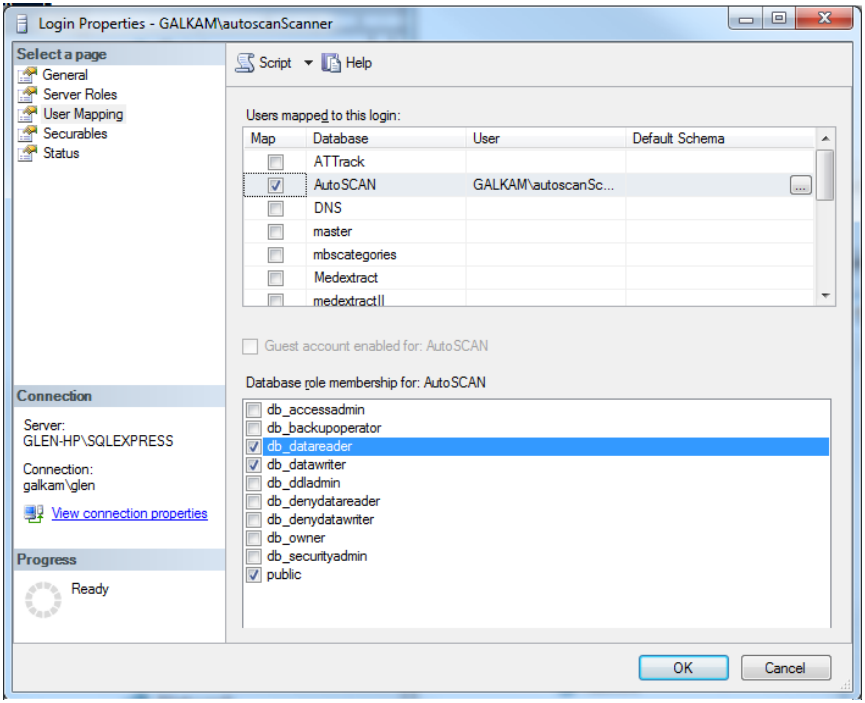
Active Directory Domains

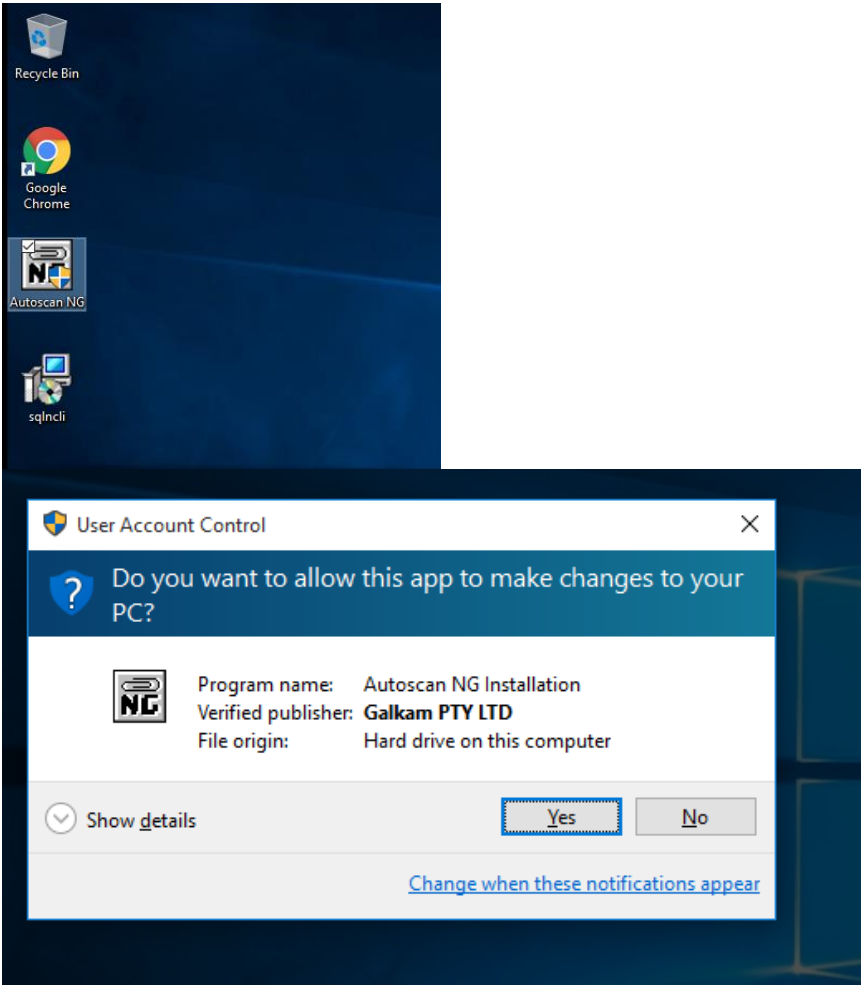
Configure Domain Groups in your Active Directory System

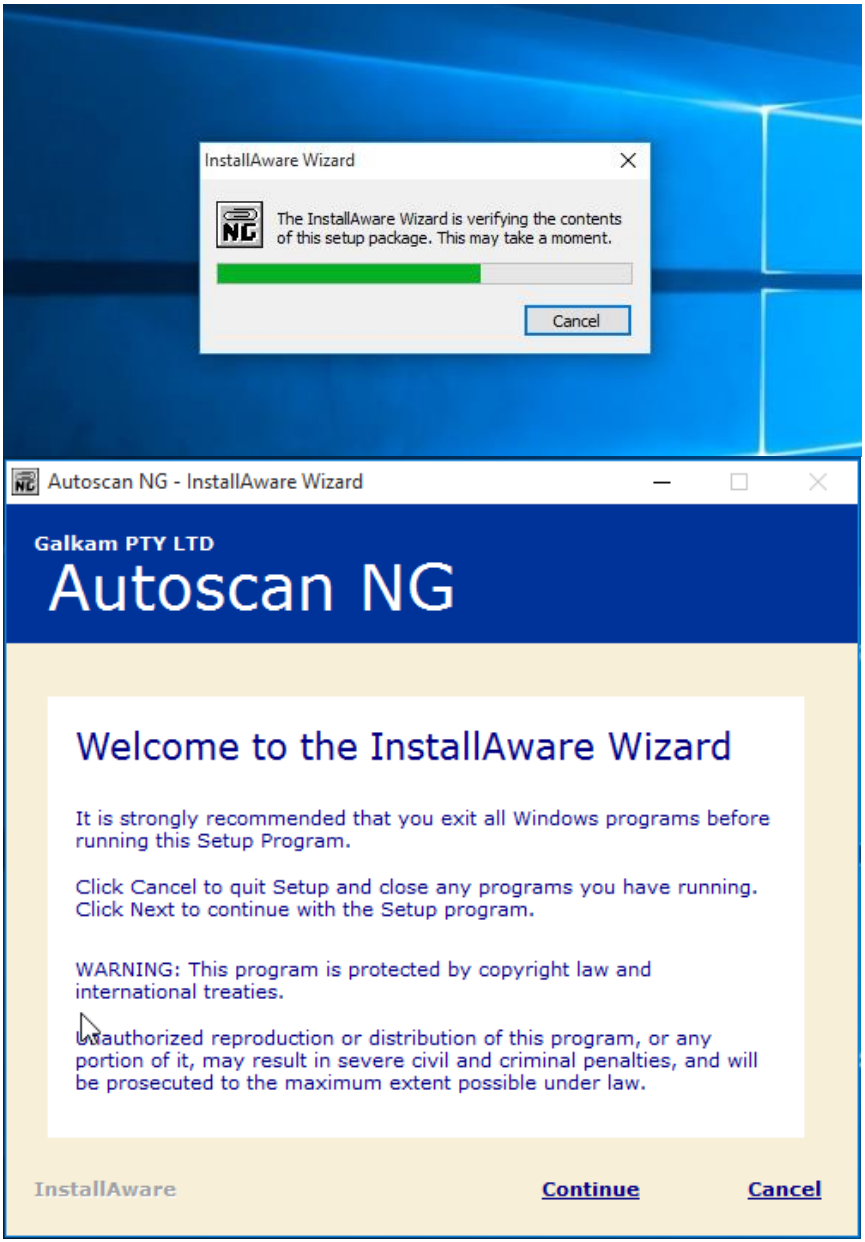


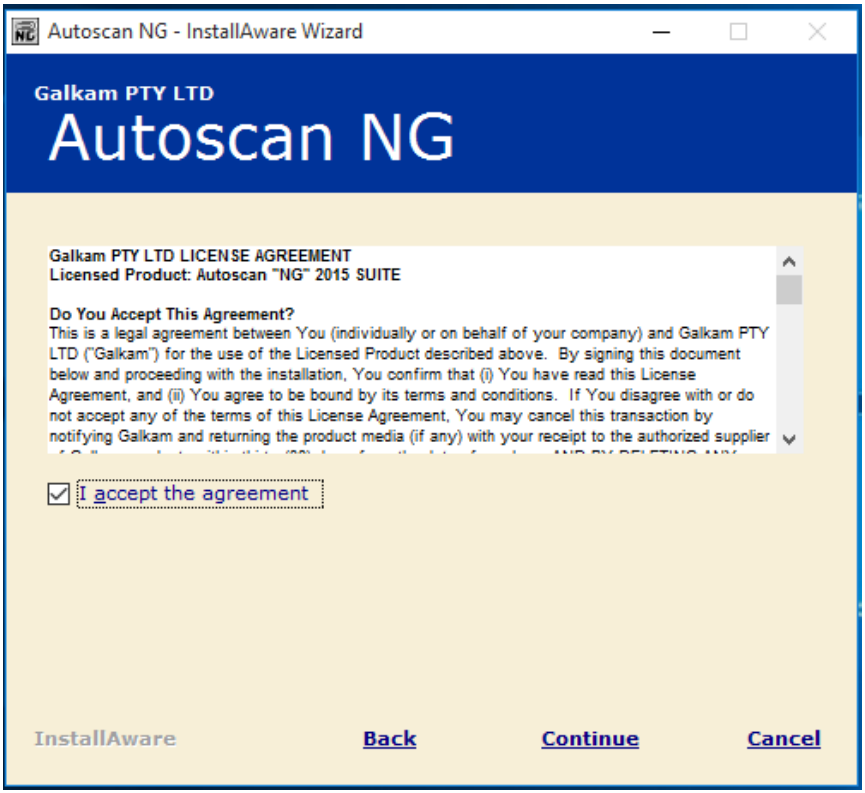
In SQL, SECURITY, LOGINS, configure the two groups

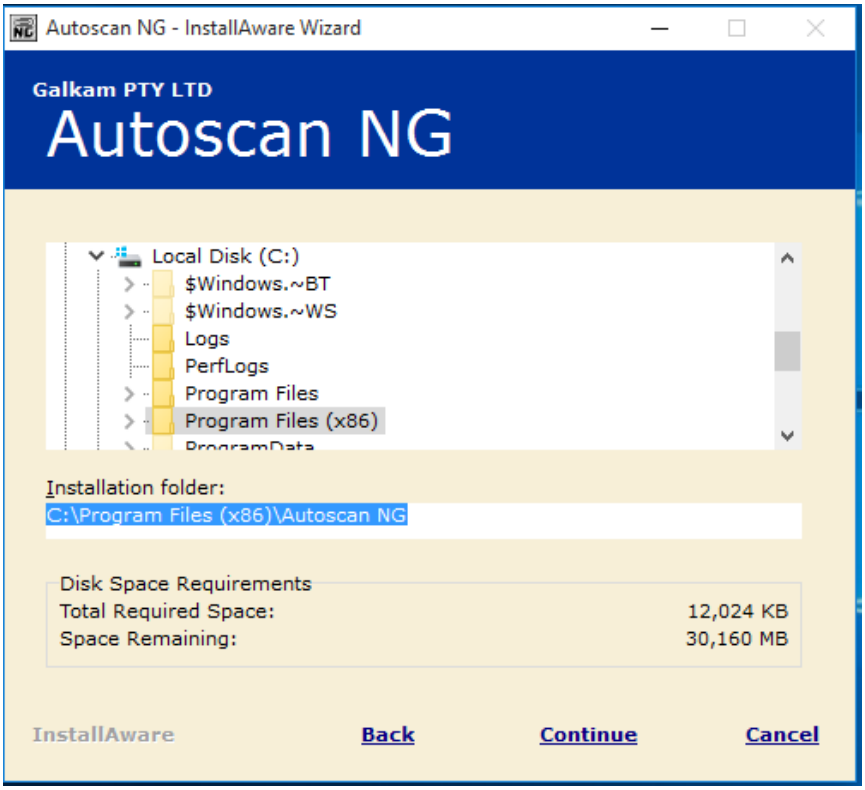


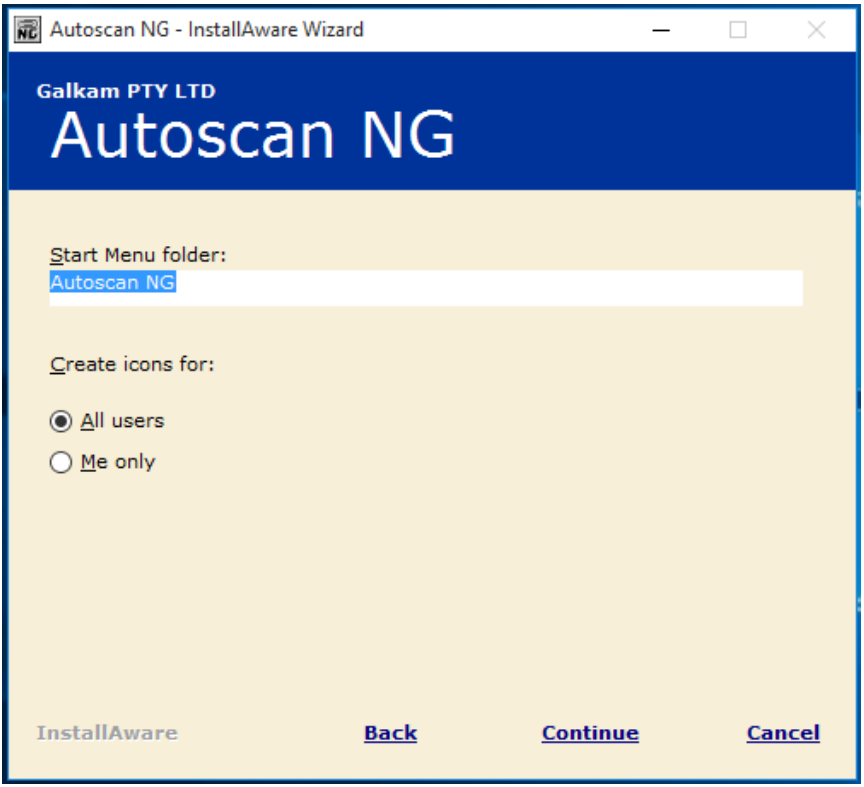

Login Properties - GALKAM\autoscanScanner
Select a page
General
Server Roles
User Mapping
Securables
Status
Script
Help
Users mapped to this login:
Map
Database
User
Default Schema
ATTrack
AutoSCAN
GALKAM\autoscanSc...
DNS
master
mbscategories
Medextract
medextractII
Guest account enabled for: AutoSCAN
Database role membership for: AutoSCAN
db_accessadmin
db_backupoperator
db_datareader
db_datawriter
db_ddladmin
db_denydatareader
db_denydatawriter
db_owner
db_securityadmin
public
Connection
Server:
GLEN-HP\SQLEXPRESS
Connection:
galkam\glen
View connection properties
Progress
Ready
OK
Cancel

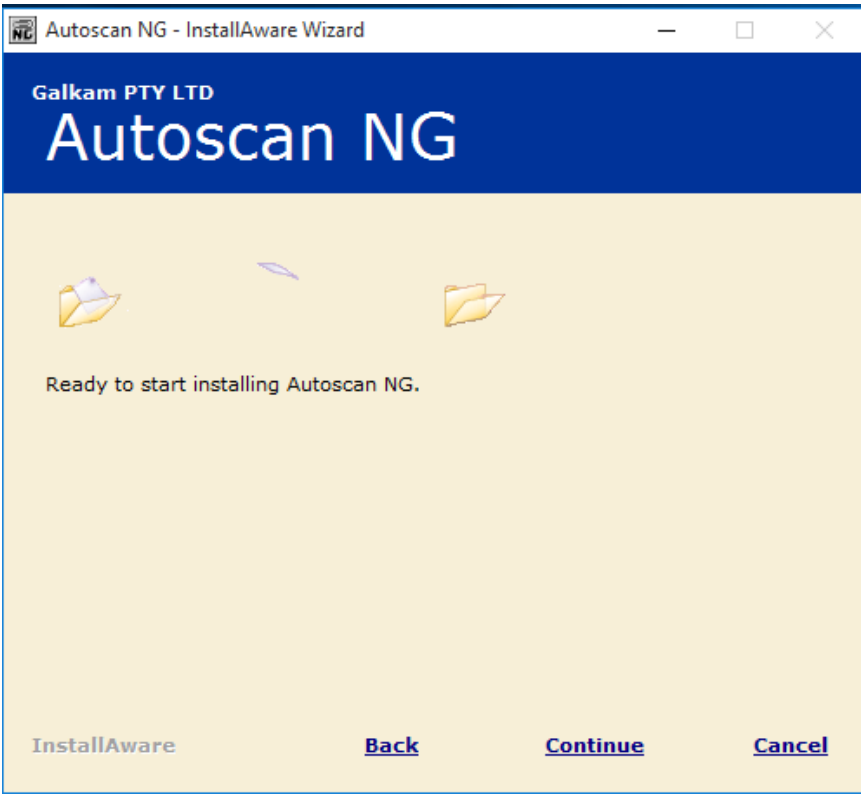

Recycle Bin
Google Chrome
Autoscan NG
sqlncli
User Account Control
Do you want to allow this app to make changes to your PC?
Program name: Autoscan NG Installation
Verified publisher: Galkam PTY LTD
File origin: Hard drive on this computer
Show details
Yes
No
Change when these notifications appear


InstallAware Wizard
The InstallAware Wizard is verifying the contents of this setup package. This may take a moment.
Cancel
Autoscan NG - InstallAware Wizard
Galkam PTY LTD
Autoscan NG
Welcome to the InstallAware Wizard
It is strongly recommended that you exit all Windows programs before running this Setup Program.
Click Cancel to quit Setup and close any programs you have running. Click Next to continue with the Setup program.
WARNING: This program is protected by copyright law and international treaties.
Unauthorized reproduction or distribution of this program, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under law.
InstallAware
Continue
Cancel

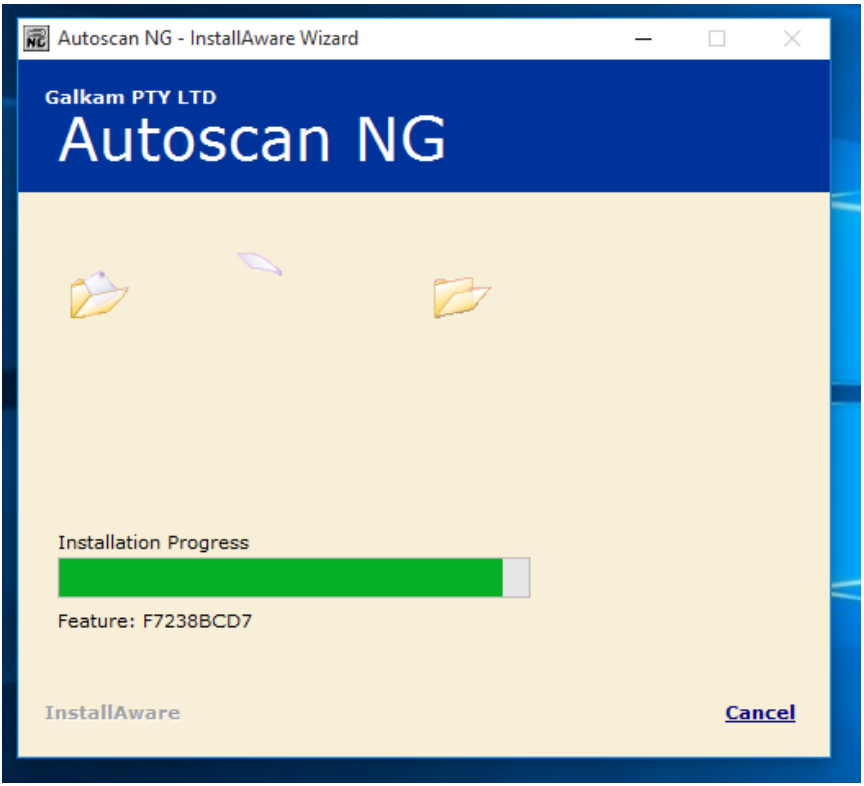

Autoscan NG - InstallAware Wizard
Galkam PTY LTD
Autoscan NG
Galkam PTY LTD LICENSE AGREEMENT
Licensed Product: Autoscan "NG" 2015 SUITE
Do You Accept This Agreement?
This is a legal agreement between You (individually or on behalf of your company) and Galkam PTY LTD ("Galkam") for the use of the Licensed Product described above. By signing this document below and proceeding with the installation, You confirm that (i) You have read this License Agreement, and (ii) You agree to be bound by its terms and conditions. If You disagree with or do not accept any of the terms of this License Agreement, You may cancel this transaction by notifying Galkam and returning the product media (if any) with your receipt to the authorized supplier
I accept the agreement
InstallAware
Back
Continue
Cancel

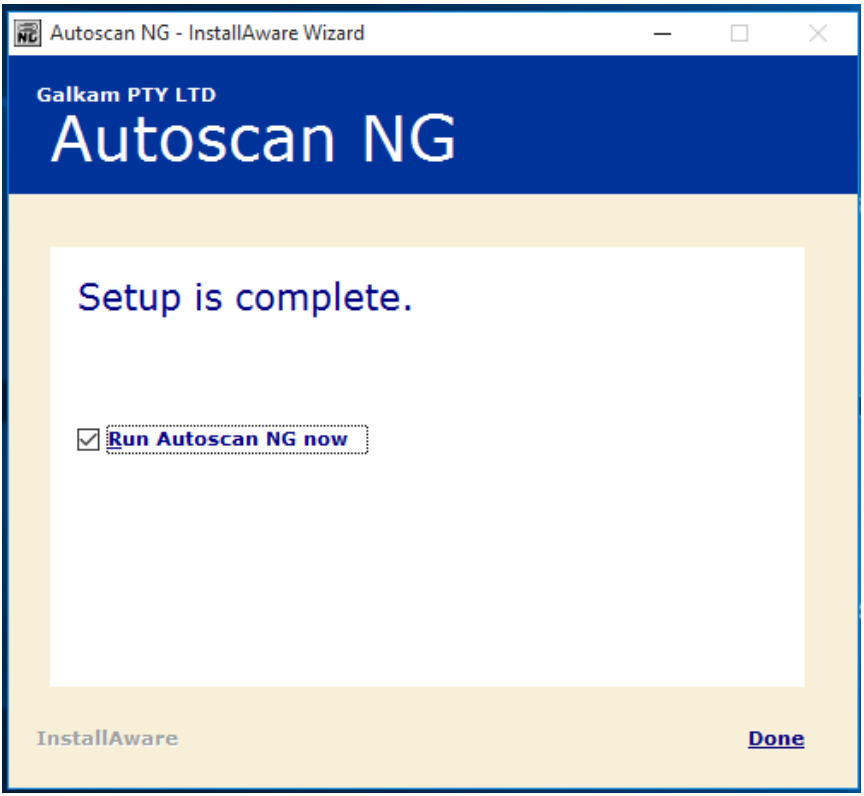

Autoscan NG - InstallAware Wizard
Galkam PTY LTD
Autoscan NG
Local Disk (C:)
$Windows.~BT
$Windows.~WS
Logs
PerfLogs
Program Files
Program Files (x86)
Installation folder:
C:\Program Files (x86)\Autoscan NG
Disk Space Requirements
Total Required Space:
12,024 KB
Space Remaining:
30,160 MB
InstallAware
Back
Continue
Cancel


Autoscan NG - InstallAware Wizard
Galkam PTY LTD
Autoscan NG
Start Menu folder:
Autoscan NG
Create icons for:
All users
Me only
InstallAware
Back
Continue
Cancel

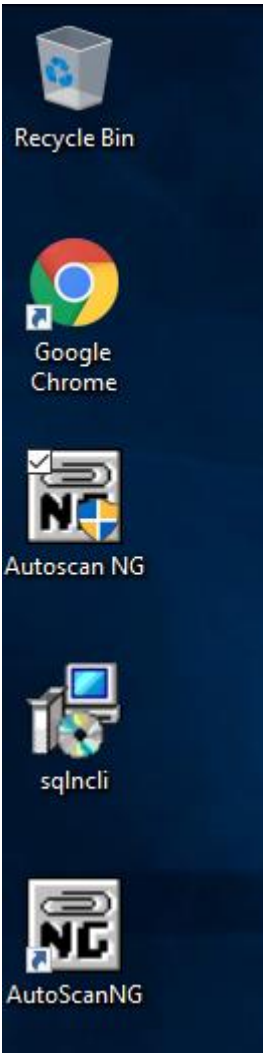


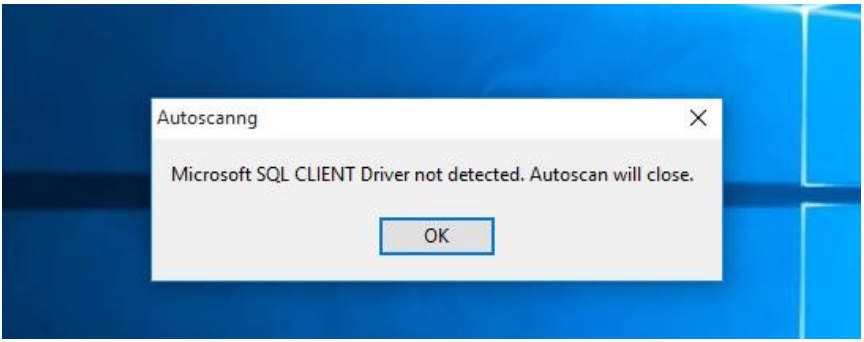
Despite the Animated icon, the install will not proceed until you click "continue"

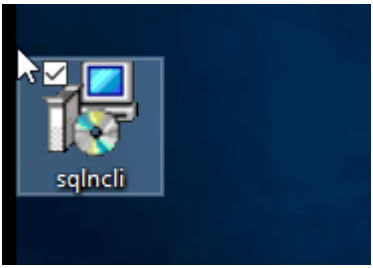

Autoscan NG - InstallAware Wizard
Galkam PTY LTD
Autoscan NG
Installation Progress
Feature: F7238BCD7
InstallAware
Cancel

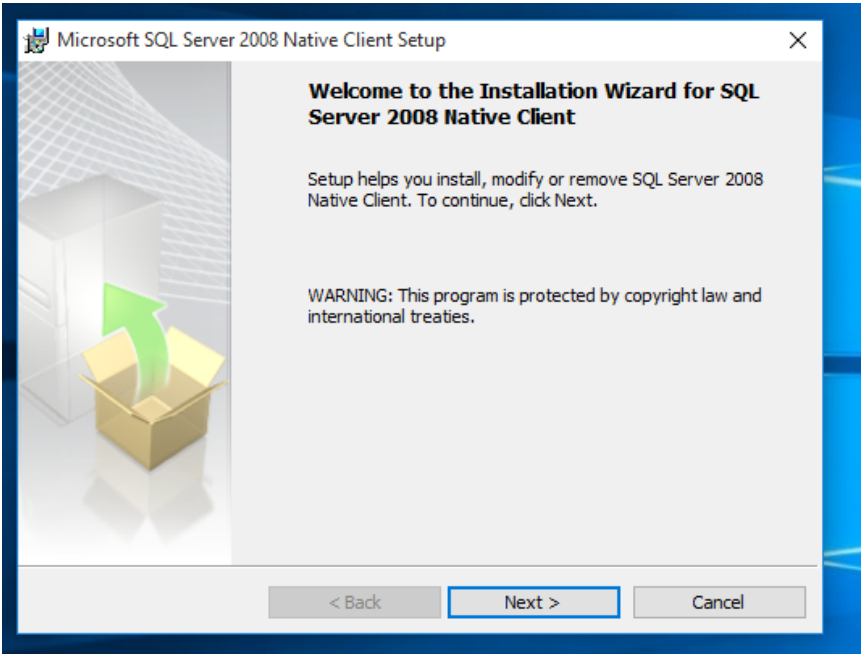


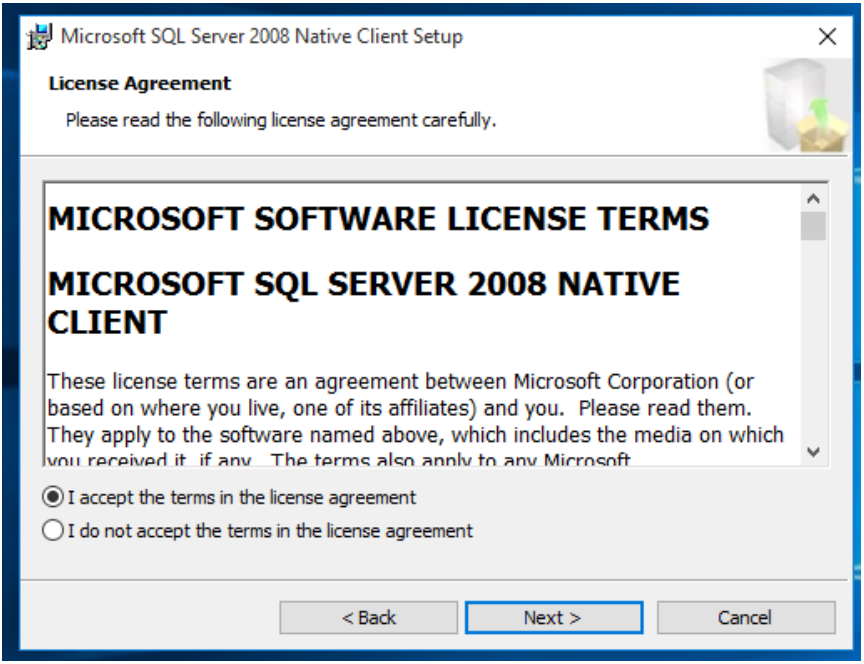
NOTE: On Windows 10 (with User Account control turned on, Autoscan will not autostart).

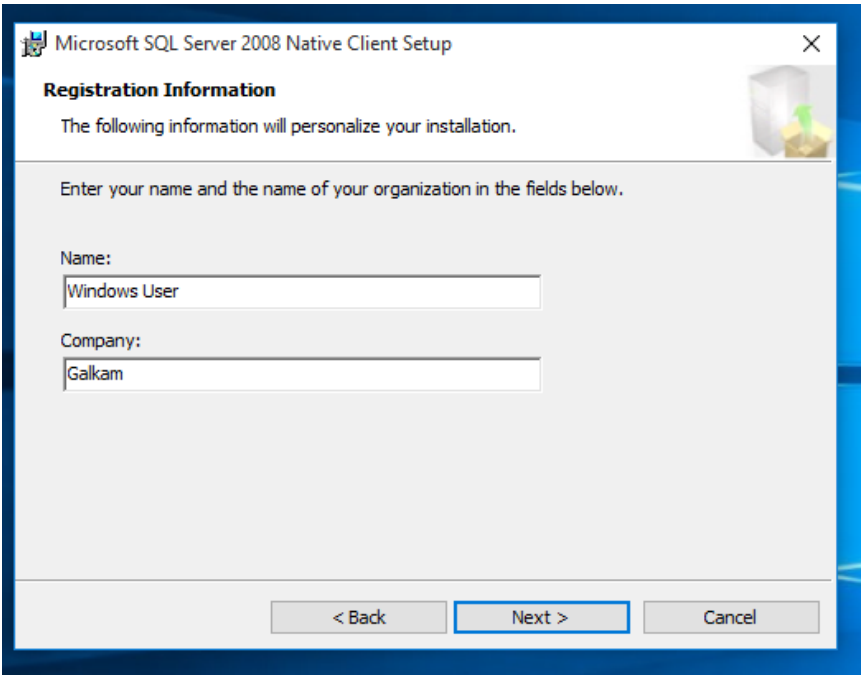

Recycle Bin
Google Chrome
Autoscan NG
sqlncli
AutoScanNG

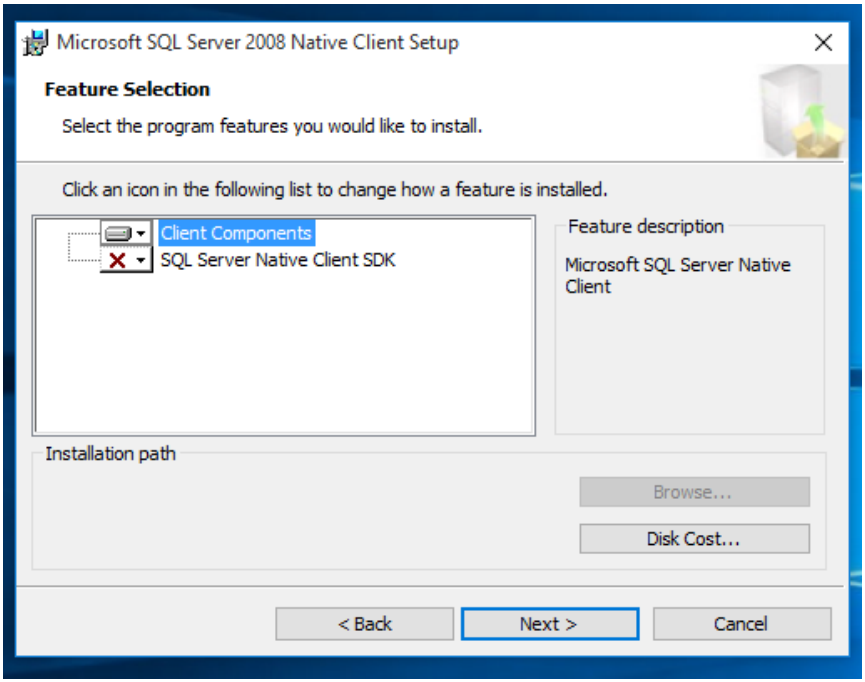

Autoscanng
Microsoft SQL CLIENT Driver not detected. Autoscan will close.
OK

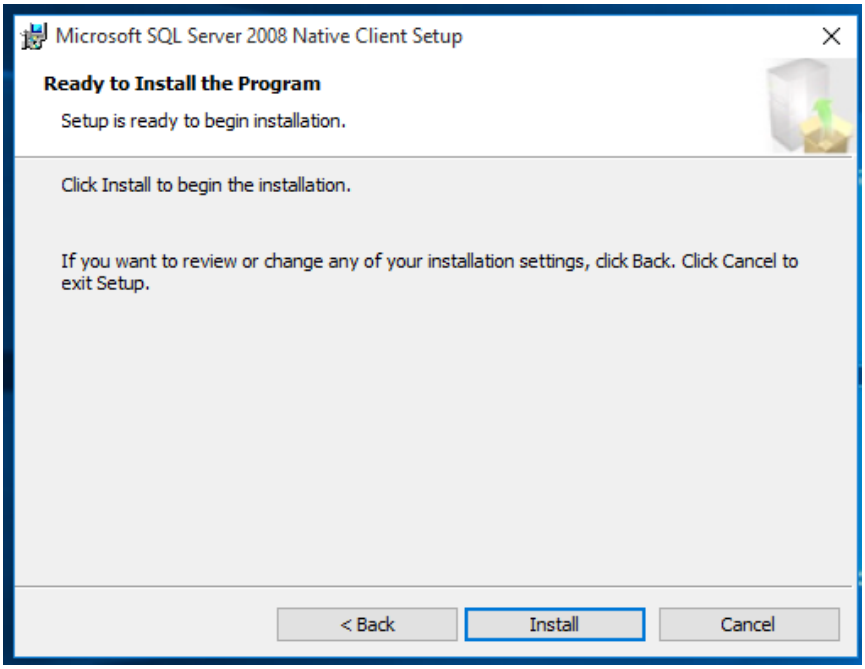

sqlncli

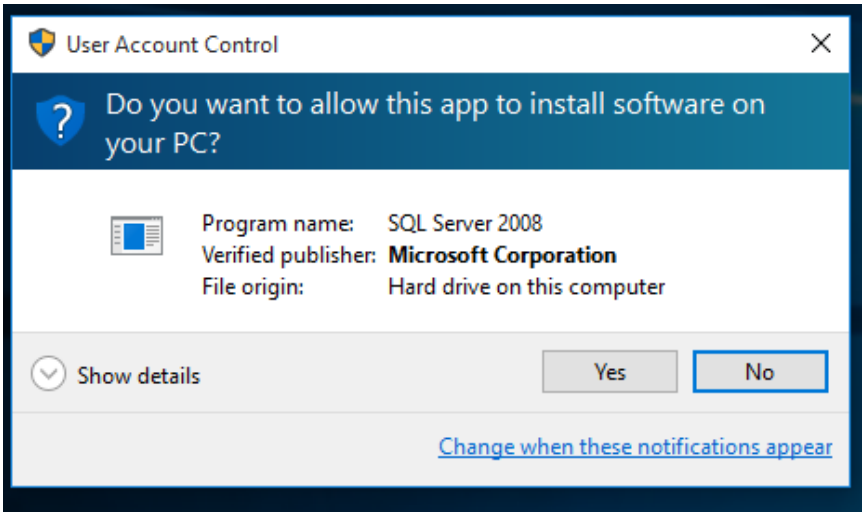

Microsoft SQL Server 2008 Native Client Setup
Welcome to the Installation Wizard for SQL Server 2008 Native Client
Setup helps you install, modify or remove SQL Server 2008 Native Client. To continue, click Next.
WARNING: This program is protected by copyright law and international treaties.
< Back
Next >
Cancel

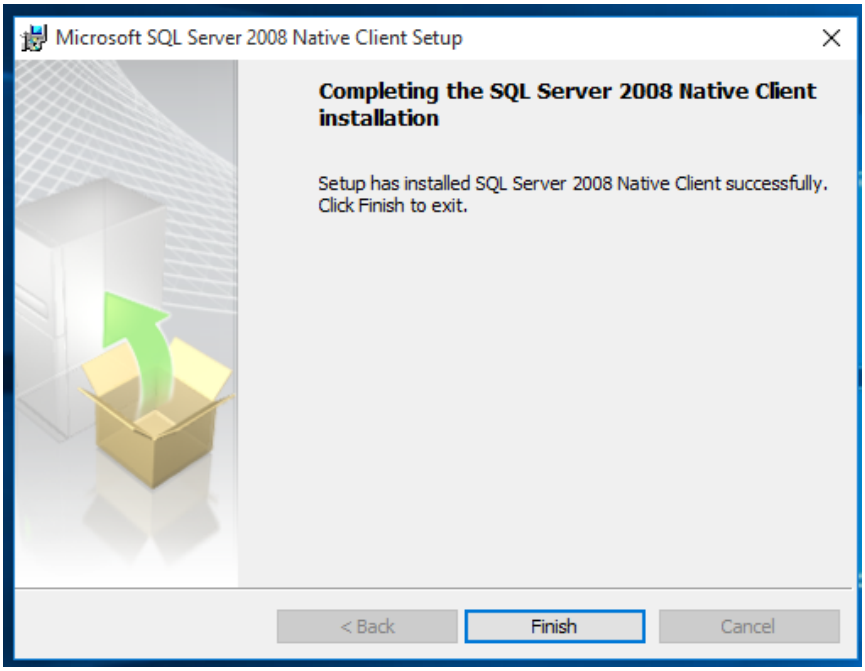

Microsoft SQL Server 2008 Native Client Setup
License Agreement
Please read the following license agreement carefully.
MICROSOFT SOFTWARE LICENSE TERMS
MICROSOFT SQL SERVER 2008 NATIVE CLIENT
These license terms are an agreement between Microsoft Corporation (or based on where you live, one of its affiliates) and you. Please read them. They apply to the software named above, which includes the media on which
I accept the terms in the license agreement
I do not accept the terms in the license agreement
< Back
Next >
Cancel


Microsoft SQL Server 2008 Native Client Setup
Registration Information
The following information will personalize your installation.
Enter your name and the name of your organization in the fields below.
Name:
Windows User
Company:
Galkam
< Back
Next >
Cancel

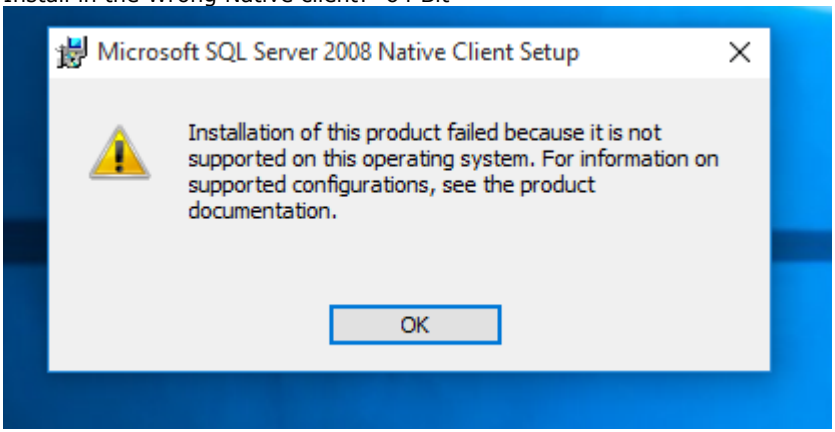

Microsoft SQL Server 2008 Native Client Setup
Feature Selection
Select the program features you would like to install.
Click an icon in the following list to change how a feature is installed.
Client Components
SQL Server Native Client SDK
Feature description
Microsoft SQL Server Native Client
Installation path
Browse...
Disk Cost...
< Back
Next >
Cancel


Microsoft SQL Server 2008 Native Client Setup
Ready to Install the Program
Setup is ready to begin installation.
Click Install to begin the installation.
If you want to review or change any of your installation settings, click Back. Click Cancel to exit Setup.
< Back
Install
Cancel

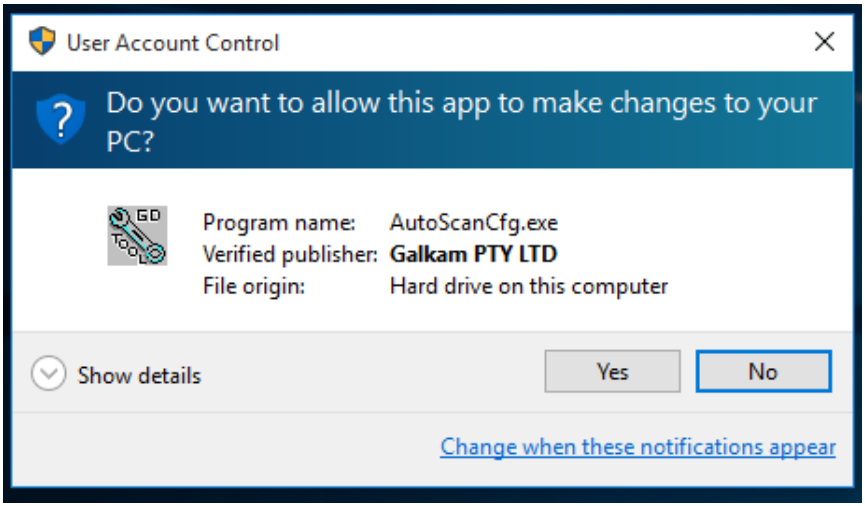

User Account Control
Do you want to allow this app to install software on your PC?
Program name: SQL Server 2008
Verified publisher: Microsoft Corporation
File origin: Hard drive on this computer
Show details
Yes
No
Change when these notifications appear

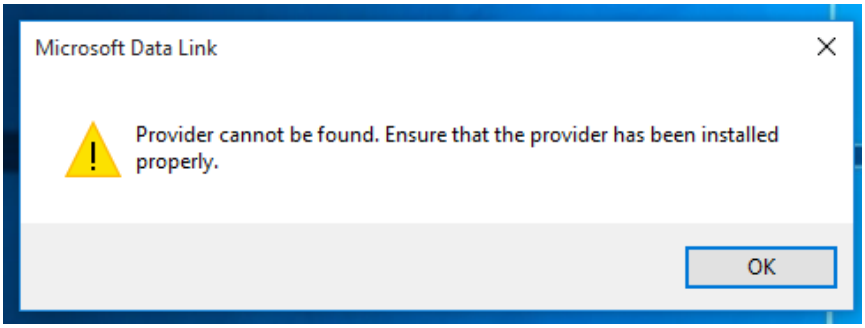


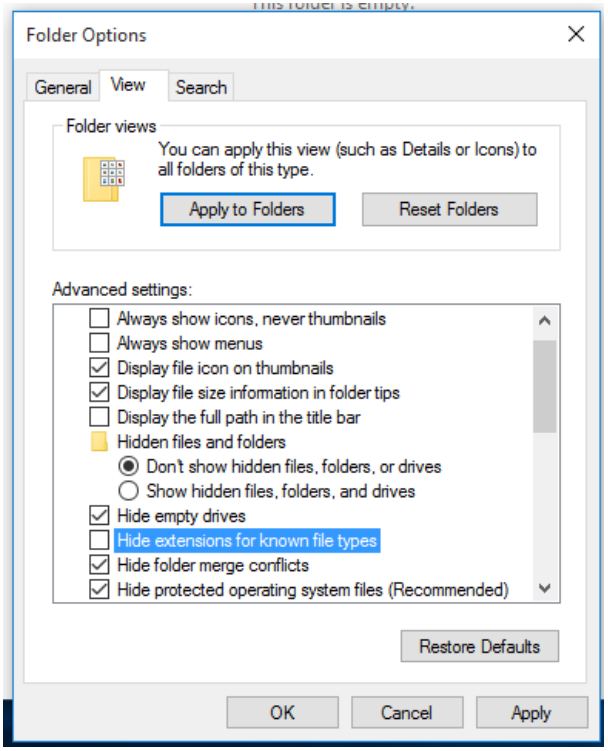
Install in the Wrong Native client? 64 Bit

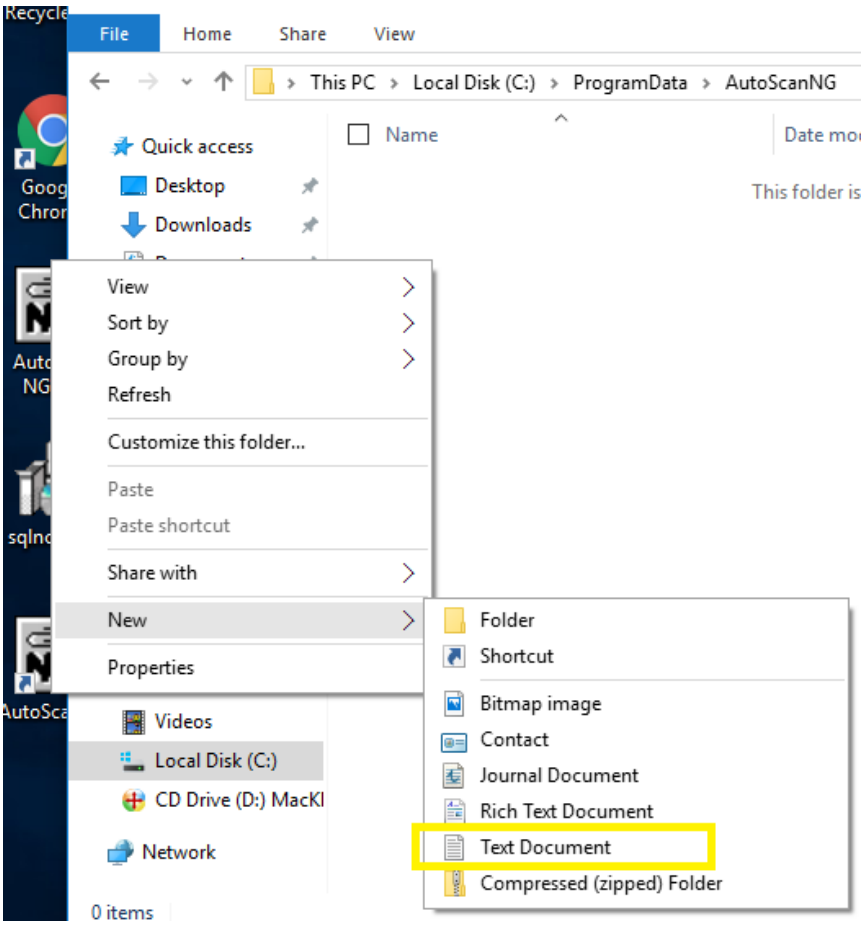


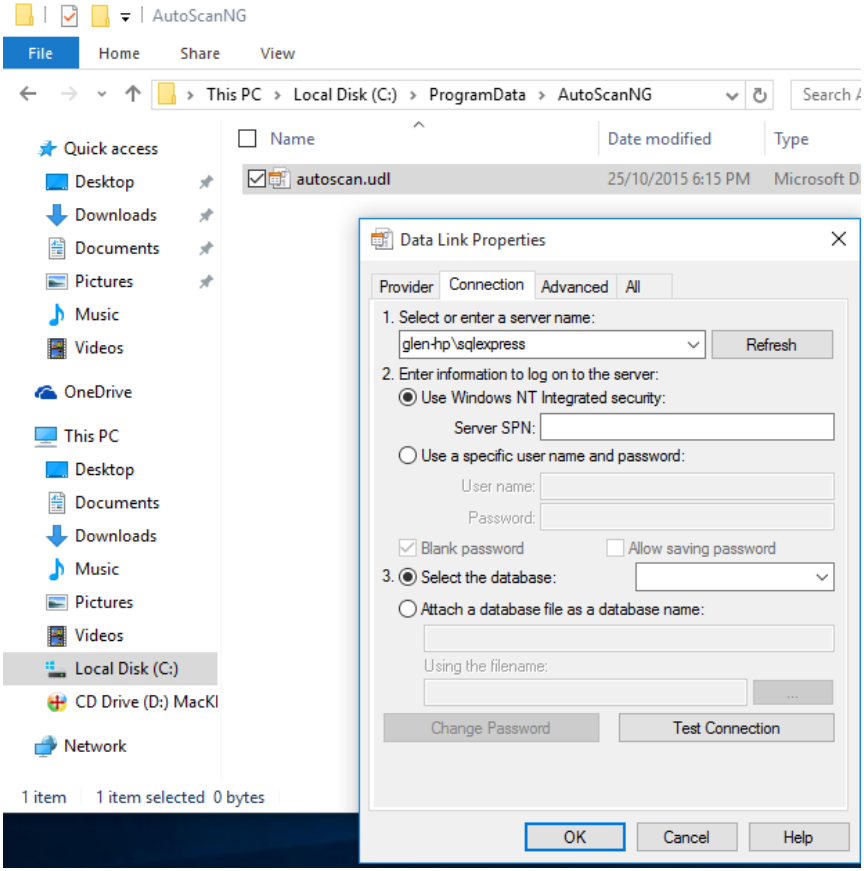
Autoscan Configuration


User Account Control
Do you want to allow this app to make changes to your PC?
Program name: AutoScanCfg.exe
Verified publisher: Galkam PTY LTD
File origin: Hard drive on this computer
Show details
Yes
No
Change when these notifications appear

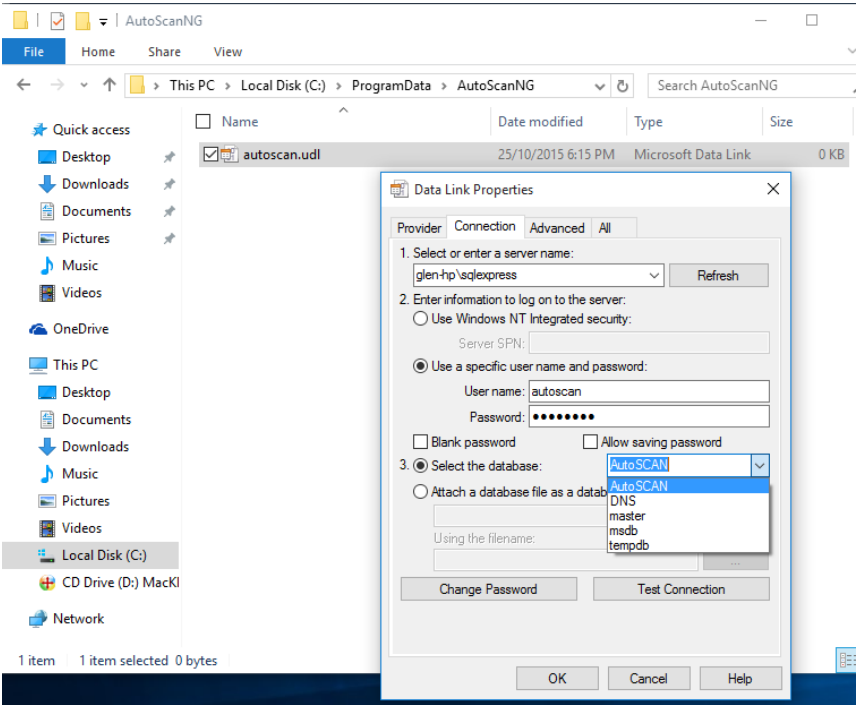

Microsoft Data Link
Provider cannot be found. Ensure that the provider has been installed properly.
OK


This folder is empty.
Folder Options
General
View
Search
Folder views
You can apply this view (such as Details or Icons) to all folders of this type.
Apply to Folders
Reset Folders
Advanced settings:
Always show icons, never thumbnails
Always show menus
Display file icon on thumbnails
Display file size information in folder tips
Display the full path in the title bar
Hidden files and folders
Don't show hidden files, folders, or drives
Show hidden files, folders, and drives
Hide empty drives
Hide extensions for known file types
Hide folder merge conflicts
Hide protected operating system files (Recommended)
Restore Defaults
OK
Cancel
Apply


File
Home
Share
View
This PC
Local Disk (C:)
ProgramData
AutoScanNG
Quick access
Desktop
Downloads
Name
This folder is
View
Sort by
Group by
Refresh
Customize this folder...
Paste
Paste shortcut
Share with
New
Properties
Folder
Shortcut
Bitmap image
Contact
Journal Document
Rich Text Document
Text Document
Compressed (zipped) Folder
Videos
Local Disk (C:)
CD Drive (D:) MacKI
Network
0 items

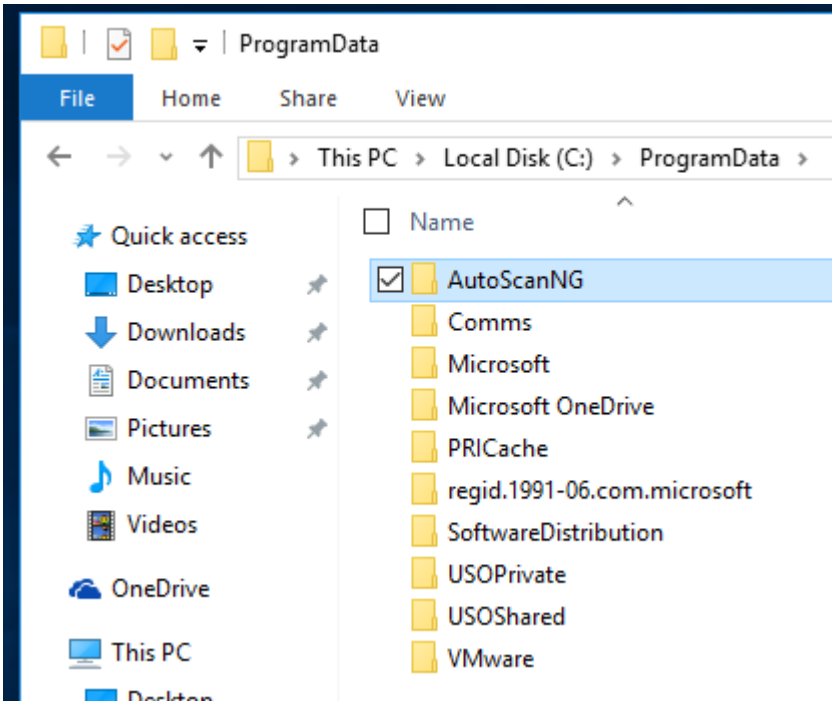


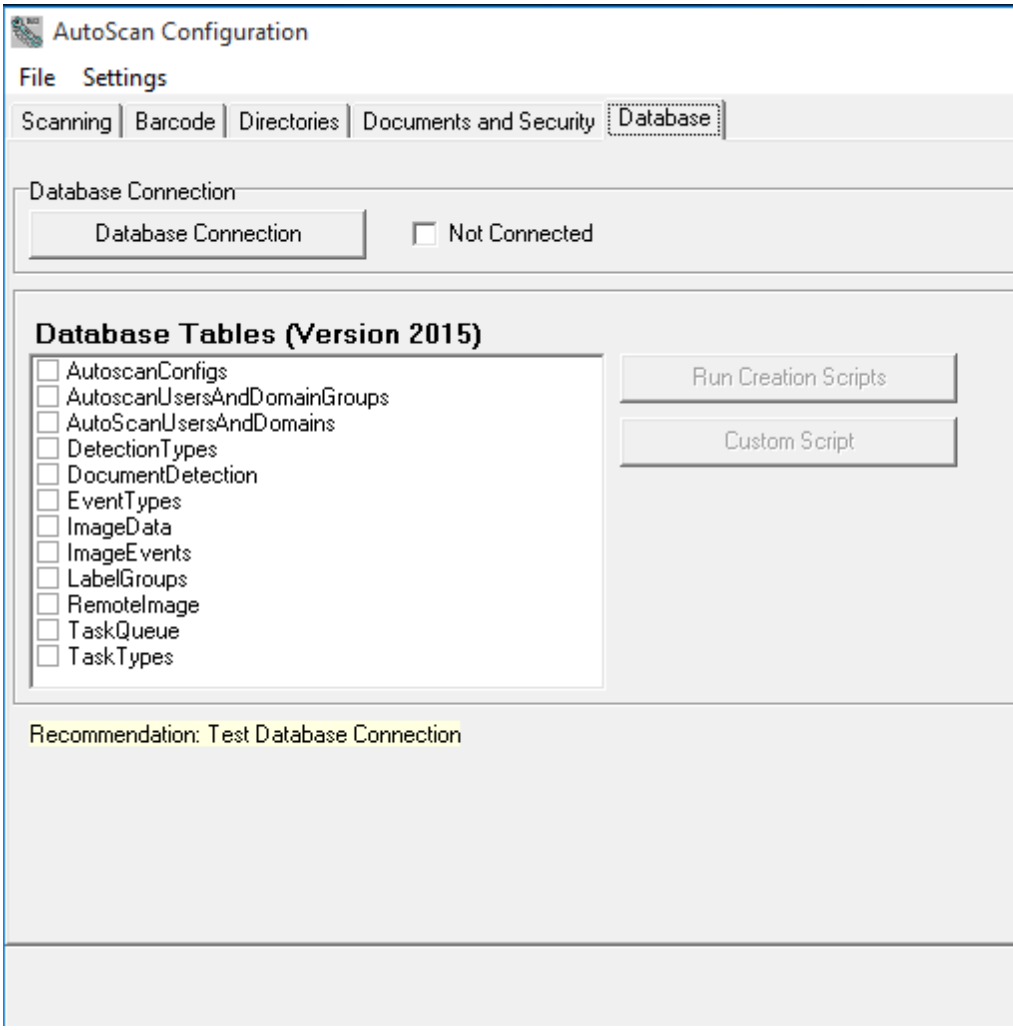
Non Domain User :

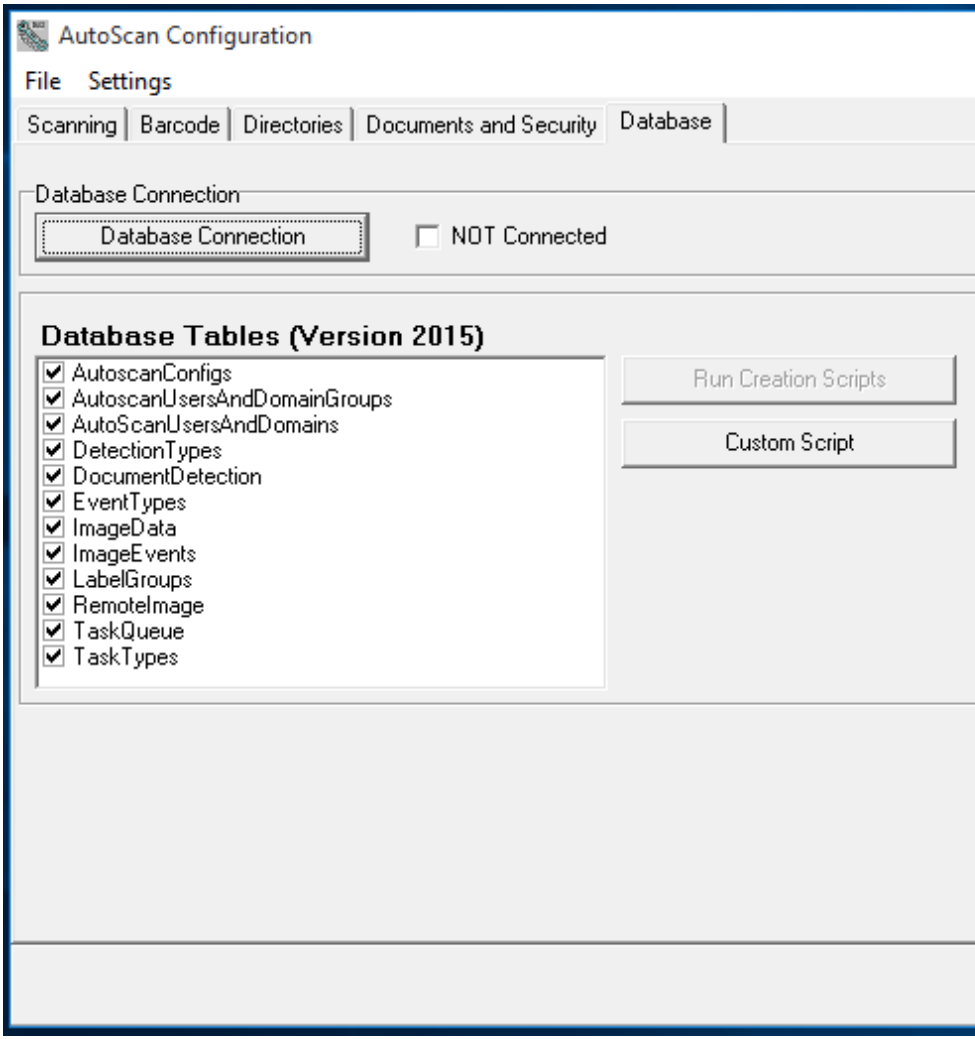


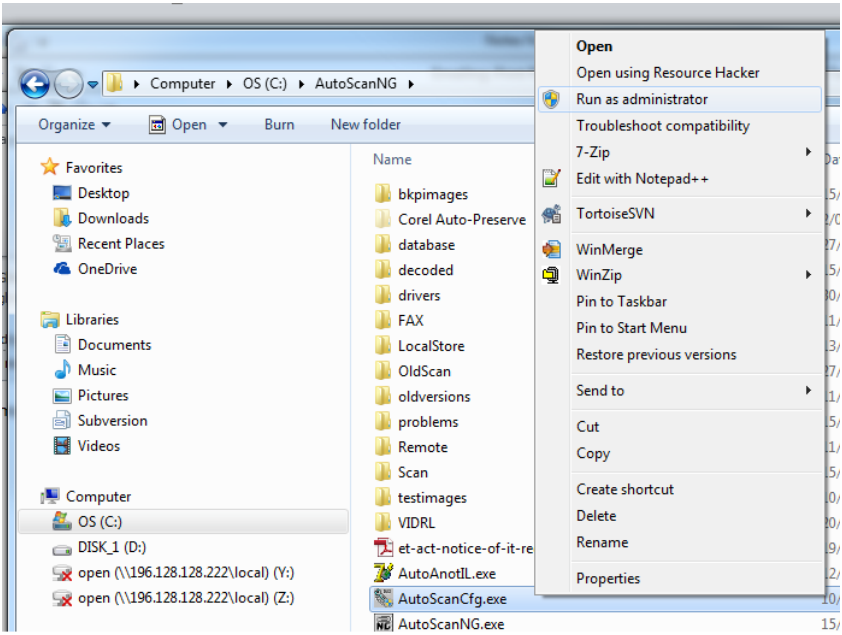

```
[oledb]
; Everything after this line is an OLE DB initstring
Provider=SQLOLEDB.1;Password=MySecrectPassword;Persist Security
Info=True;User ID=autoscan;Initial Catalog=AutoscanBedStay;Data
Source=W2K8VMSERVER\SQLEXPRESS
```

Note that the CASE is important – you must use "Password" ("password" will not work).


ProgramData
File
Home
Share
View
This PC
Local Disk (C:)
ProgramData
Quick access
Desktop
Downloads
Documents
Pictures
Music
Videos
OneDrive
This PC
Name
AutoScanNG
Comms
Microsoft
Microsoft OneDrive
PRICache
regid.1991-06.com.microsoft
SoftwareDistribution
USOPrivate
USOShared
VMware

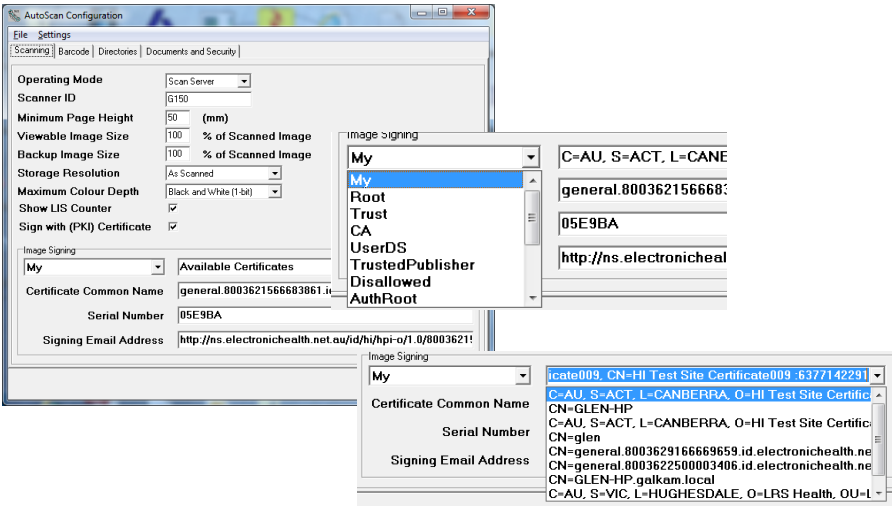

AutoScan Configuration
File
Settings
Scanning
Barcode
Directories
Documents and Security
Database
Database Connection
Database Connection
Not Connected
Database Tables (Version 2015)
AutoscanConfigs
AutoscanUsersAndDomainGroups
AutoScanUsersAndDomains
DetectionTypes
DocumentDetection
EventTypes
ImageData
ImageEvents
LabelGroups
RemoteImage
TaskQueue
TaskTypes
Run Creation Scripts
Custom Script
Recommendation: Test Database Connection


AutoScan Configuration
File
Settings
Scanning
Barcode
Directories
Documents and Security
Database
Database Connection
Database Connection
NOT Connected
Database Tables (Version 2015)
AutoscanConfigs
AutoscanUsersAndDomainGroups
AutoScanUsersAndDomains
DetectionTypes
DocumentDetection
EventTypes
ImageData
ImageEvents
LabelGroups
RemoteImage
TaskQueue
TaskTypes
Run Creation Scripts
Custom Script

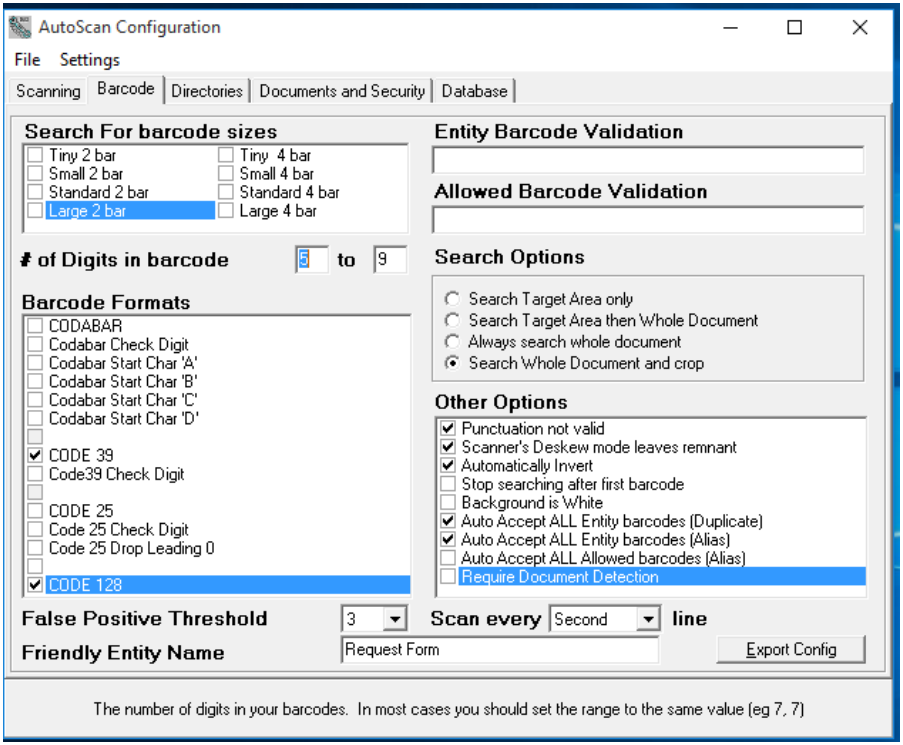


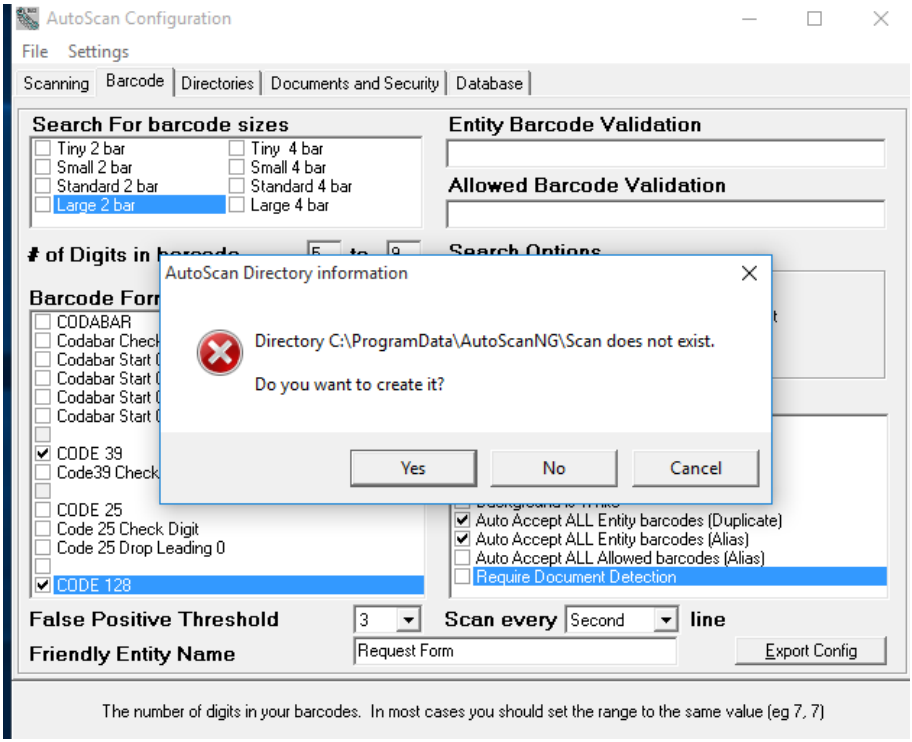
Security

Scanning

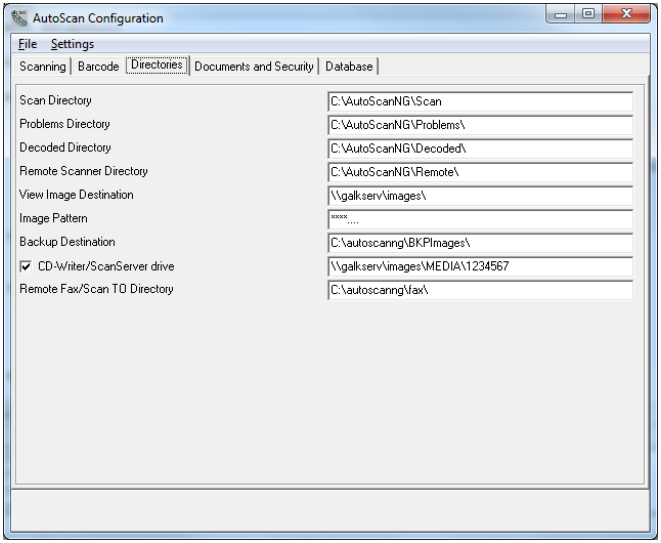


Barcode:


AutoScan Configuration
File
Settings
Scanning
Barcode
Directories
Documents and Security
Database
Search For barcode sizes
Tiny 2 bar
Small 2 bar
Standard 2 bar
Large 2 bar
Tiny 4 bar
Small 4 bar
Standard 4 bar
Large 4 bar
# of Digits in barcode
5
to
9
Barcode Formats
CODABAR
Codabar Check Digit
Codabar Start Char 'A'
Codabar Start Char 'B'
Codabar Start Char 'C'
Codabar Start Char 'D'
CODE 39
Code39 Check Digit
CODE 25
Code 25 Check Digit
Code 25 Drop Leading 0
CODE 128
Entity Barcode Validation
Allowed Barcode Validation
Search Options
Search Target Area only
Search Target Area then Whole Document
Always search whole document
Search Whole Document and crop
Other Options
Punctuation not valid
Scanner's Deskew mode leaves remnant
Automatically Invert
Stop searching after first barcode
Background is White
Auto Accept ALL Entity barcodes (Duplicate)
Auto Accept ALL Entity barcodes (Alias)
Auto Accept ALL Allowed barcodes (Alias)
Require Document Detection
False Positive Threshold
3
Scan every
Second
line
Friendly Entity Name
Request Form
Export Config
The number of digits in your barcodes. In most cases you should set the range to the same value (eg 7, 7)


AutoScan Configuration
File Settings
Scanning Barcode Directories Documents and Security Database
Search For barcode sizes
Tiny 2 bar
Small 2 bar
Standard 2 bar
Large 2 bar
Tiny 4 bar
Small 4 bar
Standard 4 bar
Large 4 bar
Entity Barcode Validation
Allowed Barcode Validation
# of Digits in
Search Options
Barcode For
CODABAR
CODE 39
CODE 25
Code 25 Check Digit
Code 25 Drop Leading 0
CODE 128
Auto Accept ALL Entity barcodes (Duplicate)
Auto Accept ALL Entity barcodes (Alias)
Auto Accept ALL Allowed barcodes (Alias)
Require Document Detection
False Positive Threshold
Scan every
Second
line
Friendly Entity Name
Request Form
Export Config
AutoScan Directory information
Directory C:\ProgramData\AutoScanNG\Scan does not exist.
Do you want to create it?
Yes
No
Cancel
The number of digits in your barcodes. In most cases you should set the range to the same value (eg 7, 7)

Directories



Documents and security