



UTN.BA FACULTAD
REGIONAL
BUENOS AIRES
SECRETARÍA DE EXTENSIÓN UNIVERSITARIA FRBA UTN

**Centro de
e-Learning**

Diplomatura en Bases de Datos

Módulo 2 - Unidad 2



www.sceu.frba.utn.edu.ar/e-learning

Agenda

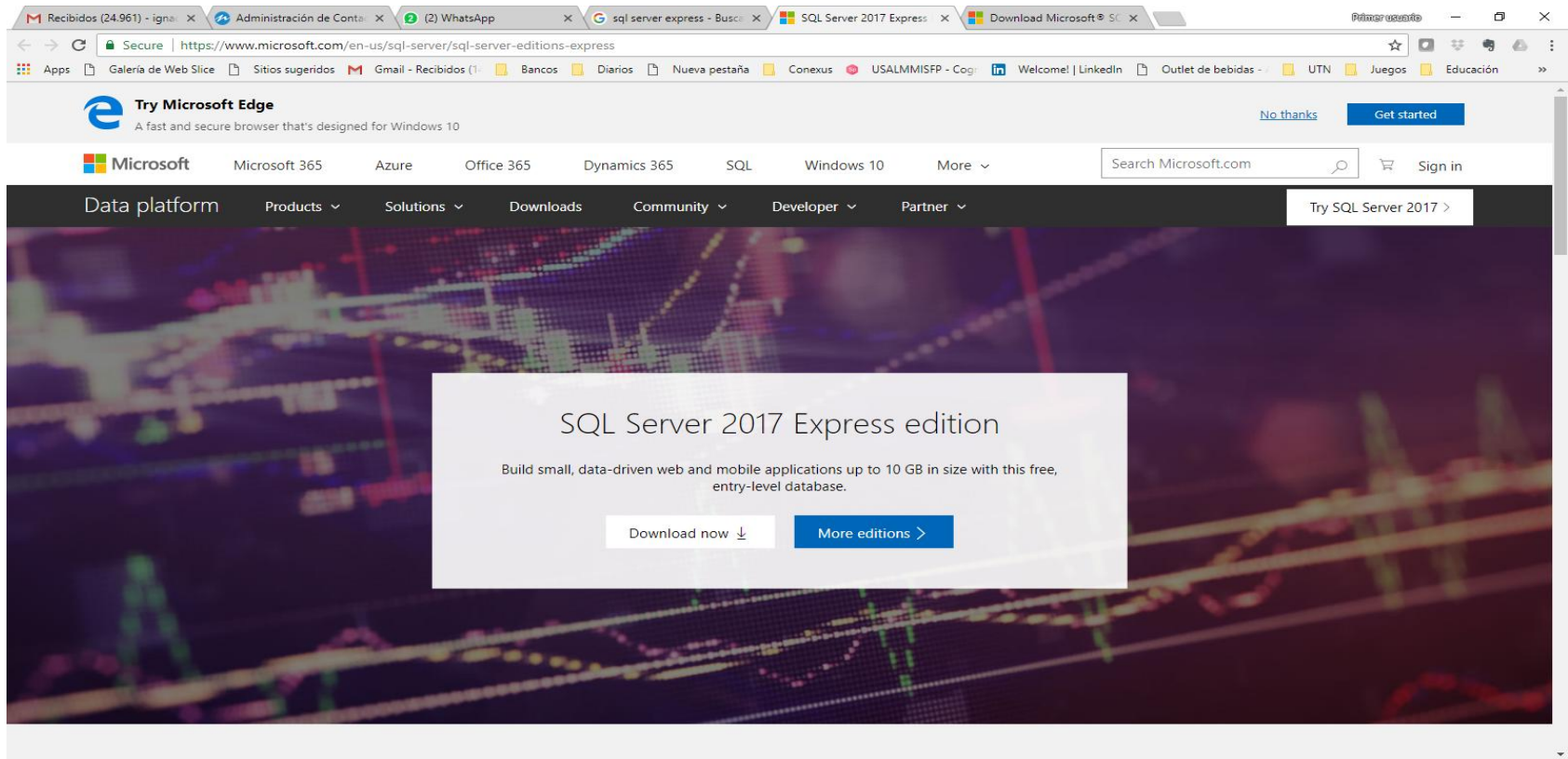
- *¿Cómo instalamos?*
- *¿Qué herramientas tenemos?*
- Creamos una DB
- Creamos dos tablas
- Cargamos datos
- Hacemos un join
- Creamos un índice
- Creamos un procedimiento almacenado



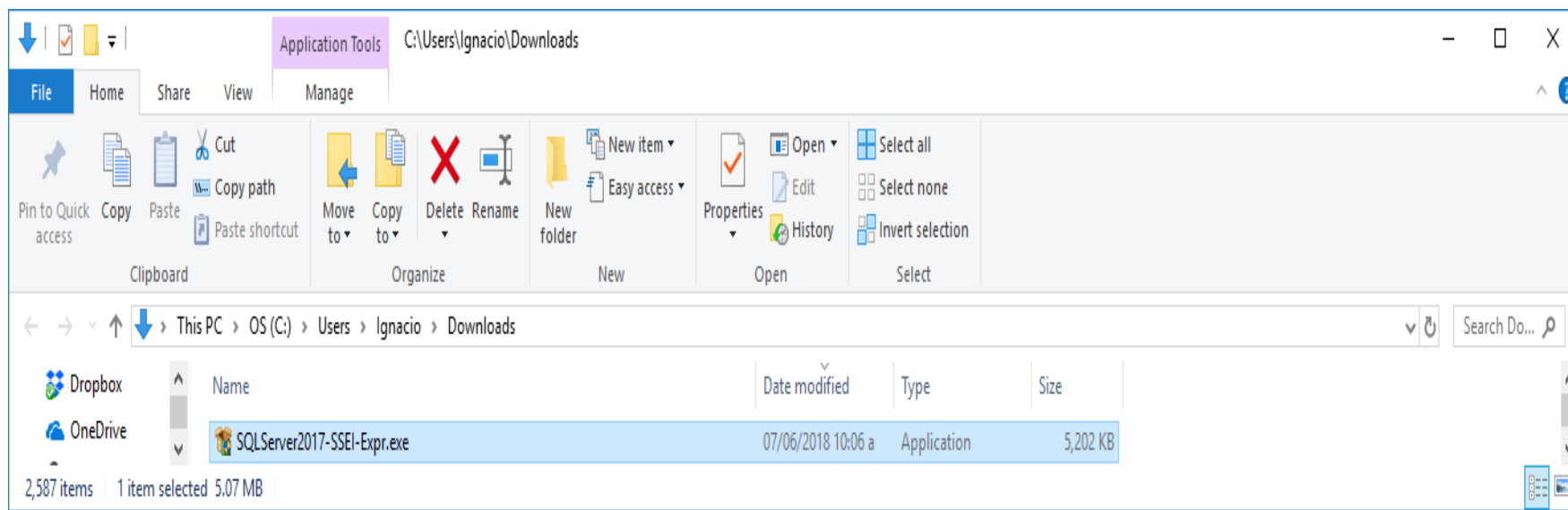
Descarga de archivos

Descarga de archivos

<https://www.microsoft.com/en-us/sql-server/sql-server-editions-express>



¿Qué me descargo?



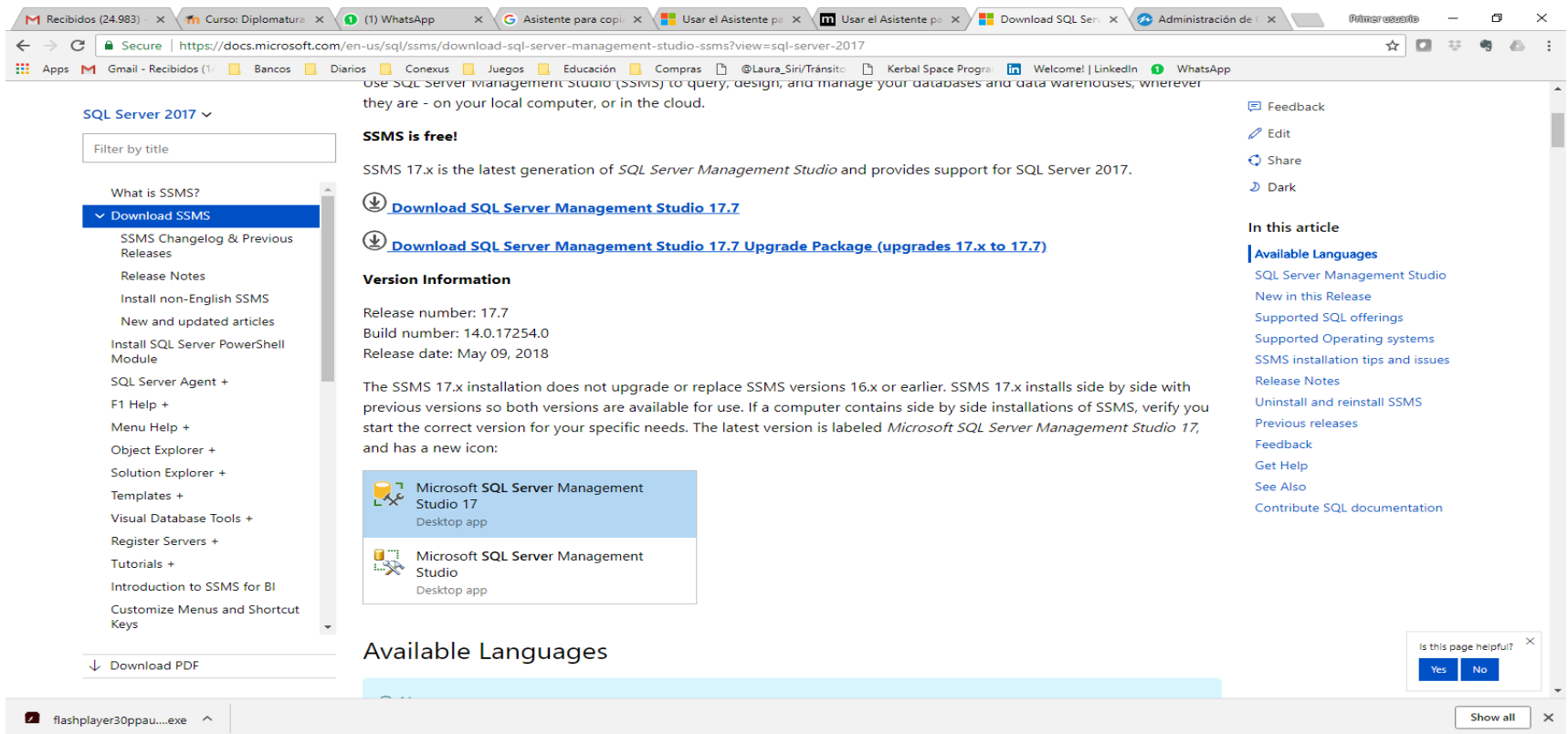
Features	SQL Server 2017 Enterprise	SQL Server 2017 Standard	SQL Server 2017 Express	SQL Server 2017 Developer
Maximum number of cores	Unlimited	24 cores	4 cores	Unlimited
Memory: Maximum buffer pool size per instance	Operating system max	128 GB	1410 MB	Operating system max
Memory: Maximum Columnstore segment cache per instance	Operating system max	32 GB	352 MB	Operating system max
Memory: Maximum memory-optimized data per database	Operating system max	32 GB	352 MB	Operating system max
Maximum database size	524 PB	524 PB	10 GB	524 PB
Production use rights	●	●	●	○

Prerequisitos

- *NTFS (Fat32 está soportado)*
- *.Net 4.6.1*
- *6 Gb disco*
- *Monitor 800 x 600*
- *512 Mb RAM!*
- *1.4 GHz procesador x64*
- *Windows 8 a 10 con actualizaciones*

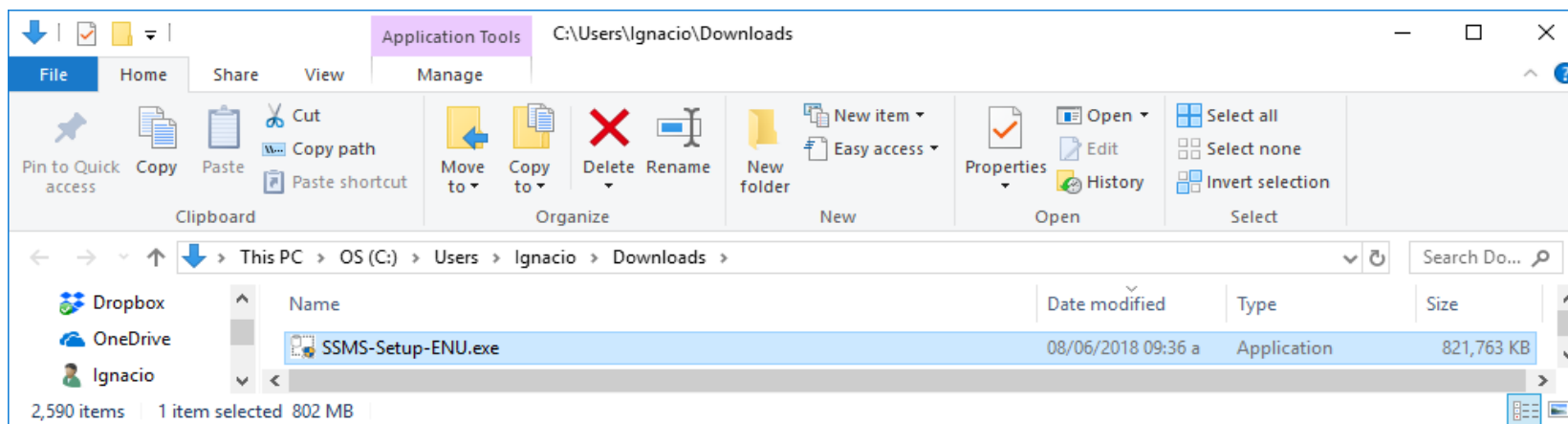
Herramientas

<https://docs.microsoft.com/en-us/sql/ssms/download-sql-server-management-studio-ssms?view=sql-server-2017>

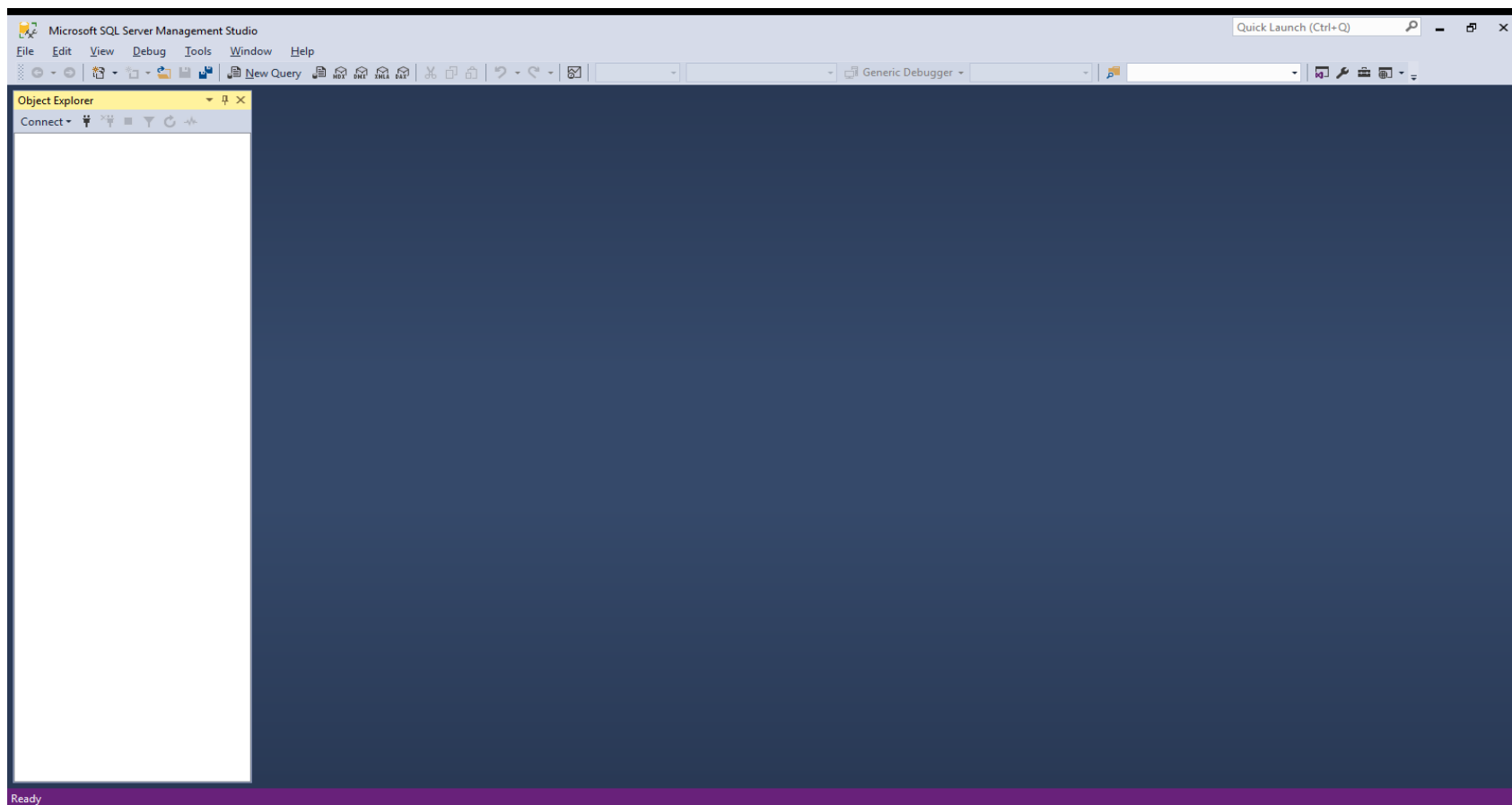


The screenshot displays the Microsoft Docs website for downloading SQL Server Management Studio (SSMS) 17.7. The browser's address bar shows the URL: <https://docs.microsoft.com/en-us/sql/ssms/download-sql-server-management-studio-ssms?view=sql-server-2017>. The page content includes a section titled "SSMS is free!" and a paragraph stating "SSMS 17.x is the latest generation of SQL Server Management Studio and provides support for SQL Server 2017." Below this, there are two download links: "Download SQL Server Management Studio 17.7" and "Download SQL Server Management Studio 17.7 Upgrade Package (upgrades 17.x to 17.7)". A "Version Information" section provides details about the release number (17.7), build number (14.0.17254.0), and release date (May 09, 2018). The page also mentions that SSMS 17.x installation does not upgrade or replace previous versions. The left sidebar contains a navigation menu with options like "What is SSMS?", "Download SSMS", "Release Notes", and "Install non-English SSMS". The right sidebar contains links for "Feedback", "Edit", "Share", "Dark", and "In this article".

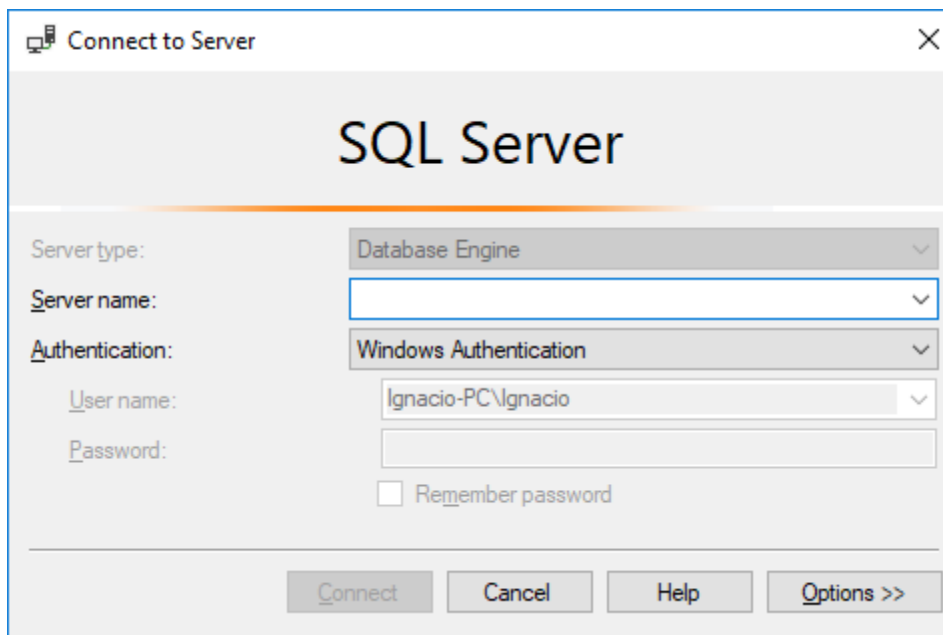
¿Qué nos bajamos?



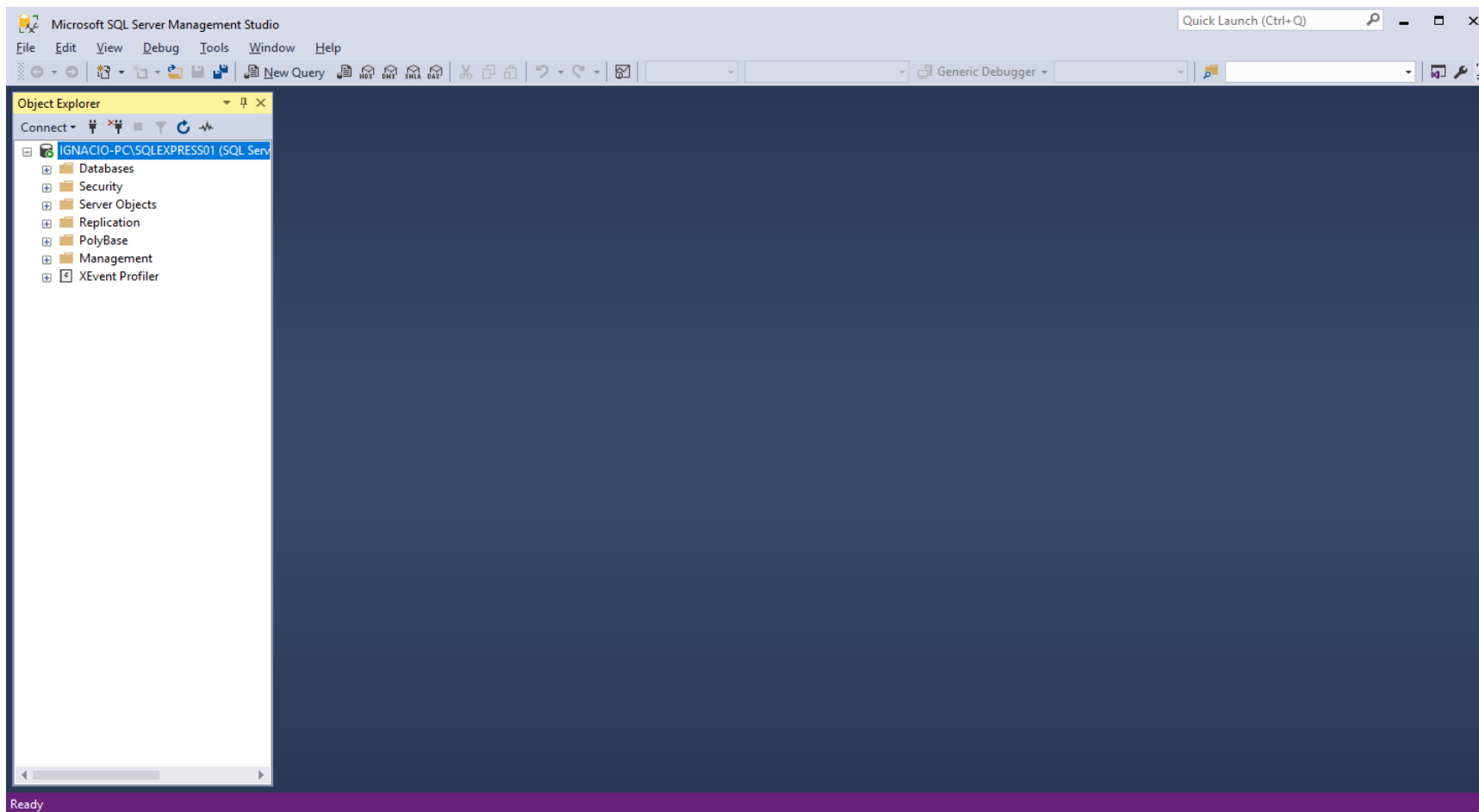
Vamos a usar el SSMS



Nos conectamos al motor...



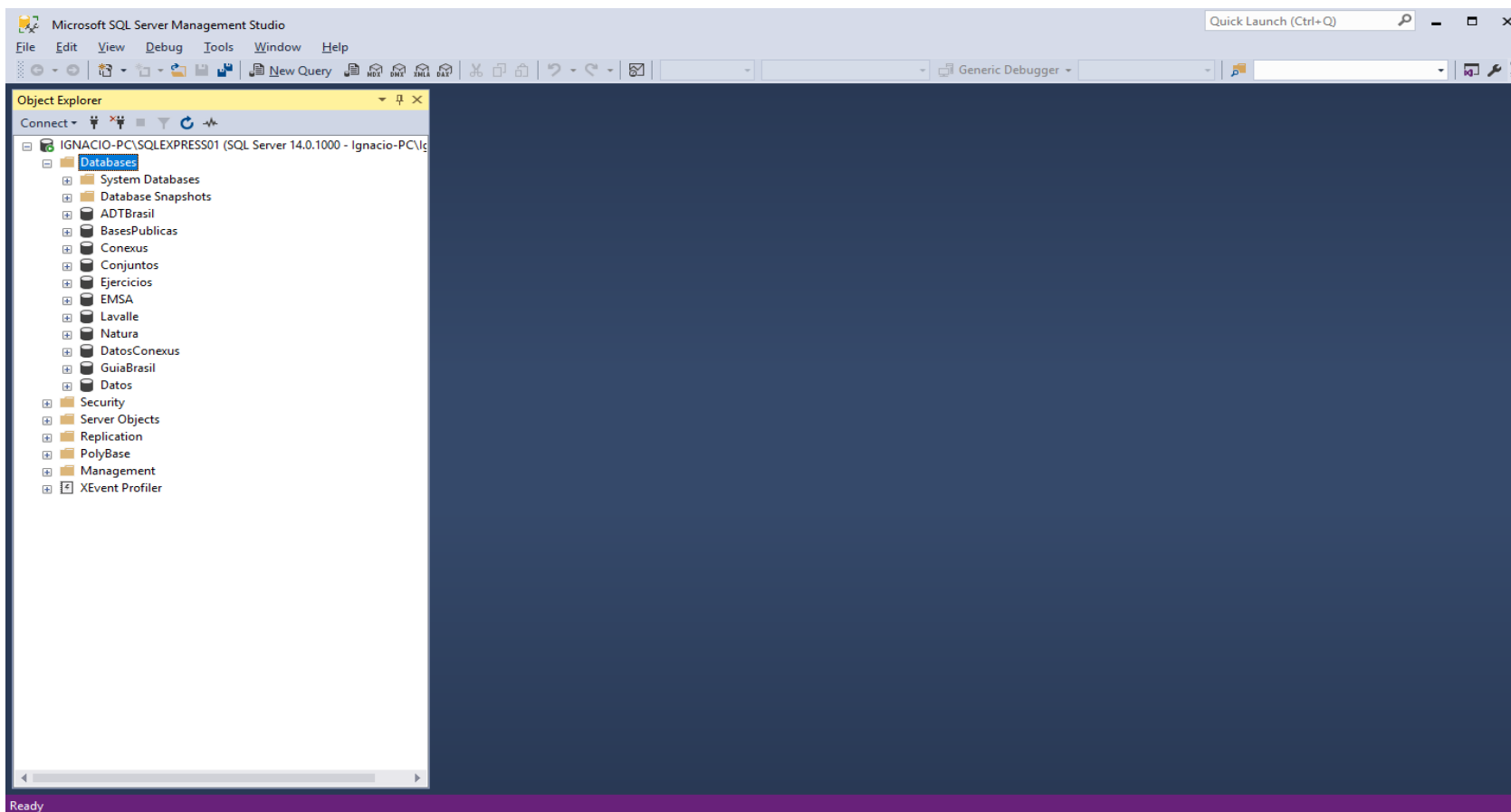
Vemos el motor:



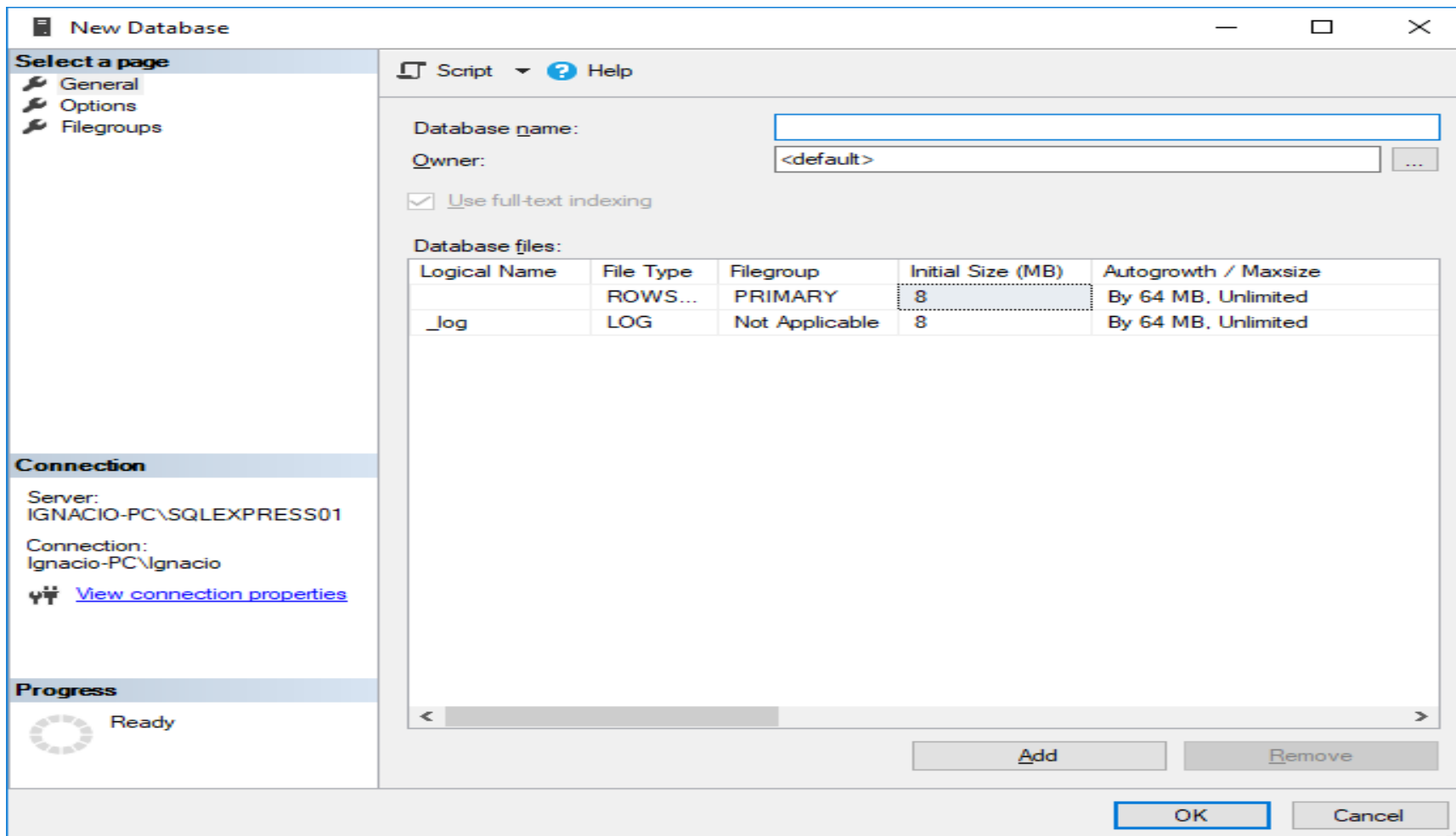
Manipulación de objetos

- ***Database***
- ***Table***
- ***View***
- ***Index***
- ***Stored Procedure***
- ***Function***
- ***Trigger***

Creación de una base de datos



Creación de una base de datos



New Database

Select a page

- General
- Options
- Filegroups

Script ? Help

Database name:

Owner:

☒ Use full-text indexing

Database files:

Logical Name	File Type	Filegroup	Initial Size (MB)	Autogrowth / Maxsize
	ROWS...	PRIMARY	8	By 64 MB, Unlimited
_log	LOG	Not Applicable	8	By 64 MB, Unlimited

Connection

Server: IGNACIO-PC\SQLEXPRESS01

Connection: Ignacio-PC\Ignacio

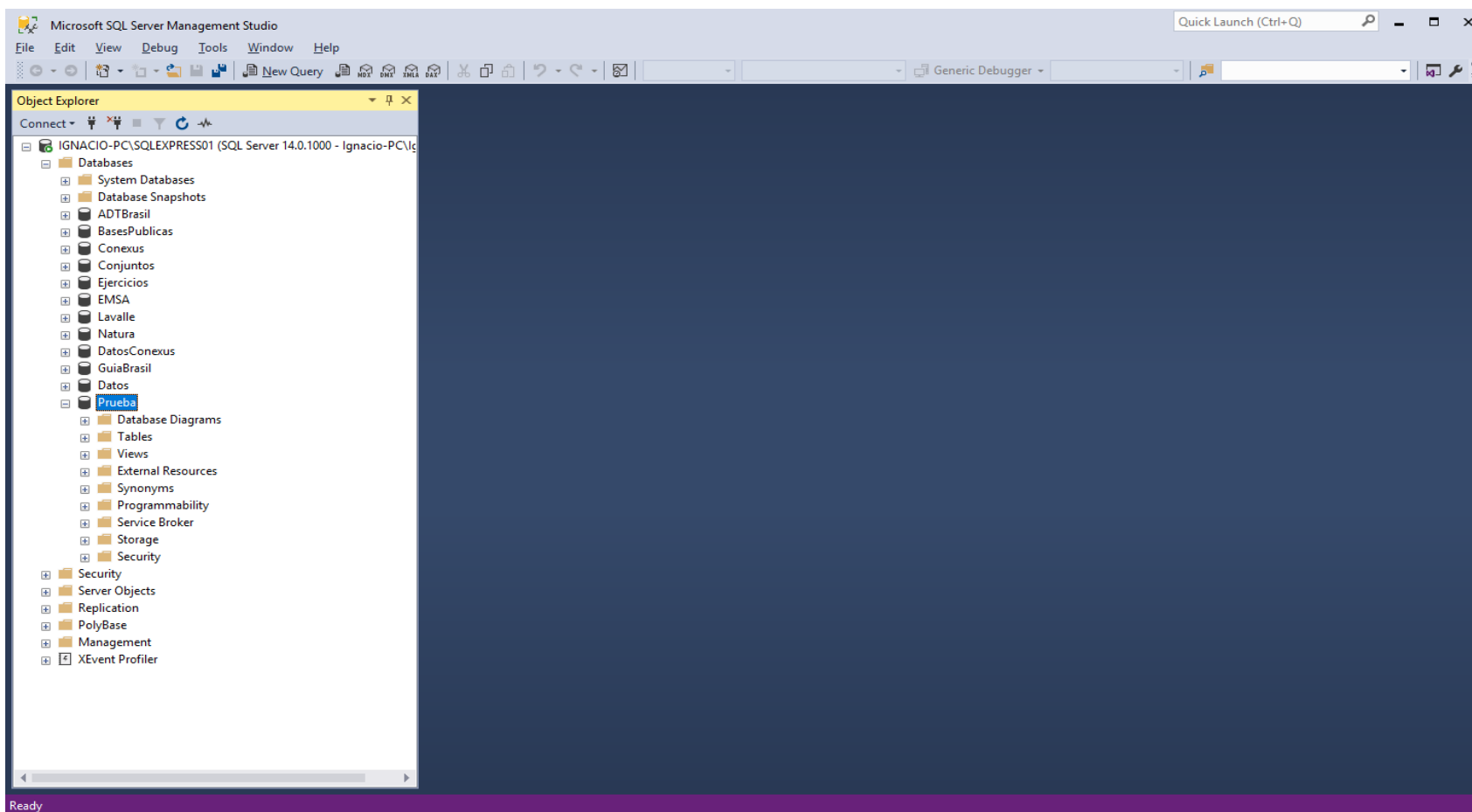
[View connection properties](#)

Progress

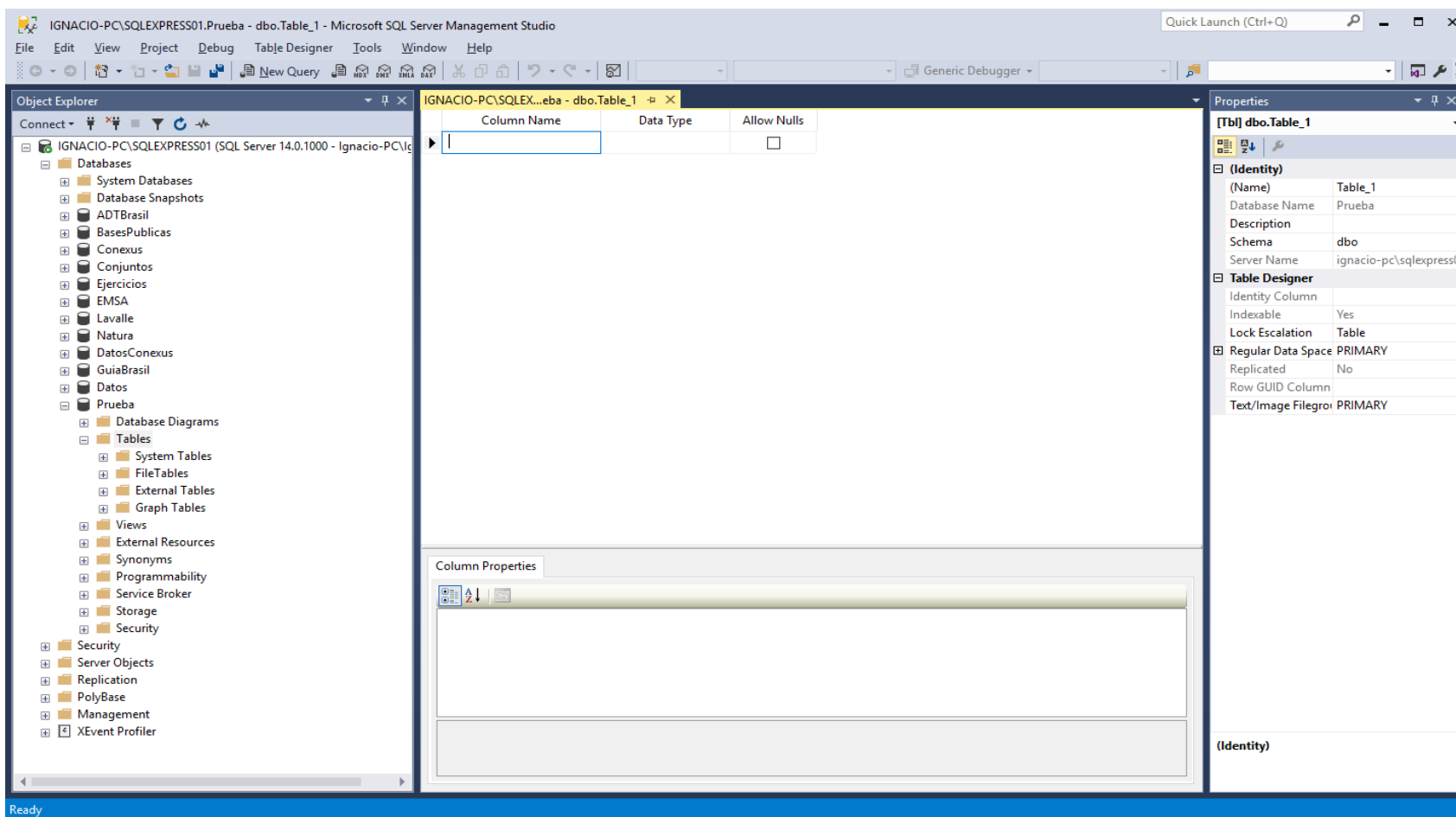
Ready

Add Remove OK Cancel

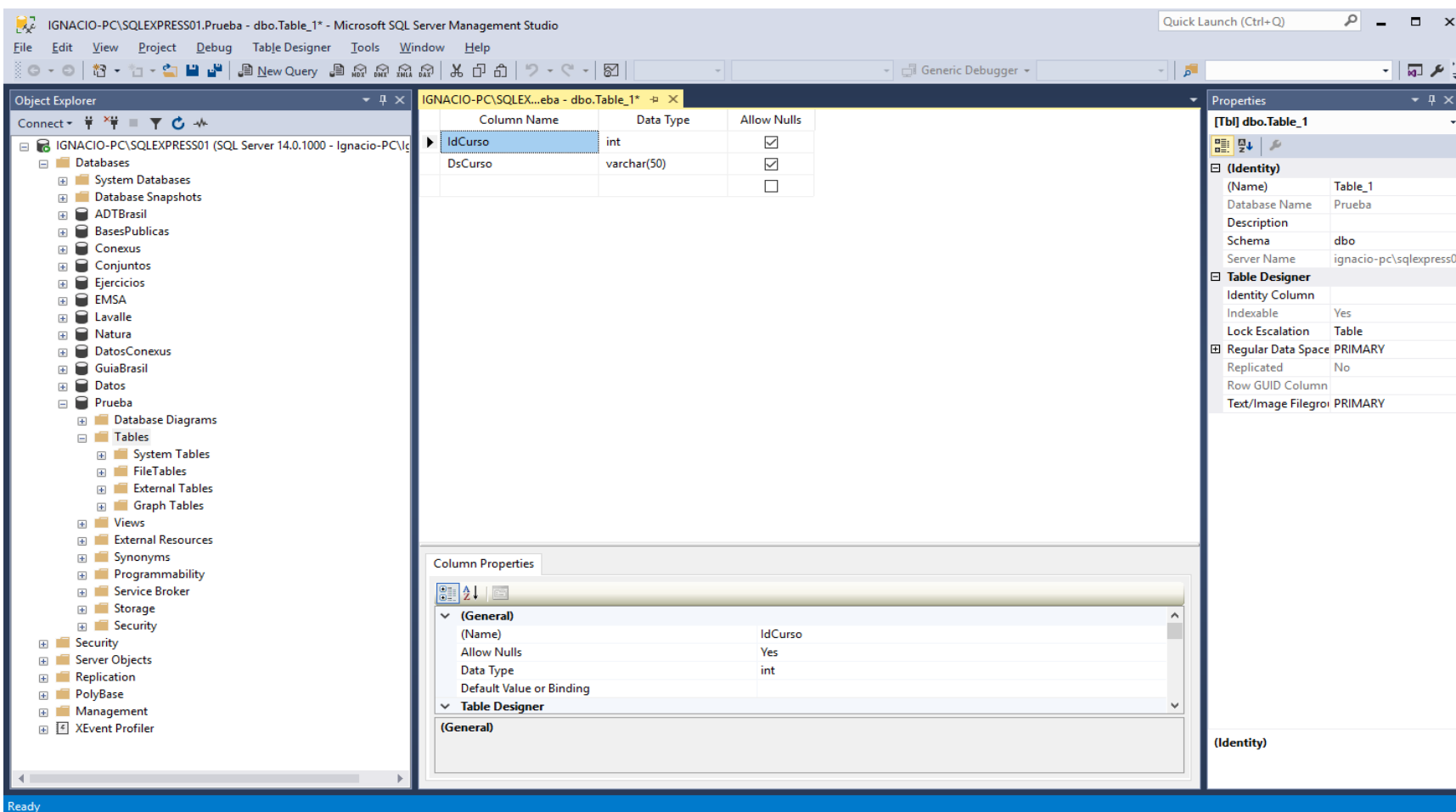
Creación de una base de datos



Creación de una tabla



Configuración de una tabla



IGNACIO-PC\SQLEXPRESS01.Prueba - dbo.Table_1* - Microsoft SQL Server Management Studio

File Edit View Project Debug Table Designer Tools Window Help

Object Explorer

Connect

IGNACIO-PC\SQLEXPRESS01 (SQL Server 14.0.1000 - Ignacio-PC\I...)

Databases

- System Databases
- Database Snapshots
- ADTBrazil
- BasesPublicas
- Conexus
- Conjuntos
- Ejercicios
- EMSA
- Lavalle
- Natura
- DatosConexus
- GuiaBrasil
- Datos
- Prueba
 - Database Diagrams
 - Tables
 - System Tables
 - FileTables
 - External Tables
 - Graph Tables
 - Views
 - External Resources
 - Synonyms
 - Programmability
 - Service Broker
 - Storage
 - Security
- Security
- Server Objects
- Replication
- PolyBase
- Management
- XEvent Profiler

Table Designer

Column Name	Data Type	Allow Nulls
IdCurso	int	<input checked="" type="checkbox"/>
DsCurso	varchar(50)	<input type="checkbox"/>

Column Properties

(General)

(Name)	IdCurso
Allow Nulls	Yes
Data Type	int
Default Value or Binding	

Table Designer

(General)

Properties

[Tbl] dbo.Table_1

(Identity)

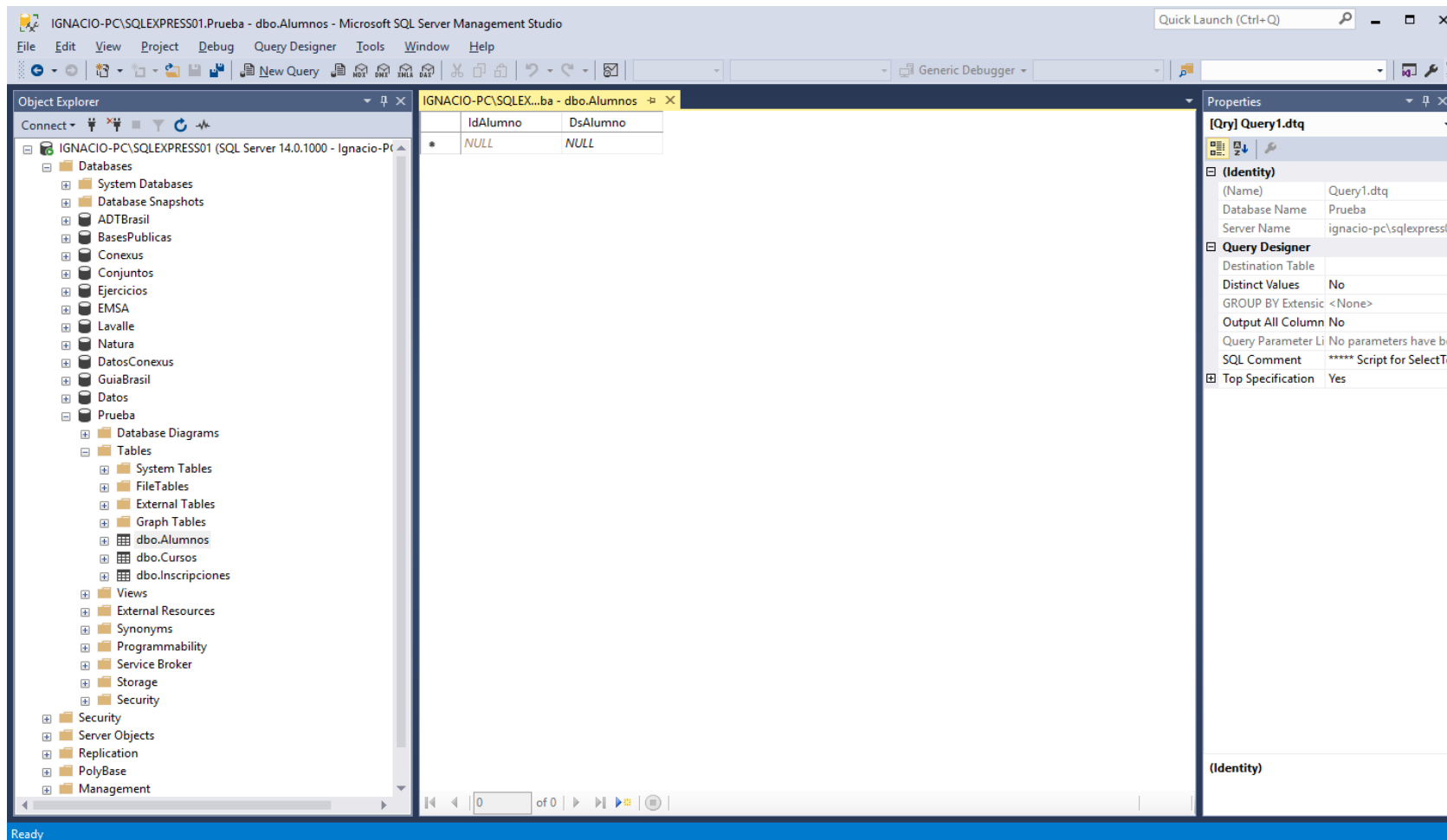
(Name)	Table_1
Database Name	Prueba
Description	
Schema	dbo
Server Name	ignacio-pc\squlexpress0

Table Designer

Identity Column	
Indexable	Yes
Lock Escalation	Table
Regular Data Space	PRIMARY
Replicated	No
Row GUID Column	
Text/Image Filegroup	PRIMARY

(Identity)

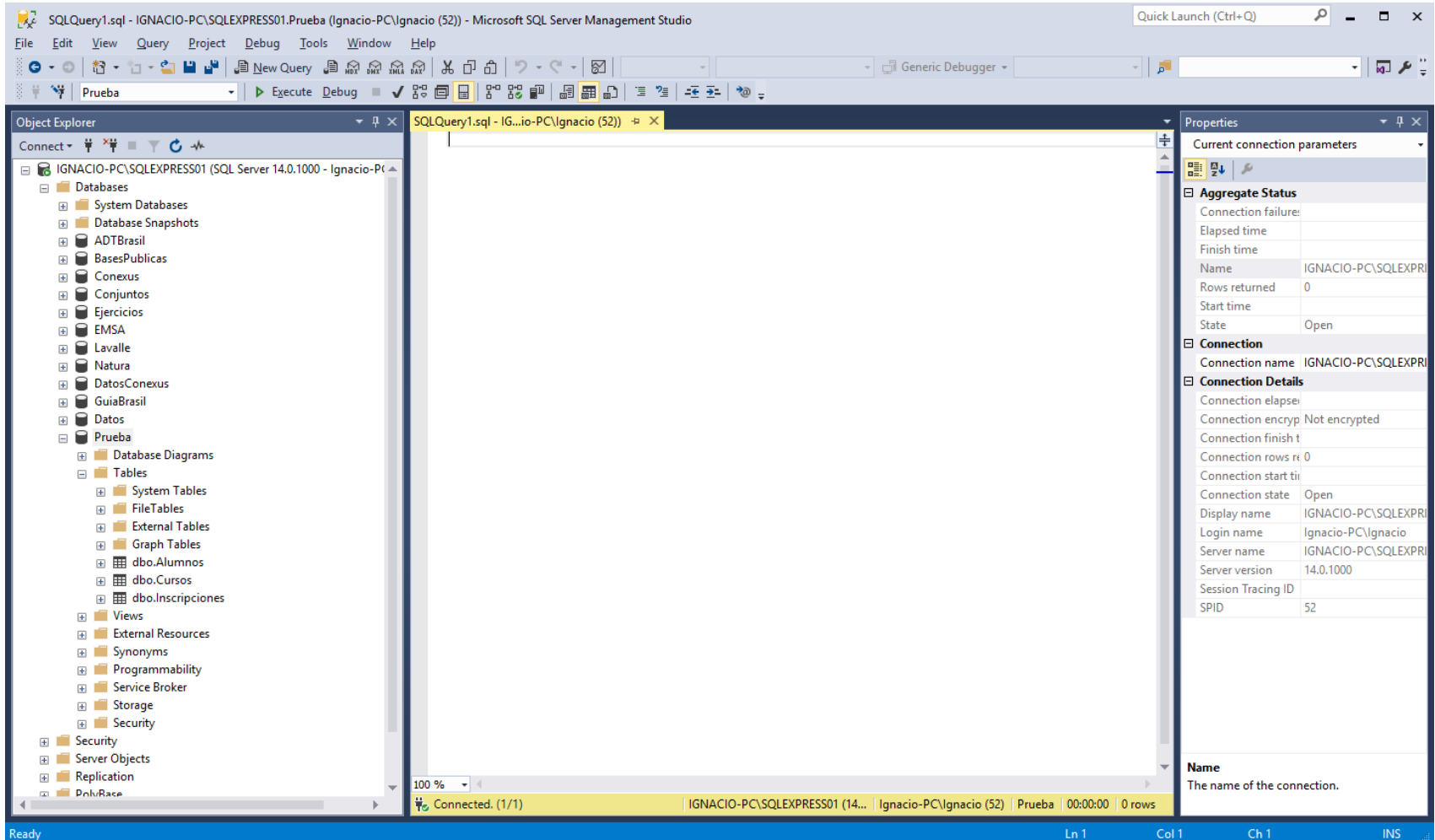
Cargando datos en una tabla



The screenshot shows the Microsoft SQL Server Management Studio interface. The 'Object Explorer' on the left displays the database structure, including the 'Prueba' database and its 'dbo' schema. The 'Query Designer' is open, showing a table with two columns: 'IdAlumno' and 'DsAlumno'. The table contains one row with both values set to 'NULL'. The 'Properties' window on the right shows the query details for '[Qry] Query1.dtt', including the (Name), Database Name, and Server Name.

IdAlumno	DsAlumno
NULL	NULL

Escribiendo consultas



The screenshot displays the Microsoft SQL Server Management Studio (SSMS) interface. The main window shows a query titled 'SQLQuery1.sql - IGNACIO-PC\SQLEXPRESS01.Prueba (Ignacio-PC\Ignacio (52))'. The Object Explorer on the left shows the database structure for 'IGNACIO-PC\SQLEXPRESS01 (SQL Server 14.0.1000 - Ignacio-PC)'. The right-hand Properties window is open, showing the 'Current connection parameters' for the connection 'IGNACIO-PC\SQLEXPRESS01'. The status bar at the bottom indicates 'Connected. (1/1)' and '0 rows'.

Object Explorer:

- IGNACIO-PC\SQLEXPRESS01 (SQL Server 14.0.1000 - Ignacio-PC)
 - Databases
 - System Databases
 - Database Snapshots
 - ADTBrazil
 - BasesPublicas
 - Conexus
 - Conjuntos
 - Ejercicios
 - EMSA
 - Lavalle
 - Natura
 - DatosConexus
 - GuiaBrasil
 - Datos
 - Prueba
 - Database Diagrams
 - Tables
 - System Tables
 - FileTables
 - External Tables
 - Graph Tables
 - dbo.Alumnos
 - dbo.Cursos
 - dbo.Inscripciones
 - Views
 - External Resources
 - Synonyms
 - Programmability
 - Service Broker
 - Storage
 - Security
 - Security
 - Server Objects
 - Replication
 - FullText

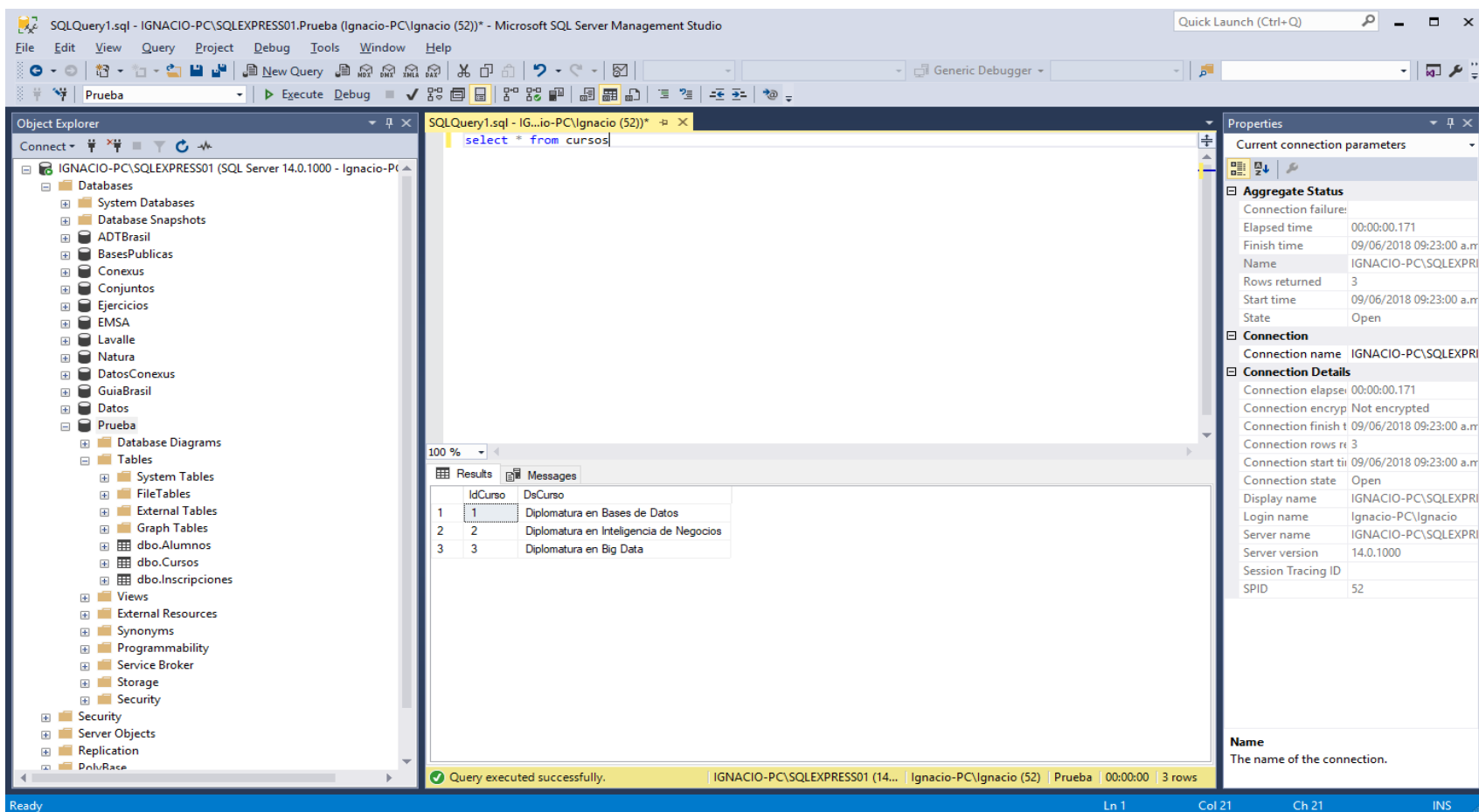
Properties - Current connection parameters:

- Aggregate Status**
 - Connection failure:
 - Elapsed time
 - Finish time
 - Name: IGNACIO-PC\SQLEXPRESS01
 - Rows returned: 0
 - Start time
 - State: Open
- Connection**
 - Connection name: IGNACIO-PC\SQLEXPRESS01
- Connection Details**
 - Connection elapsed:
 - Connection encrypt: Not encrypted
 - Connection finish time
 - Connection rows read: 0
 - Connection start time
 - Connection state: Open
 - Display name: IGNACIO-PC\SQLEXPRESS01
 - Login name: Ignacio-PC\Ignacio
 - Server name: IGNACIO-PC\SQLEXPRESS01
 - Server version: 14.0.1000
 - Session Tracing ID
 - SPID: 52

Name: The name of the connection.

Status Bar: Ready | 100 % | Connected. (1/1) | IGNACIO-PC\SQLEXPRESS01 (14.0.1000 - Ignacio-PC\Ignacio (52)) | Prueba | 00:00:00 | 0 rows

Ejecutando consultas



The screenshot shows the Microsoft SQL Server Management Studio interface. The title bar indicates the file is 'SQLQuery1.sql - IGNACIO-PC\SQLEXPRESS01.Prueba (Ignacio-PC\Ignacio (52))' and the application is 'Microsoft SQL Server Management Studio'. The menu bar includes File, Edit, View, Query, Project, Debug, Tools, Window, and Help. The toolbar contains icons for New Query, Open, Save, Execute, and other standard database operations.

The Object Explorer on the left shows the database structure for 'IGNACIO-PC\SQLEXPRESS01 (SQL Server 14.0.1000 - Ignacio-PC)'. It includes System Databases, Database Snapshots, and various user databases like ADTBrasil, BasesPublicas, Conexus, Conjuntos, Ejercicios, EMSA, Lavalle, Natura, DatosConexus, GuiaBrasil, Datos, and Prueba. The 'Prueba' database is expanded, showing its tables, views, and security.

The central query window shows the SQL query: `select * from cursos`. The Results pane below the query window displays the output of the query:

	IdCurso	DeCurso
1	1	Diplomatura en Bases de Datos
2	2	Diplomatura en Inteligencia de Negocios
3	3	Diplomatura en Big Data

The Properties pane on the right shows the 'Current connection parameters' for the connection 'IGNACIO-PC\SQLEXPRESS01'. It includes sections for Aggregate Status, Connection, and Connection Details. The Connection Details section shows the connection state as 'Open' and the session tracing ID as 52.

The status bar at the bottom indicates 'Query executed successfully.' and shows the connection details: 'IGNACIO-PC\SQLEXPRESS01 (14.0.1000 - Ignacio-PC\Ignacio (52)) Prueba 00:00:00 3 rows'.

Creación de Índices

New Index

⚠ Add at least one index key column to the index

Select a page

- General
- Options
- Storage
- Filter
- Extended Properties

Script | Help

Table name: Inscripciones

Index name: NonClusteredIndex-20180609-095802

Index type: Nonclustered

☐ Unique

Index key columns | Included columns

Name	Sort Order	Data Type	Size	Identity	Allow NULLs
------	------------	-----------	------	----------	-------------

Add... Remove Move Up Move Down

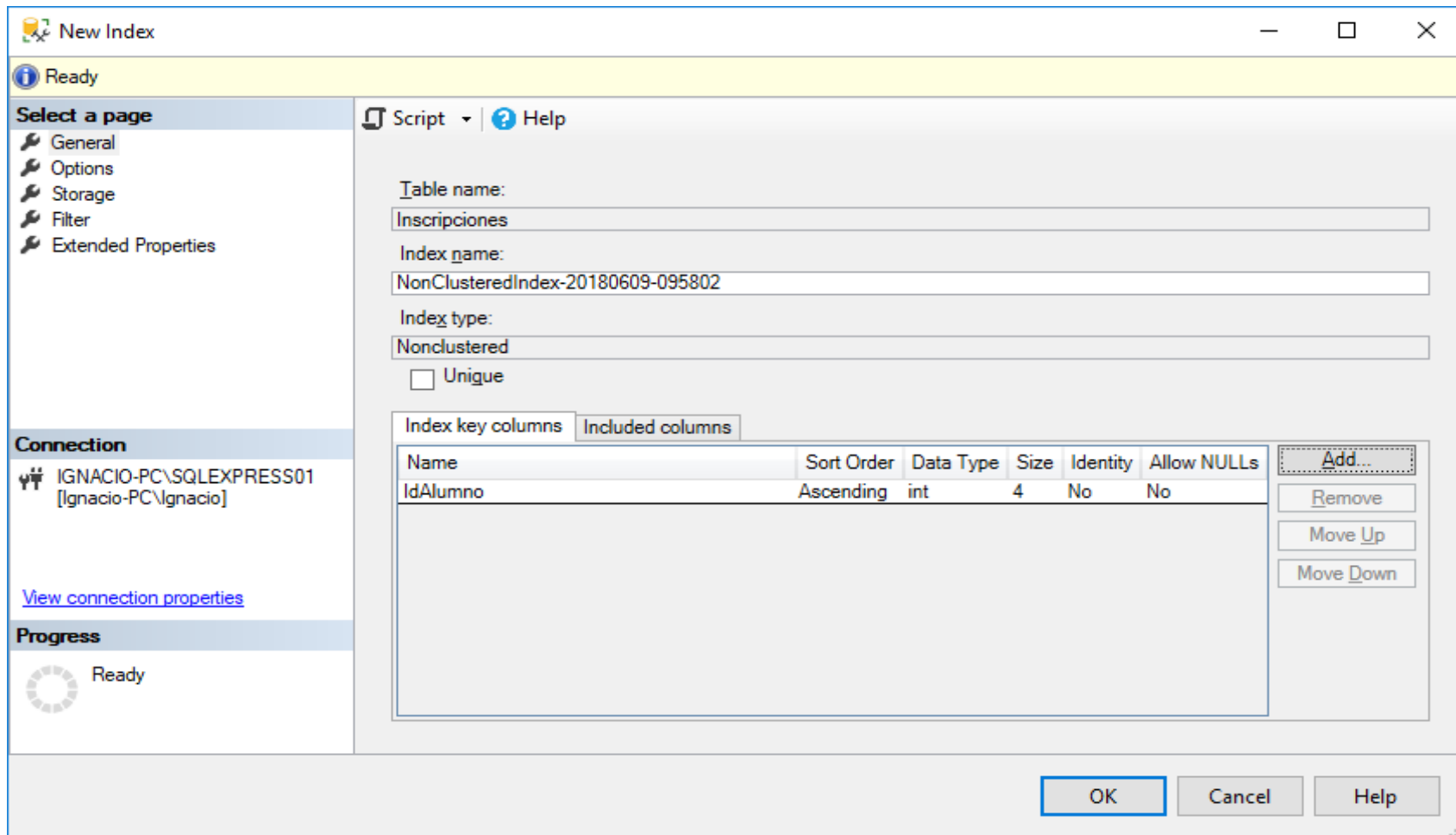
Connection: IGNACIO-PC\SQLEXPRESS01 [Ignacio-PC\Ignacio]

View connection properties

Progress: Ready

OK Cancel Help

Creación de índices



New Index

Ready

Select a page

- General
- Options
- Storage
- Filter
- Extended Properties

Script | Help

Table name: Inscripciones

Index name: NonClusteredIndex-20180609-095802

Index type: Nonclustered

☐ Unique

Index key columns | Included columns

Name	Sort Order	Data Type	Size	Identity	Allow NULLs
IdAlumno	Ascending	int	4	No	No

Add... Remove Move Up Move Down

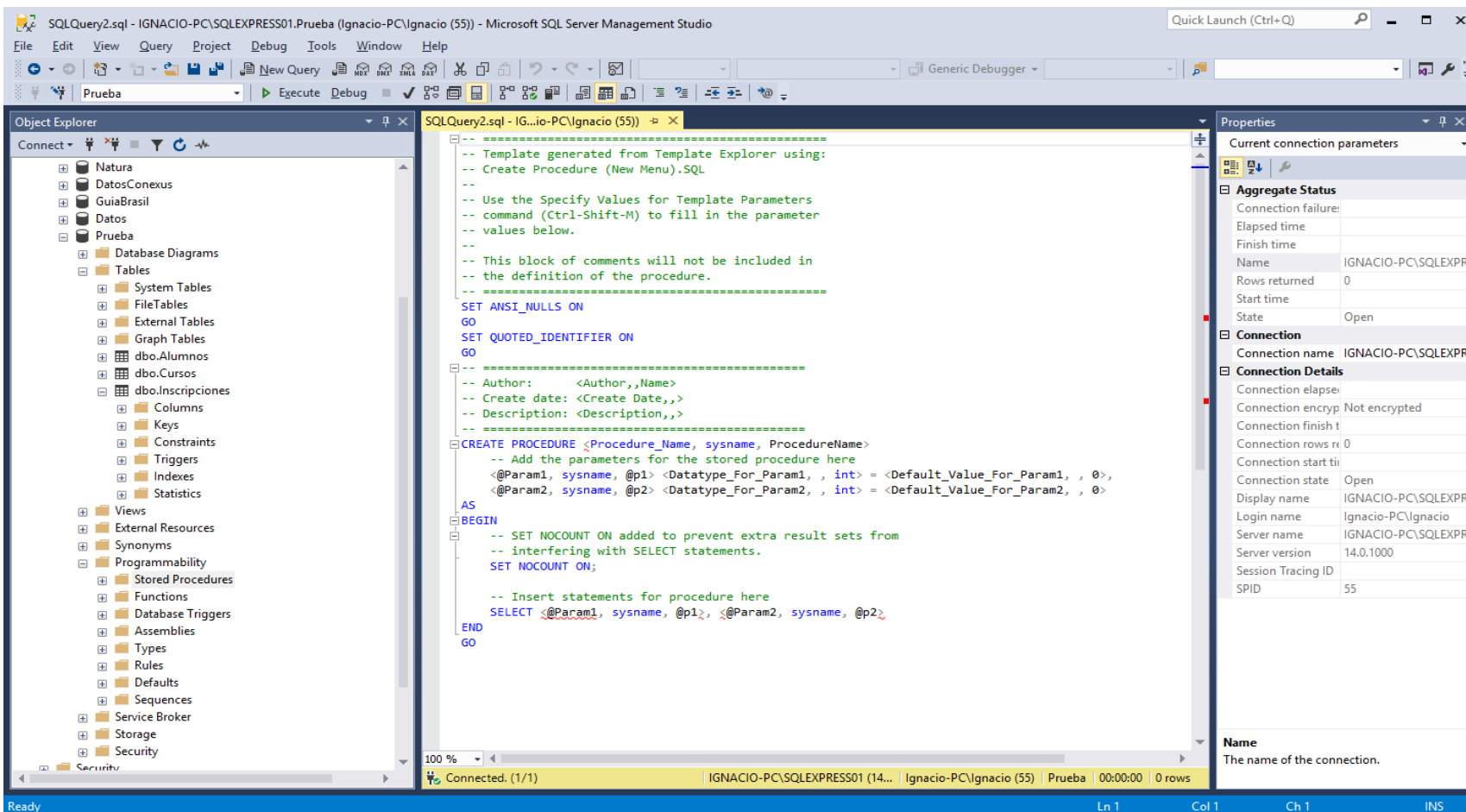
View connection properties

Progress

Ready

OK Cancel Help

Creación de un procedimiento almacenado



The screenshot displays the Microsoft SQL Server Management Studio interface. The central pane shows a SQL query script for creating a stored procedure. The script includes comments about template generation and parameter specification, followed by the actual T-SQL code for the procedure definition.

```

-- Template generated from Template Explorer using:
-- Create Procedure (New Menu).SQL
--
-- Use the Specify Values for Template Parameters
-- command (Ctrl-Shift-M) to fill in the parameter
-- values below.
--
-- This block of comments will not be included in
-- the definition of the procedure.
--
SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
--
-- Author:      <Author,,Name>
-- Create date: <Create Date,,>
-- Description: <Description,,>
--
CREATE PROCEDURE <Procedure_Name, sysname, ProcedureName>
-- Add the parameters for the stored procedure here
    <@Param1, sysname, @p1> <Datatype_For_Param1, , int> = <Default_Value_For_Param1, , 0>,
    <@Param2, sysname, @p2> <Datatype_For_Param2, , int> = <Default_Value_For_Param2, , 0>
AS
BEGIN
    -- SET NOCOUNT ON added to prevent extra result sets from
    -- interfering with SELECT statements.
    SET NOCOUNT ON;

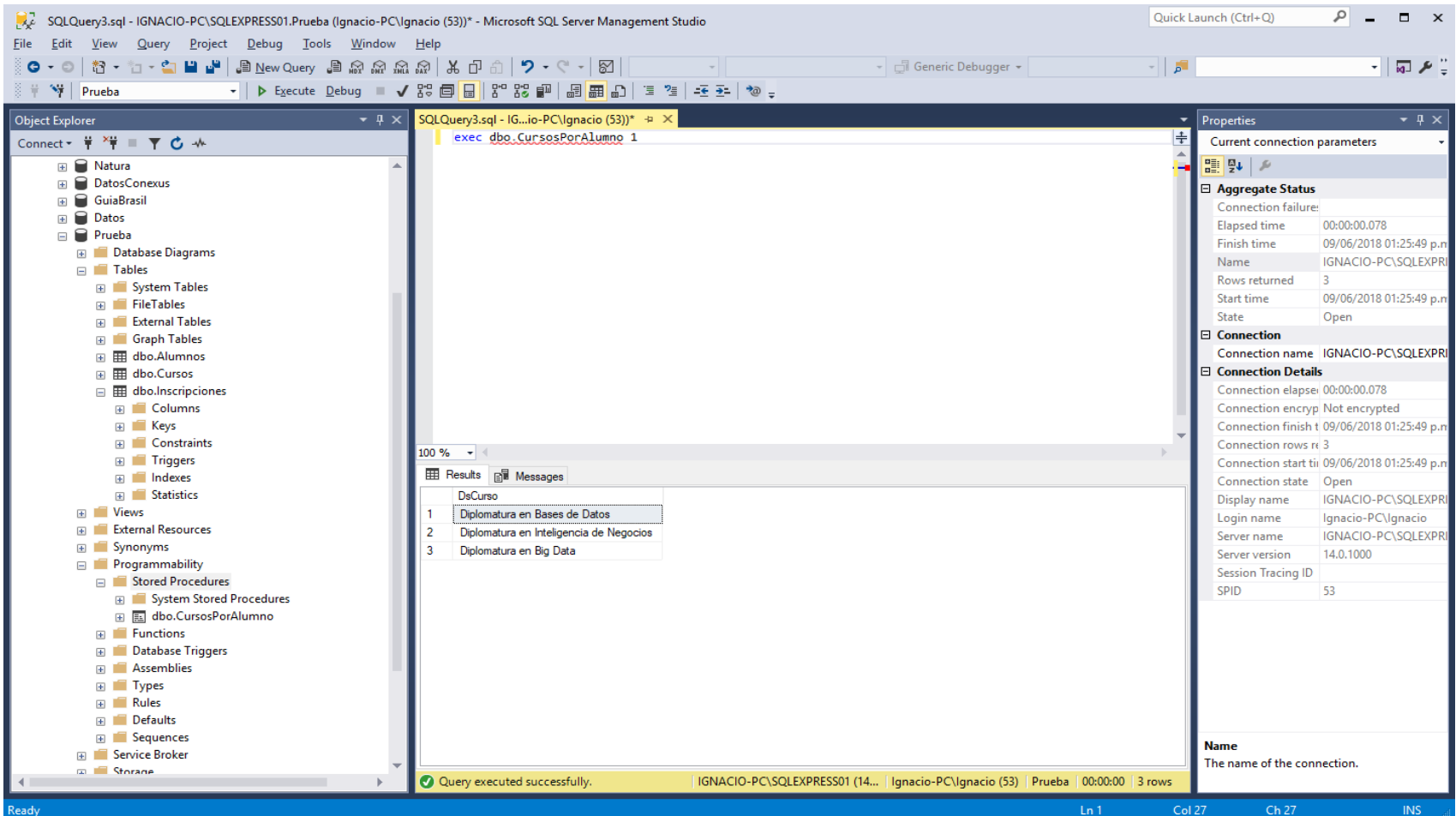
    -- Insert statements for procedure here
    SELECT <@Param1, sysname, @p1>, <@Param2, sysname, @p2>
END
GO
  
```

The Object Explorer on the left shows the database structure, including tables, views, and stored procedures. The Properties window on the right displays the current connection parameters for the 'Prueba' connection.

Current connection parameters	
Aggregate Status	
Connection failure:	
Elapsed time	
Finish time	
Name	IGNACIO-PC\SQLEXPRESS
Rows returned	0
Start time	
State	Open
Connection	
Connection name	IGNACIO-PC\SQLEXPRESS
Connection Details	
Connection elapsed	
Connection encrypt	Not encrypted
Connection finish t	
Connection rows re	0
Connection start ti	
Connection state	Open
Display name	IGNACIO-PC\SQLEXPRESS
Login name	Ignacio-PC\Ignacio
Server name	IGNACIO-PC\SQLEXPRESS
Server version	14.0.1000
Session Tracing ID	
SPID	55

The status bar at the bottom indicates the connection is successful: 'Connected. (1/1)'. The status bar also shows the current line (Ln 1), column (Col 1), and character (Ch 1).

Usamos el procedimiento almacenado

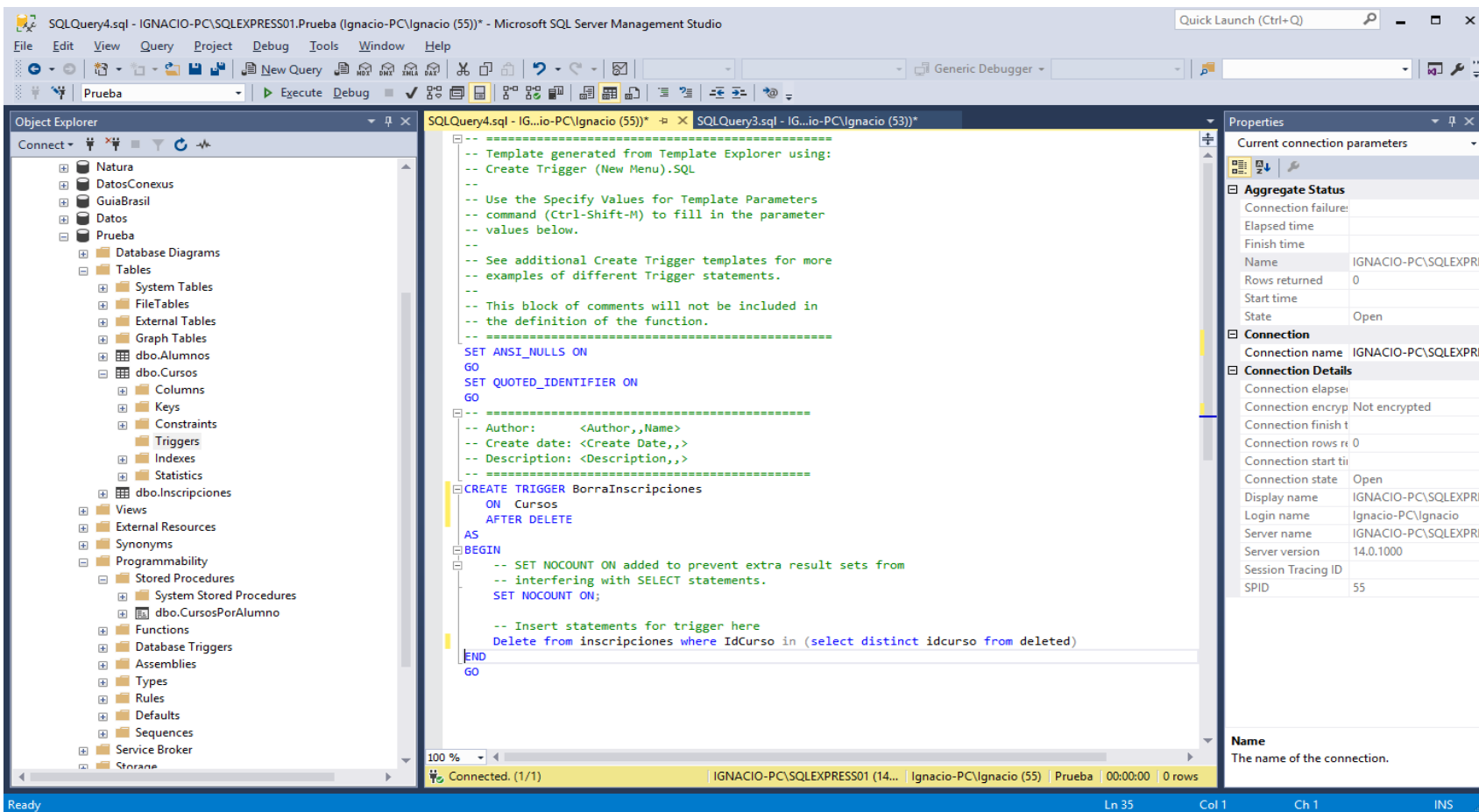


The screenshot shows the Microsoft SQL Server Management Studio interface. The title bar indicates the connection to 'IGNACIO-PC\SQLEXPRESS01.Prueba (Ignacio-PC\Ignacio (53))'. The menu bar includes File, Edit, View, Query, Project, Debug, Tools, Window, and Help. The toolbar contains various icons for file operations, query execution, and debugging. The Object Explorer on the left shows the database structure, including tables like 'dbo.Alumnos', 'dbo.Cursos', and 'dbo.Inscripciones'. The central query window displays the SQL command: `exec dbo.CursosPorAlumno 1`. The Results pane at the bottom shows the output of the query, which is a list of three diplomas. The Properties pane on the right displays connection details and aggregate status. The status bar at the bottom indicates that the query was executed successfully, returning 3 rows.

Id	Curso
1	Diplomatura en Bases de Datos
2	Diplomatura en Inteligencia de Negocios
3	Diplomatura en Big Data

Query executed successfully. IGNACIO-PC\SQLEXPRESS01 (14...) Ignacio-PC\Ignacio (53) Prueba 00:00:00 3 rows

Creación de un trigger



The screenshot shows the Microsoft SQL Server Management Studio interface. The central pane displays the SQL script for creating a trigger named 'BorraInscripciones' on the 'Cursos' table. The script includes comments and the following SQL code:

```

-- Template generated from Template Explorer using:
-- Create Trigger (New Menu).SQL

-- Use the Specify Values for Template Parameters
-- command (Ctrl-Shift-M) to fill in the parameter
-- values below.

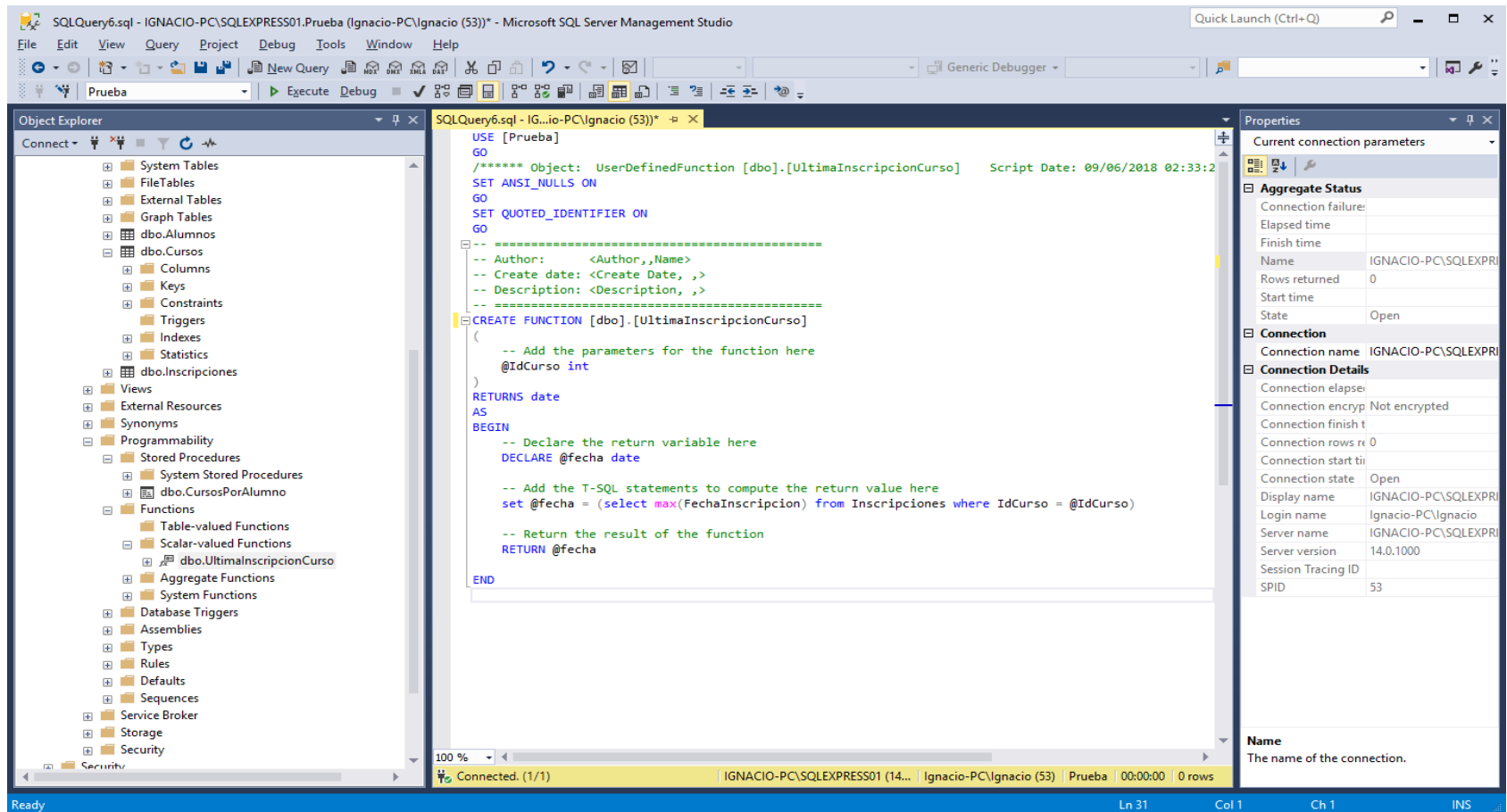
-- See additional Create Trigger templates for more
-- examples of different Trigger statements.

-- This block of comments will not be included in
-- the definition of the function.
-- =====
SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
-- =====
-- Author:      <Author,,Name>
-- Create date: <Create Date,,>
-- Description: <Description,,>
-- =====
CREATE TRIGGER BorraInscripciones
ON Cursos
AFTER DELETE
AS
BEGIN
    -- SET NOCOUNT ON added to prevent extra result sets from
    -- interfering with SELECT statements.
    SET NOCOUNT ON;

    -- Insert statements for trigger here
    Delete from inscripciones where IdCurso in (select distinct idcurso from deleted)
END
GO
  
```

The left pane shows the Object Explorer with the database structure, including tables, views, and triggers. The right pane shows the Properties window for the current connection, displaying connection parameters and status.

Creación de funciones escalares



The screenshot displays the Microsoft SQL Server Management Studio interface. The central pane shows a SQL script for creating a scalar function. The script includes comments for author, creation date, and description, followed by the function definition.

```

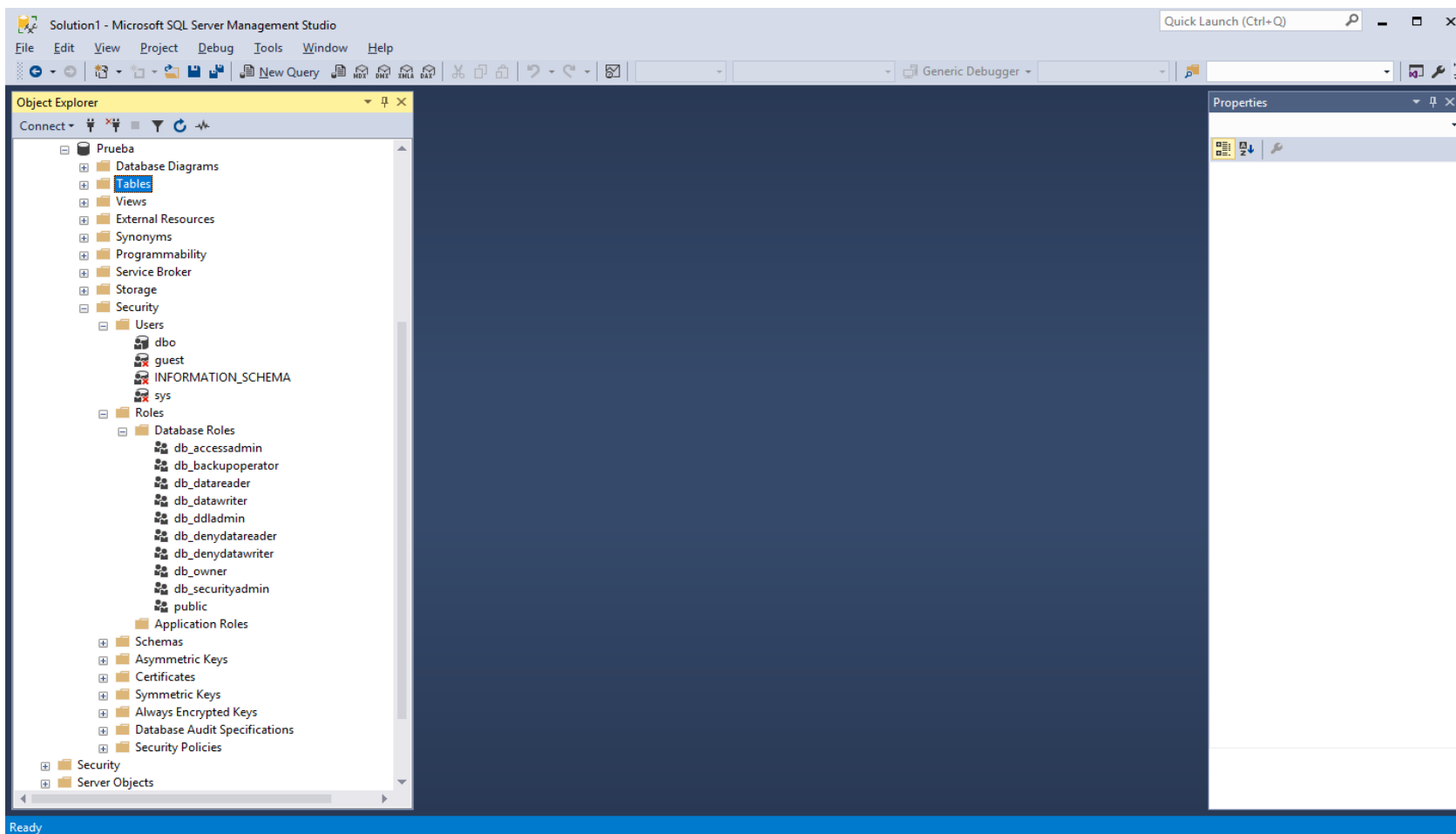
USE [Prueba]
GO
/***** Object: UserDefinedFunction [dbo].[UltimaInscripcionCurso]    Script Date: 09/06/2018 02:33:22 *****/
SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
-- =====
-- Author:      <Author,,Name>
-- Create date: <Create Date,,>
-- Description: <Description,,>
-- =====
CREATE FUNCTION [dbo].[UltimaInscripcionCurso]
(
    -- Add the parameters for the function here
    @IdCurso int
)
RETURNS date
AS
BEGIN
    -- Declare the return variable here
    DECLARE @fecha date

    -- Add the T-SQL statements to compute the return value here
    set @fecha = (select max(FechaInscripcion) from Inscripciones where IdCurso = @IdCurso)

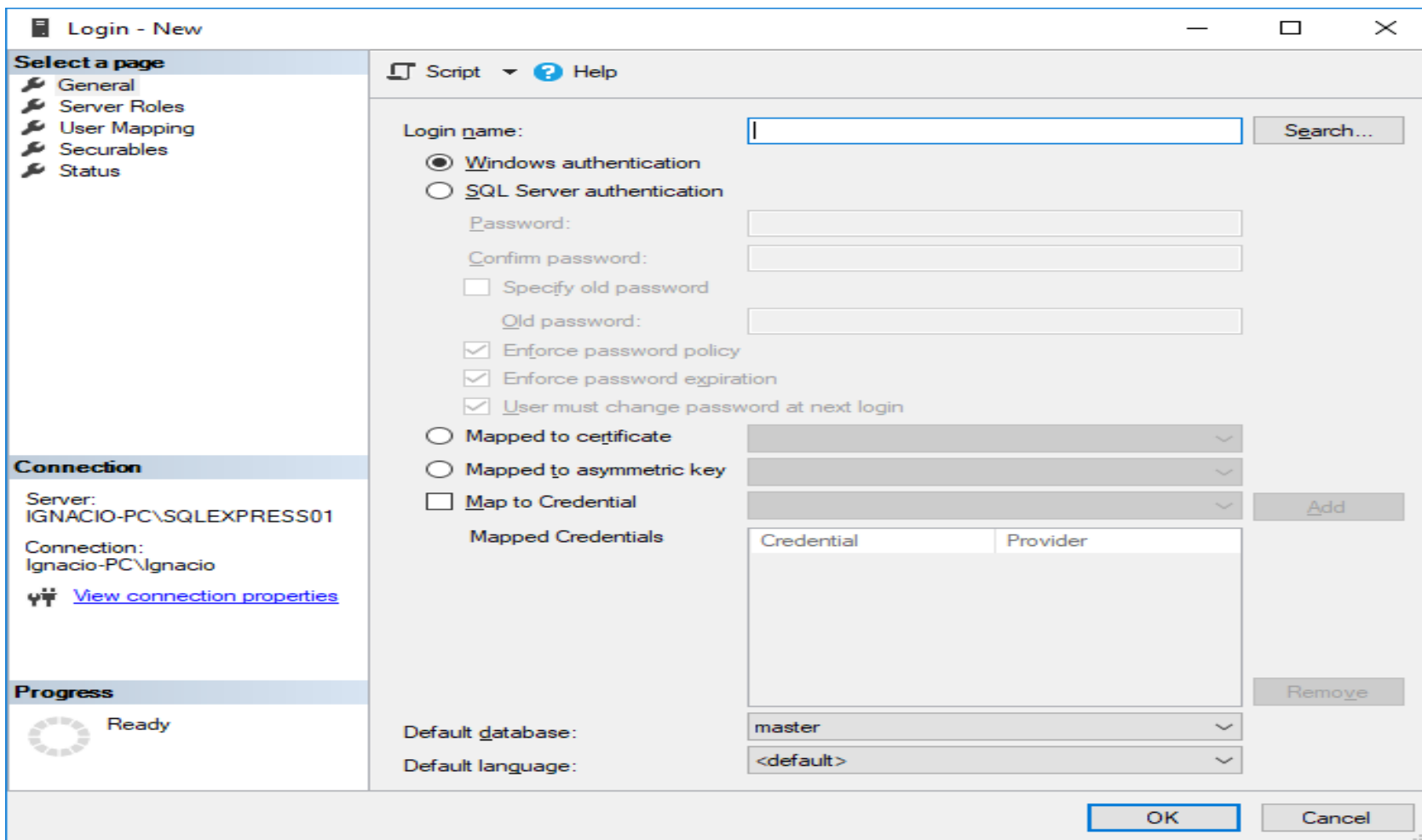
    -- Return the result of the function
    RETURN @fecha
END
  
```

The left pane shows the Object Explorer with the database structure. The right pane shows the Properties window for the current connection.

Administración de la seguridad



Logins



Login - New

Select a page

- General
- Server Roles
- User Mapping
- Securables
- Status

Connection

Server: IGNACIO-PC\SQLEXPRESS01

Connection: Ignacio-PC\Ignacio

[View connection properties](#)

Progress

Ready

Script ? Help

Login name: Search...

☒ Windows authentication
☐ SQL Server authentication

Password:
 Confirm password:
☐ Specify old password
 Old password:
☒ Enforce password policy
☒ Enforce password expiration
☒ User must change password at next login

☐ Mapped to certificate
☐ Mapped to asymmetric key
☐ Map to Credential Add

Credential	Provider

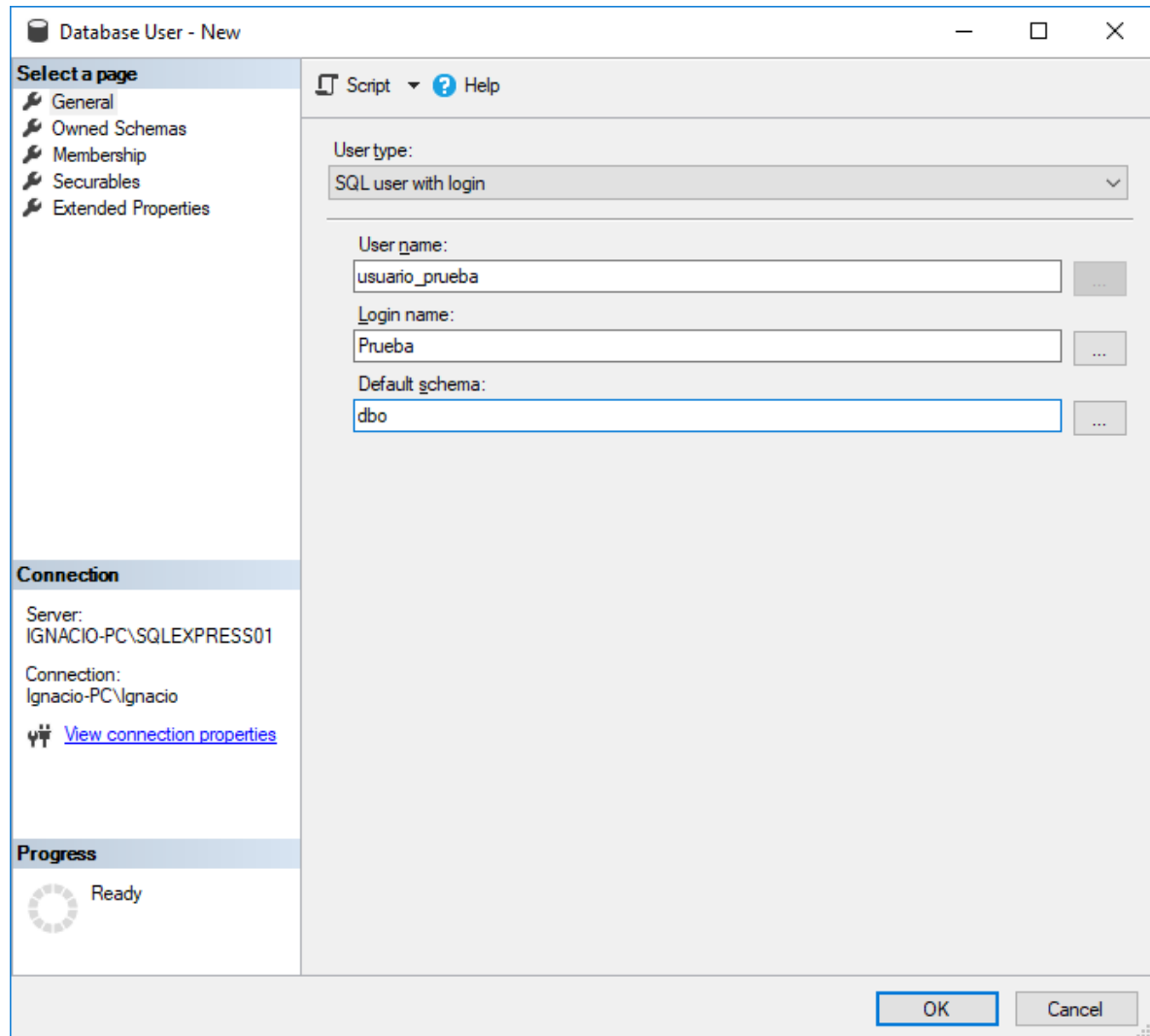
Remove

Default database: master

Default language: <default>

OK Cancel

Users



Database User - New

Select a page

- General
- Owned Schemas
- Membership
- Securables
- Extended Properties

Script ? Help

User type:
SQL user with login

User name:
usuario_prueba

Login name:
Prueba

Default schema:
dbo

Connection

Server:
IGNACIO-PC\SQLEXPRESS01

Connection:
Ignacio-PC\Ignacio

[View connection properties](#)

Progress

Ready

OK Cancel

Permisos

Table Properties - Alumnos

Select a page

- General
- Permissions**
- Change Tracking
- Storage
- Security Predicates
- Extended Properties

Script ? Help

Schema:

[View schema permissions](#)

Table name:

Users or roles:

Name	Type
------	------

Permissions:

Explicit

Permission	Grantor	Grant	With Grant	Deny
------------	---------	-------	------------	------

OK Cancel


Connection

Server: IGNACIO-PC\SQLEXPRESS01

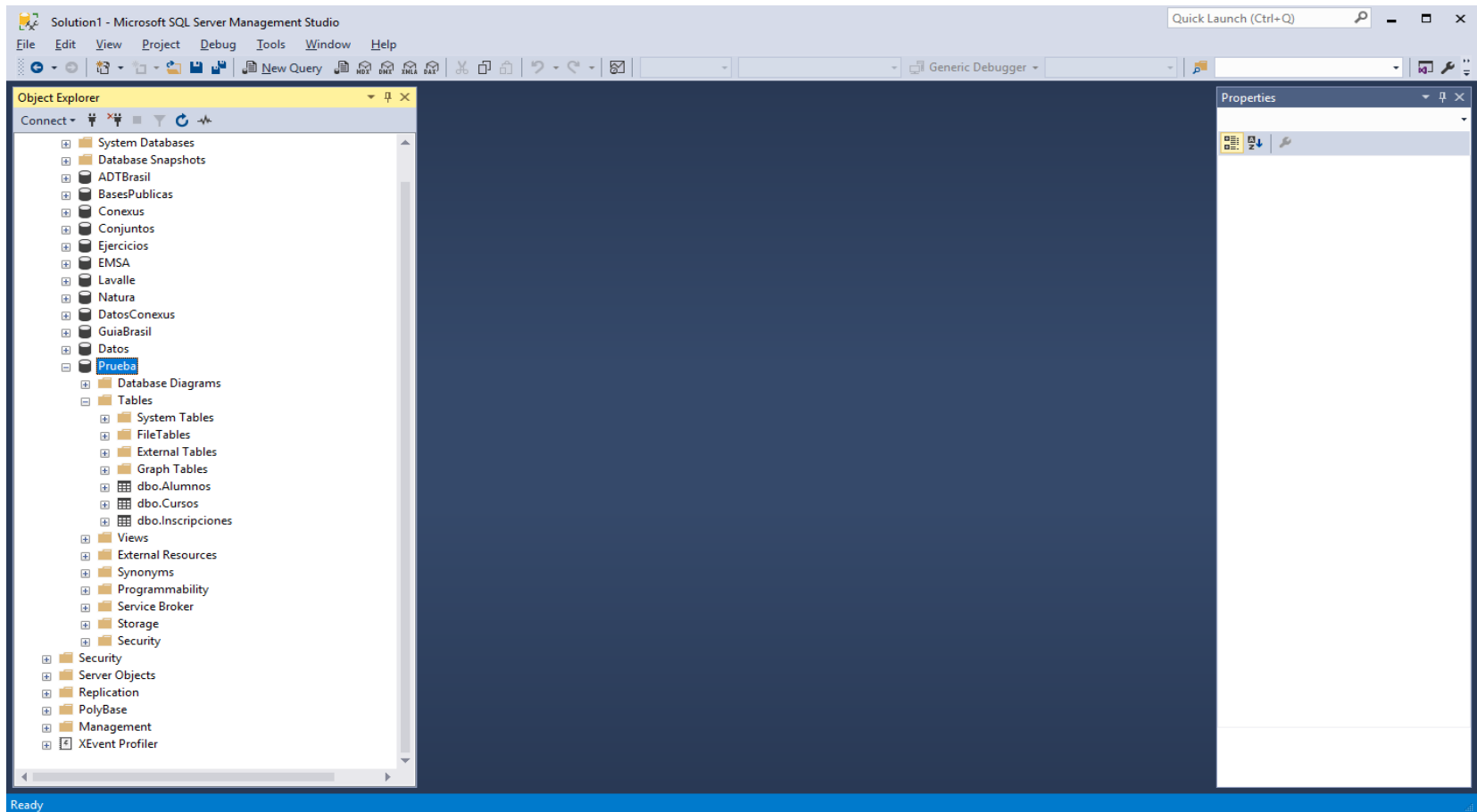
Connection: Ignacio-PC\Ignacio

[View connection properties](#)

Progress

 Ready

Backups





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**Centro de
e-Learning**

¿Alguna pregunta en el tintero?



www.sceu.frba.utn.edu.ar/e-learning



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**Centro de
e-Learning**

Muchas Gracias

ignacio.urteaga@gmail.com



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