Database Administrators

Summary

Database administrators ensure that data are available to many different users.

Quick Facts: Database Administrators

| 2012 Median Pay                               | $77,080 per year  
|                                             | $37.06 per hour   
| Entry-Level Education                       | Bachelor's degree  
| Work Experience in a Related Occupation     | Less than 5 years  
| On-the-job Training                         | None               
| Number of Jobs, 2012                        | 118,700            
| Job Outlook, 2012-22                        | 15% (Faster than average) 
| Employment Change, 2012-22                  | 17,900             

What Database Administrators Do

Database administrators (DBAs) use specialized software to store and organize data, such as financial information and customer shipping records. They make sure that data are available to users and are secure from unauthorized access.

Work Environment

Almost all database administrators work full time. About a quarter worked more than 40 hours per week in 2012.

How to Become a Database Administrator

Database administrators usually have a bachelor’s degree in an information- or computer-related subject. Before becoming an administrator, these workers typically get work experience in a related field.

Pay

The median annual wage for database administrators was $77,080 in May 2012.

Job Outlook

Employment of database administrators is projected to grow 15 percent from 2012 to 2022, faster than the average for all occupations. Growth in this occupation will be driven by the increased data needs of companies across the economy.

Similar Occupations

Compare the job duties, education, job growth, and pay of database administrators with similar occupations.
Database Administrators ensure databases run efficiently.

Database administrators use specialized software to store and organize data, such as financial information and customer shipping records. They make sure that data are available to users and are secure from unauthorized access.

**Duties**

Database administrators typically do the following:

- Identify user needs to create and administer databases
- Ensure that the database operates efficiently and without error
- Make and test modifications to the database structure when needed
- Maintain the database and update permissions
- Merge old databases into new ones
- Backup and restore data to prevent data loss
- Ensure that organizational data is secure

Database administrators, often called DBAs, make sure that data analysts can easily use the database to find the information they need and that the system performs as it should. DBAs sometimes work with an organization’s management to understand the company’s data needs and to plan the goals of the database. Database administrators are responsible for backing up systems to prevent data loss in case of a power outage or other disaster. They also ensure the integrity of the database, guaranteeing that the data stored in it come from reliable sources.

Some DBAs oversee the development of new databases. They have to determine what the needs of the database are and who will be using it. Database administrators often plan security measures, making sure that data are secure from unauthorized access. Many databases contain personal or financial information, making security important.

Many database administrators are general-purpose DBAs and have all these duties. However, some DBAs specialize in certain tasks that vary with the organization and its needs. Two common specialties are as follows:

**System DBAs** are responsible for the physical and technical aspects of a database, such as installing upgrades and patches to fix program bugs. They typically have a background in system architecture and ensure that the firm’s database management systems work properly.

**Application DBAs** support a database that has been designed for a specific application or a set of applications, such as customer service software. Using complex programming languages, they may write or debug programs and must be able to manage the aspects of the applications that work with the database. They also do all the tasks of a general DBA, but only for their particular application.
Database administrators (DBAs) held about 118,700 jobs in 2012. They were employed in many types of industries. The largest number work for computer systems design and related services firms, such as Internet service providers and data-processing firms. Other DBAs are employed by firms with large databases, such as insurance companies and banks, both of which keep track of vast amounts of personal and financial data for their clients. Some DBAs administer databases for retail companies that keep track of their buyers’ credit card and shipping information; others work for healthcare firms and manage patients’ medical records.

The industries that employed the most database administrators in 2012 were as follows:

<table>
<thead>
<tr>
<th>Industry</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Computer systems design and related services</td>
<td>16%</td>
</tr>
<tr>
<td>Finance and insurance</td>
<td>13%</td>
</tr>
<tr>
<td>Information</td>
<td>11%</td>
</tr>
<tr>
<td>Educational services; state, local, and private</td>
<td>10%</td>
</tr>
<tr>
<td>Management of companies and enterprises</td>
<td>8%</td>
</tr>
</tbody>
</table>

**Work Schedules**

Almost all database administrators work full time. About a quarter worked more than 40 hours per week in 2012.

**How to Become a Database Administrator**

Most database administrators have a bachelor's degree in management information systems (MIS) or a computer-related field.
Database administrators (DBAs) usually have a bachelor’s degree in an information- or computer-related subject. Before becoming an administrator, these workers typically get work experience in a related field.

Education

Most database administrators have a bachelor’s degree in management information systems (MIS) or a computer-related field. Firms with large databases may prefer applicants who have a master’s degree focusing on data or database management, typically either in computer science, information systems, or information technology.

Database administrators need an understanding of database languages, the most common of which is Structured Query Language, commonly called SQL. Most database systems use some variation of SQL, and a DBA will need to become familiar with whichever programming language the firm uses.

Licenses, Certifications, and Registrations

Certification is a way to demonstrate competence and may provide a jobseeker with a competitive advantage. Certification programs are generally offered by product vendors or software firms. Some companies may require their database administrators to be certified in the product they use.

Work Experience in a Related Occupation

Most database administrators do not begin their careers in that occupation. Many first work as database developers or data analysts. A database developer is a type of software developer who specializes in creating databases. The job of a data analyst is to interpret the information stored in a database in a way the firm can use. Depending on their specialty, data analysts can have different job titles, including financial analyst, market research analyst, and operations research analyst. After mastering one of these fields, they may become a database administrator. For more information, see the profiles on software developers, financial analysts, market research analysts, and operations research analysts.

Advancement

Database administrators can advance to become computer and information systems managers.

Important Qualities

**Analytical skills.** DBAs must be able to monitor a database system’s performance to determine when action is needed. They must be able to evaluate complex information that comes from a variety of sources.

**Communication skills.** Most database administrators work on teams and must be able to communicate effectively with developers, managers, and other workers.

**Detail oriented.** Working with databases requires an understanding of complex systems, in which a minor error can cause major problems. For example, mixing up customers’ credit card information can cause someone to be charged for a purchase he or she didn’t make.

**Logical thinking.** Database administrators use software to make sense of information and to arrange and organize it into meaningful patterns. The information is then stored in the databases that these workers manage, test, and maintain.

**Problem-solving skills.** When problems with a database arise, administrators must be able to diagnose and correct the problems.

Pay

<table>
<thead>
<tr>
<th>Database Administrators</th>
<th>Median annual wages, May 2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Database administrators</td>
<td>$77,080</td>
</tr>
<tr>
<td>Computer occupations</td>
<td>$76,270</td>
</tr>
</tbody>
</table>
The median annual wage for database administrators (DBAs) was $77,080 in May 2012. The median wage is the wage at which half the workers in an occupation earned more than that amount and half earned less. The lowest 10 percent earned less than $42,930, and the top 10 percent earned more than $118,720.

The wages for DBAs vary with the industry in which they work. In May 2012, the median annual wages for database administrators the top five industries in which these administrators worked were as follows:

<table>
<thead>
<tr>
<th>Industry</th>
<th>Median Annual Wage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Finance and insurance</td>
<td>$85,880</td>
</tr>
<tr>
<td>Computer systems design and related services</td>
<td>84,550</td>
</tr>
<tr>
<td>Management of companies and enterprises</td>
<td>82,290</td>
</tr>
<tr>
<td>Information</td>
<td>81,800</td>
</tr>
<tr>
<td>Educational services; state, local, and private</td>
<td>63,620</td>
</tr>
</tbody>
</table>

Almost all database administrators work full time. About a quarter worked more than 40 hours per week in 2012.

**Job Outlook**

Employment of database administrators (DBAs) is projected to grow 15 percent from 2012 to 2022, faster than the average for all occupations. Growth in this occupation will be driven by the increased data needs of companies in all sectors of the economy. Database administrators will be needed to organize and present data in a way that makes it easy for analysts and other stakeholders to understand. However employment growth may be slowed by new software tools that increase the productivity of DBAs.

The increasing popularity of database-as-a-service, which allows database administration to be done by a third party over the Internet, could increase the employment of DBAs at cloud computing firms in the computer systems design and related services industry. Employment of DBAs is projected to grow 48 percent in this industry from 2012 to 2022.

Employment growth for database administrators is expected in healthcare industries because, as the use of electronic medical records increases, more databases will be needed to keep track of patient information. Employment of DBAs is projected to grow 43 percent in
Job Prospects

Job prospects should be favorable. Database administrators are in high demand, and firms sometimes have difficulty finding qualified workers. Applicants who have experience with the latest technology should have the best prospects.

Employment projections data for Database Administrators, 2012-22

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</thead>
<tbody>
<tr>
<td>Database administrators</td>
<td>15-1141</td>
<td>118,700</td>
<td>136,600</td>
<td>15</td>
<td>17,900</td>
</tr>
</tbody>
</table>


Similar Occupations

This table shows a list of occupations with job duties that are similar to those of database administrators.

<table>
<thead>
<tr>
<th>OCCUPATION</th>
<th>JOB DUTIES</th>
<th>ENTRY-LEVEL EDUCATION</th>
<th>2012 MEDIAN PAY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Computer and Information Systems Managers</td>
<td>Computer and information systems managers, often called information technology (IT) managers or IT project managers, plan, coordinate, and direct computer-related activities in an organization. They help determine the information technology goals of an organization and are responsible for implementing computer systems to meet those goals.</td>
<td>Bachelor's degree</td>
<td>$120,950</td>
</tr>
<tr>
<td>Computer Network Architects</td>
<td>Computer network architects design and build data communication networks, including local area networks (LANs), wide area networks (WANs), and intranets. These networks range from a small connection between two offices to a multinational series of globally distributed communications systems.</td>
<td>Bachelor's degree</td>
<td>$91,000</td>
</tr>
<tr>
<td>Computer Programmers</td>
<td>Computer programmers write code to create software programs. They turn the program designs created by software developers and engineers into instructions that a computer can follow.</td>
<td>Bachelor's degree</td>
<td>$74,280</td>
</tr>
<tr>
<td>Computer Support Specialists</td>
<td>Computer support specialists provide help and advice to people and organizations using computer software or equipment. Some, called computer network support specialists, support information technology (IT) employees within their organization. Others, called computer user support specialists, assist non-IT users who are having computer problems.</td>
<td>Bachelor's degree</td>
<td>$48,900</td>
</tr>
<tr>
<td>Computer Systems Analysts</td>
<td>Computer systems analysts study an organization’s current computer systems and procedures and design information systems solutions to help the organization operate more efficiently and effectively. They bring business and information</td>
<td>Bachelor's degree</td>
<td>$79,680</td>
</tr>
</tbody>
</table>
technology (IT) together by understanding the needs and limitations of both.

Financial analysts provide guidance to businesses and individuals making investment decisions. They assess the performance of stocks, bonds, and other types of investments.

Bachelor’s degree $76,950

Information security analysts plan and carry out security measures to protect an organization’s computer networks and systems. Their responsibilities are continually expanding as the number of cyberattacks increase.

Bachelor’s degree $86,170

Computer networks are critical parts of almost every organization. Network and computer systems administrators are responsible for the day-to-day operation of these networks.

Bachelor’s degree $72,560

Market research analysts study market conditions to examine potential sales of a product or service. They help companies understand what products people want, who will buy them, and at what price.

Bachelor’s degree $60,300

Operations research analysts use advanced mathematical and analytical methods to help organizations investigate complex issues, identify and solve problems, and make better decisions.

Bachelor’s degree $72,100

Software developers are the creative minds behind computer programs. Some develop the applications that allow people to do specific tasks on a computer or other device. Others develop the underlying systems that run the devices or control networks.

Bachelor’s degree $93,350

Web developers design and create websites. They are responsible for the look of the site. They are also responsible for the site’s technical aspects, such as performance and capacity, which are measures of a website’s speed and how much traffic the site can handle. They also may create content for the site.

Associate’s degree $62,500

Contacts for More Information

For more information about database administrators, visit

Association for Computing Machinery
IEEE
Computing Research Association

For information regarding opportunities for women pursuing information technology careers, visit

National Center for Women & Information Technology

O*NET

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