



# Getting Our Tools

In this book you'll learn how to access relational databases with Visual Basic. Your primary development tools will be Microsoft Visual Basic 2005 Express Edition (VBE) and Microsoft SQL Server 2005 Express Edition (SSE), because they're free, powerful, and designed to work well together.

VBE is an integrated development environment (IDE) that provides a subset of Visual Studio 2005 functionality for building Visual Basic applications. SSE is the relational database subset of SQL Server 2005 that provides virtually all the online transaction processing (OLTP) capabilities of SQL Server 2005, supports databases up to 4GB (and up to 32,767 databases per SSE instance), and can handle hundreds of concurrent users. SSE doesn't include SQL Server's data warehousing and Integration Services components. It also doesn't include Business Intelligence components for online analytical processing (OLAP) and data mining, because they're based on SQL Server's Analysis Services server, which is completely distinct from its relational database engine.

SSE is also completely distinct from its predecessor, Microsoft SQL Server Desktop Engine (MSDE), which was a subset of SQL Server 2000. MSDE databases cannot be used with SSE, but they can be upgraded to SSE databases.

Let's start by learning how to obtain and install our tools.

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**Note** We'll also use Language-Integrated Query (LINQ) in Chapter 18, but we'll wait until then to install it, because it's not needed for Visual Basic 2005 database programming.

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In this chapter, we'll cover the following:

- Installing Visual Basic 2005 and SQL Server 2005 Express Editions
- Installing SQL Server Management Studio Express Edition
- Installing SQL Server 2005 Books Online
- Installing the Northwind sample database

## Installing VBE and SSE

You can download and install VBE and SSE separately, but because SSE can be installed as part of the VBE installation, we'll do it that way. You can download VBE from <http://msdn.microsoft.com/vstudio/express/vb/download>.

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**Note** .NET Framework 2.0 is required for all Express software. We assume you already have it installed and won't cover its installation here. If you don't have it, it's available for free at <http://msdn2.microsoft.com/en-us/netframework/aa731542.aspx>.

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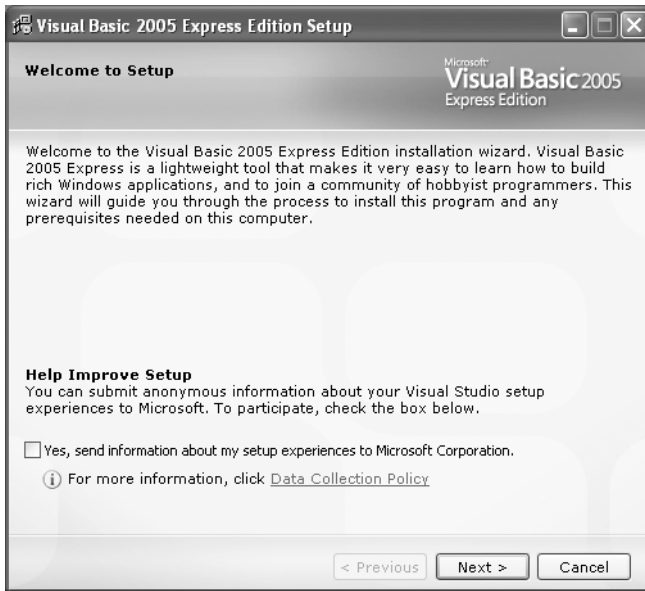
To install VBE and SSE:

1. Create a folder for downloads. We use `C:\bvb2005db\install`, but you can use whatever folder you prefer.
2. On the Download Now! page, click Download. A File Download - Security Warning window appears (see Figure 1-1). You can either run or save the `vbsetup.exe` file. Save it by clicking Save and then specifying your download folder.



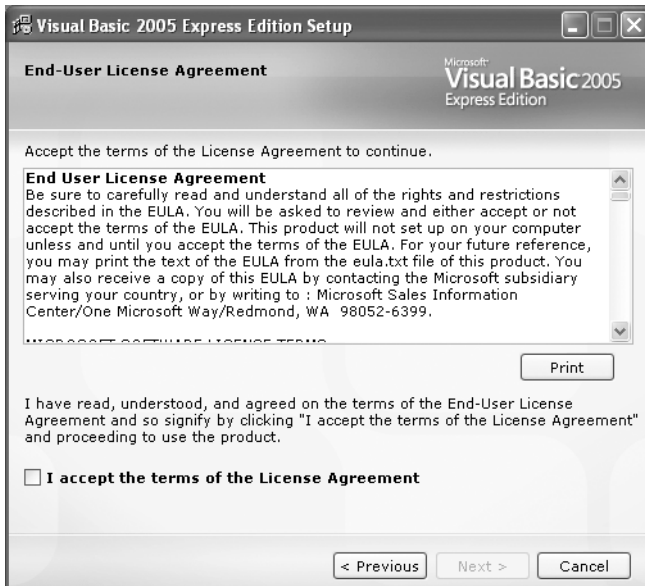
**Figure 1-1.** *VBE download confirmation*

3. Run `vbsetup.exe`, which starts the VBE installation process. A few message boxes appear, then the Welcome window appears (see Figure 1-2). If you want to, check the check box, then click Next.



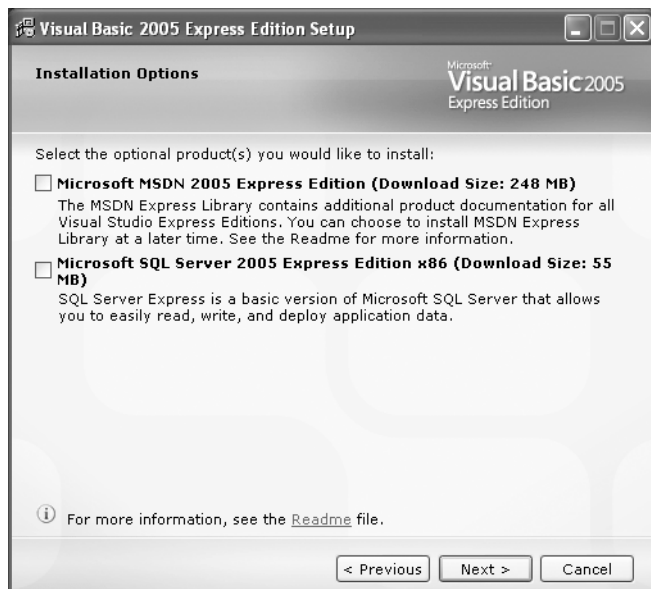
**Figure 1-2.** *VBE Welcome*

4. The End-User License Agreement window appears (see Figure 1-3). Check the check box to accept the license, then click Next.



**Figure 1-3.** *VBE license agreement*

5. When the Installation Options window appears (see Figure 1-4), check *only* the second check box, for SSE. (You can check both, but the MSDN Express Library is quite large, isn't essential for this book, and can be installed later.) Then click Next.



**Figure 1-4.** *VBE Installation Options*

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**Note** Though you don't need it for this book, we encourage you to install the MSDN Express Library eventually. It's full of additional documentation and samples that are well worth the time it takes to download it, if you have about 1GB of disk space to hold it when it's installed.

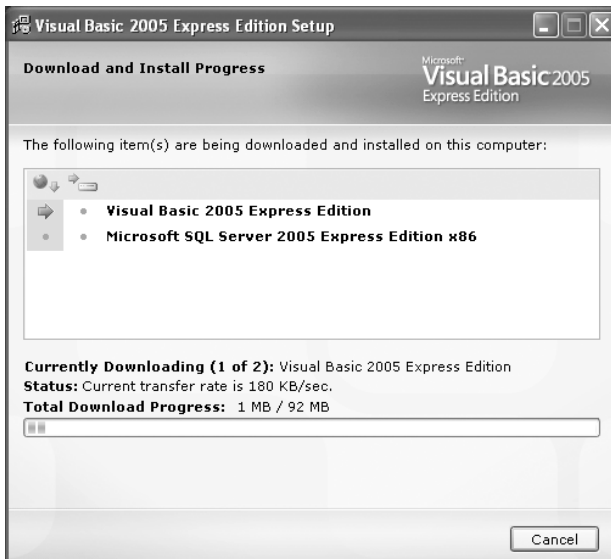
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6. The Destination Folder window appears (see Figure 1-5). You can't change the destination, so just click Install.



**Figure 1-5.** *VBE Destination Folder*

7. The Download and Install Progress window appears (see Figure 1-6). It first reports the progress of the file downloads (about 36MB for VBE and 56MB for SSE), then reports on their installation. Wait patiently, and eventually a registration window appears (see Figure 1-7).



**Figure 1-6.** *VBE Download and Install Progress*

8. If the registration window doesn't appear, and things seem to hang in installing VBE (at progress bar 21), drag the progress window and see if the registration window is hidden beneath it.



**Figure 1-7.** *Registration window*

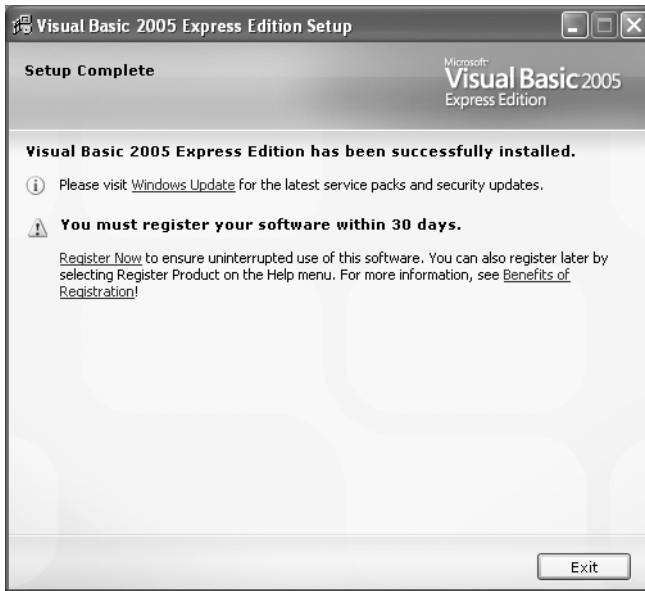
9. You can register your copy of VBE by clicking the Register Now link, but you can do this later (we won't cover it here, but we will in Chapter 2). Whether or not you register, click Exit to end the VBE installation. The SSE installation now begins. When it's done, the Setup Complete window appears (see Figure 1-8). Click Exit.

Both VBE and SSE are now installed (in fact, an SSE *instance* should now be running), but we need a few other things before we can use them for this book.

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**Note** When you install SSE as part of a VBE installation, an instance of SSE named `localhost\SQLEXPRESS` is created. For example, our instance is named `JQT\SQLEXPRESS` because our machine is named JQT. An SSE instance is a database server; that is, a program that provides SSE database services. Multiple SSE instances can run simultaneously on the same machine, and each instance can have multiple databases associated with it.

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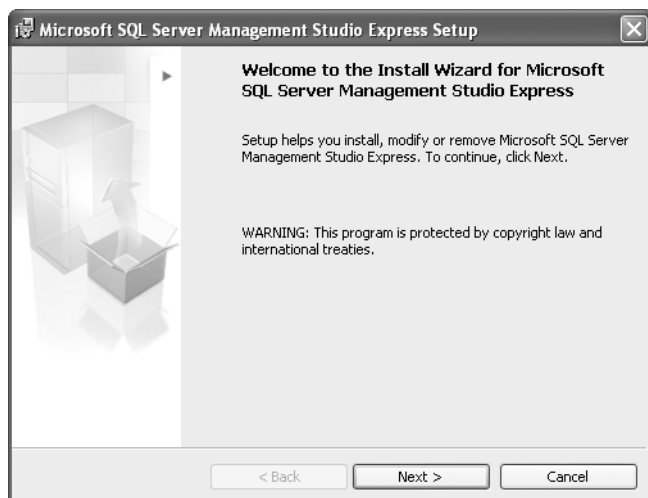


**Figure 1-8.** *Setup Complete window*

## Installing SSMSE

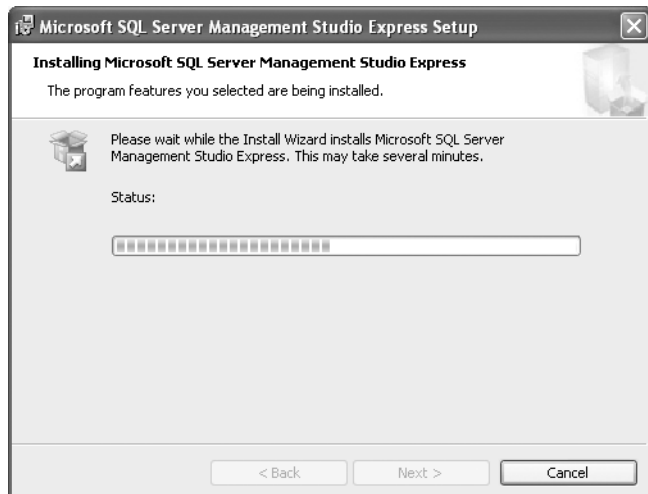
SQL Server Management Studio Express Edition (SSMSE) is the primary tool for administering SSE databases. We'll install it next. To install SSMSE:

1. Go to <http://msdn.microsoft.com/vstudio/express/sql/download/> (the MSSE download page) and scroll down to 3. Download and install. Click Download\* under SQL Server Management Studio Express. When the File Download - Security Warning window appears, either click Run or click Save and specify your install folder. (We're saving `SQLServer2005_SSMSEE.msi` in `C:\vb2005db\install`.)
2. Run `SQLServer2005_SSMSEE.msi`, which starts the SSMSE installation. When the Open File - Security Warning window appears, click Run. A message box is followed by the Welcome window (see Figure 1-9). Click Next.



**Figure 1-9.** *SSMSE Install Wizard Welcome*

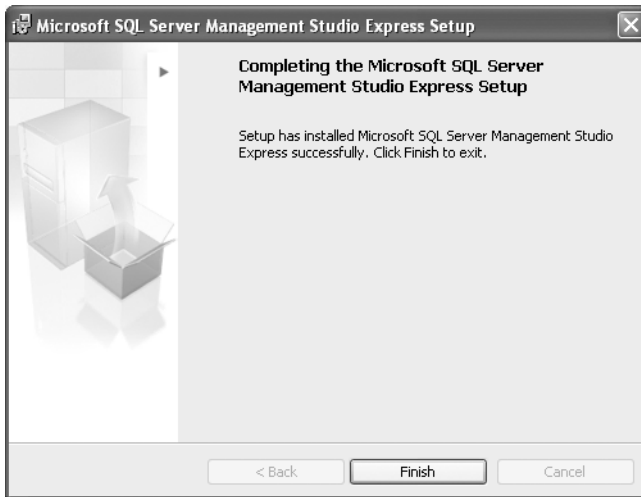
3. In the next window, accept the license agreement, then click Next.
4. In the next window, fill in your information, then click Next.
5. When the Feature Selection window appears, click Next.
6. When the next window appears, click Install.
7. A progress window appears (see Figure 1-10).



**Figure 1-10.** *SSMSE progress*



8. When the window that reports successful installation appears (see Figure 1-11), click Finish.



**Figure 1-11.** SSMSE setup completion

SSMSE is now installed.

## Installing the SQL Server Documentation

The SSE documentation is part of SQL Server 2005 Books Online (BOL). To install BOL:

1. Go the SQL Server 2005 Books Online download page: <http://www.microsoft.com/technet/prodtechnol/sql/2005/downloads/books.mspx>. Click Go, in the gray box on the right.
2. On the next page, click Download.
3. When the File Download - Security Warning window appears, either click Run or click Save and specify your install folder. (We're saving SqlServer2K5\_BOL\_Jul2006\_v2.msi in C:\bvb2005db\install. The actual file name depends on when you download it.)
4. Run SqlServer2K5\_BOL\_Jul2006\_v2.msi, which starts the BOL installation process. When the Open File - Security Warning window appears, click Run. A message box is quickly followed by the Welcome window. Click Next.
5. In the next window, accept the license agreement, then click Next.

6. In the next window, fill in your information, then click Next.
7. When the Feature Selection window appears, click Next.
8. When the next window appears, click Install. A status window appears, eventually followed by a success window. Click Finish.

Microsoft SQL Server 2005 Books Online is now installed.

## Installing a Sample Database

SQL Server 2005 is a much more sophisticated database management system than SQL Server 2000, so Microsoft provides much larger and more sophisticated sample databases, AdventureWorks and AdventureWorksDW, for it. We don't need sample data of this quantity or complexity. (In fact, only AdventureWorks is usable by SSE, and navigating it isn't easy for those without some experience with relational databases.) For our purposes, the smaller and simpler Northwind sample database, that's been part of SQL Server forever, is more appropriate.

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**Note** The AdventureWorks and AdventureWorksDW sample databases are available for download at <http://www.microsoft.com/downloads/details.aspx?familyid=E719ECF7-9F46-4312-AF89-6AD8702E4E6E&displaylang=en>. ➡

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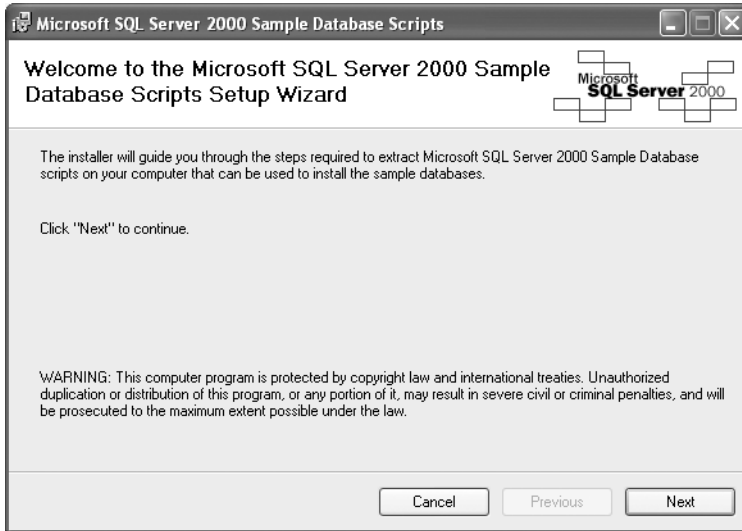
We'll install Northwind in three steps: downloading the creation script, creating the sample database, and backing up the sample database.

## Installing the Northwind Creation Script

To install the script that creates the Northwind sample database:

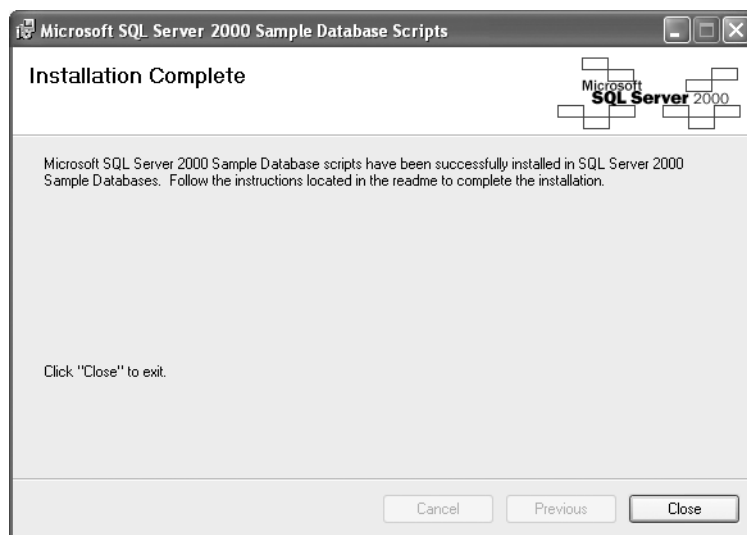
1. Go to <http://www.microsoft.com/downloads/details.aspx?FamilyID=06616212-0356-46a0-8da2-eebc53a68034&DisplayLang=en> and download SQL2000SampleDb.msi. When the File Download - Security Warning window appears, either click Run or click Save and specify your install folder. (We're saving SQL2000SampleDb.msi in C:\bvb2005db\install.)

2. Run `SQL2000SampleDb.msi`, which starts the installation process. When the Open File - Security Warning window appears, click Run. A message box is followed by the Welcome window (see Figure 1-12). Click Next.



**Figure 1-12.** *Northwind Installation Scripts Setup Wizard Welcome*

3. When the License Agreement window appears, click the I Agree radio button. When the Next button is enabled, click it.
4. When the Choose Installation Options window appears, click Next.
5. When the Confirm Installation window appears, click Next.
6. A progress window briefly appears, followed by the Installation Complete window. The installation files have been extracted to (no, we're not kidding) `C:\SQL Server 2000 Sample Databases` (see Figure 1-13). Note that the sample databases haven't yet been created. Only the script files that create them have been "installed." Click Close.



**Figure 1-13.** *Northwind Installation Scripts Installation Complete*

## Creating the Northwind Sample Database

We need to run a Transact-SQL (T-SQL) script to create the Northwind database. We'll do that with the SQL Server command-line utility `sqlcmd`.

To create the Northwind sample database:

1. Open a command prompt, then go to whatever directory contains the `instnwnd.sql` file (for convenience, we copied it from `C:\SQL Server 2000 Sample Databases` to `C:\bcs2005db\install`, but that's not necessary).
2. Enter the following command, making sure to use `-S`, not `-s`. This should produce the output in Figure 1-14.

```
sqlcmd -S .\sqlexpress -i instnwnd.sql
```

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**Tip** Code snippets such as this are available in the code download in the Source Code/Download area at <http://www.apress.com>, in the `snippets.txt` file for a chapter. For example, this snippet is in `C:\bcs2005db\code\Chapter01\snippets.txt`.

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**Figure 1-14.** *Creating the Northwind database*

This command executed the `sqlcmd` program, invoking it with two options. The first option, `-S .\sqlexpress`, told `sqlcmd` to connect to the SQLEXPRESS instance of SSE on the local machine. The second option, `-i instnwnd.sql`, told `sqlcmd` to read the file `instnwnd.sql` and execute the T-SQL in it.

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**Caution** `sqlcmd` cannot connect to SSE unless the SSE instance is running. A Windows service named `MSSQL$SQLEXPRESS` should have been created when you installed SSE, and it should have been automatically started, so the SQLEXPRESS instance should already be running. If `sqlcmd` complains that it can't connect, you can start the service from a command prompt with the command `net start mssql$sqlexpress`.

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The Northwind sample database has now been created. Let's access it to make sure. We'll use `sqlcmd` interactively.

1. At the command prompt, enter the following command, which runs `sqlcmd` and connects to the SQLEXPRESS instance (see Figure 1-15):

```
sqlcmd -S .\sqlexpress
```

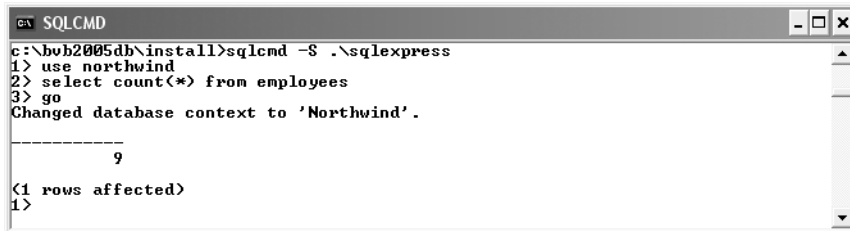


**Figure 1-15.** *Connecting to .\SQLEXPRESS with sqlcmd*

2. At the `sqlcmd` prompt (`1>`), enter the following T-SQL:

```
use northwind
select count(*) from employees
go
```

The first two lines are T-SQL statements. USE specifies the database to query. SELECT asks for the number of rows in the Employees table. GO is not a T-SQL statement, but an sqlcmd command that signals the end of the T-SQL statements to process. The result, that there are nine rows in Employees, is shown in Figure 1-16.



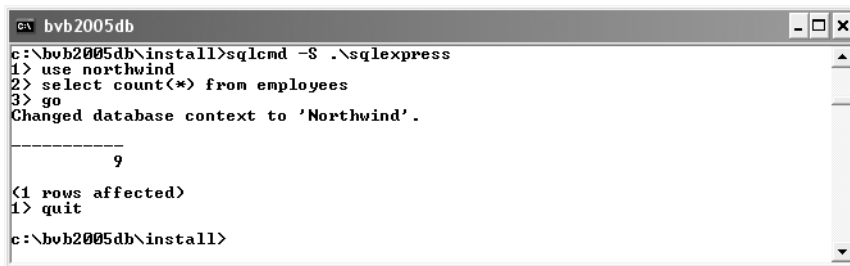
```
SQLCMD
c:\bvb2005db\install>sqlcmd -S .\sqlexpress
1> use northwind
2> select count(*) from employees
3> go
Changed database context to 'Northwind'.

-----
          9

<1 rows affected>
1>
```

**Figure 1-16.** Running a simple query against the Northwind database

3. Enter the sqlcmd command quit to exit sqlcmd (see Figure 1-17).



```
bvb2005db
c:\bvb2005db\install>sqlcmd -S .\sqlexpress
1> use northwind
2> select count(*) from employees
3> go
Changed database context to 'Northwind'.

-----
          9

<1 rows affected>
1> quit
c:\bvb2005db\install>
```

**Figure 1-17.** Exiting sqlcmd

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**Note** We don't cover sqlcmd further, because we submit SQL with SSMSE, but we recommend you play with it. It's the latest command-line tool for SQL Server, superseding the earlier osql and isql tools, and it's still a valuable tool for database administrators and programmers.

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## Uninstalling the Northwind Creation Script

When you installed the creation script, the installer created not only a folder but also an application, Microsoft SQL Server 2000 Sample Database Scripts. You don't need this anymore, so you can remove it with Add or Remove Programs from the Control Panel.

## Summary

In this chapter you installed Visual Basic 2005 Express, SQL Server 2005 Express, SQL Server Management Studio Express, SQL Server Books Online, and the sample Northwind database. You used `sqlcmd` to create and query the Northwind database.

Now that we have our tools, let's get acquainted with them.

