



The MITRE Corporation, Fairfax County



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# Occupational Overview: Cybersecurity

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# Introduction

This report assesses the professional and educational background of people employed as cybersecurity analysts.<sup>1</sup> According to the Bureau of Labor Statistics (BLS), cybersecurity analysts perform the following duties<sup>2</sup>:

- Plan, implement, upgrade, or monitor security measures for the protection of computer networks and information.
- Assess system vulnerabilities for security risks and propose and implement risk mitigation strategies.
- Ensure appropriate security controls are in place that will safeguard digital files and vital electronic infrastructure.
- Respond to computer security breaches and viruses.

In 2023, 18,460 people were employed as cybersecurity analysts in Virginia, the highest number of any state. The Washington, D.C. metropolitan statistical area (MSA) has the highest employment concentration<sup>3</sup> of cybersecurity analysts in the nation, and the Richmond MSA has the eighth-highest. The median wage for cybersecurity analysts in Virginia is \$133,520, which is 11% higher than the national median wage for cybersecurity analysts (\$120,360).

The following sections explore the educational backgrounds, industries of employment, regional distribution, and career progression of cybersecurity analysts. Statewide employment data were sourced from the BLS and accessed through workforce analytics firm Lightcast. Data on educational background and occupational transitions are derived from the Virginia Office of Education Economics' (VOEE) College and Career Outcomes Dataset. This longitudinal dataset matches the records of alumni of Virginia higher education institutions with their professional social profiles. It includes over 7,500 Virginia graduates who worked as cybersecurity analysts between 2008 and 2022.

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<sup>1</sup>For the purposes of this snapshot, cybersecurity analyst refers to the occupation of Information Security Analyst, as defined under the Bureau of Labor Statistics (BLS) Standard Occupational Classification System (SOC 15-1212).

<sup>2</sup><https://www.bls.gov/oes/current/oes151212.htm>

<sup>3</sup>Employment concentration is equal to the percent of a region's total workforce employed in a given occupation divided by the percent of the nation's workforce employed in that occupation.

# Educational Background

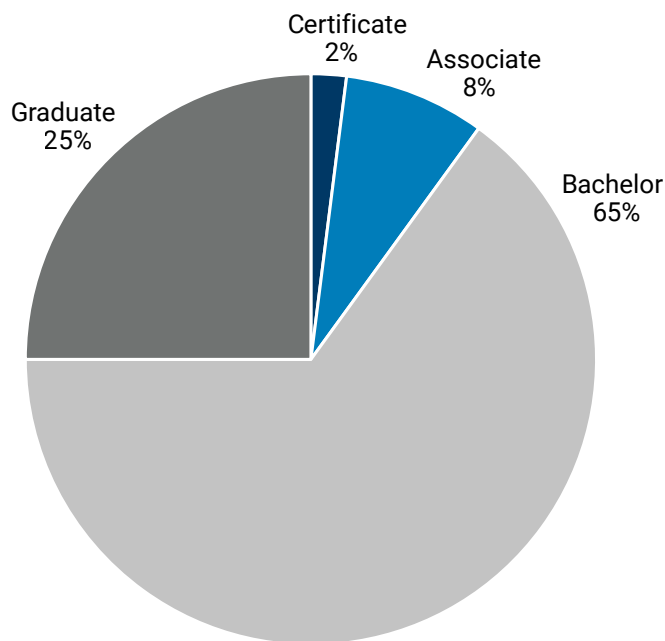
Cybersecurity analysts typically hold a bachelor’s degree or higher in a field related to information technology or business and management. Table 1 shows the most prevalent programs of study of cybersecurity analysts in the College and Career Outcomes Dataset. For workers with multiple degrees, the most recent degree completed before beginning work as a cybersecurity analyst is included.

**Table 1**  
Top Programs of Study at Virginia Institutions of Cybersecurity Analysts, 2008–2022

Degree Level	Program	Analysts with Degree (%)
Bachelor	Information Technology	7.9
Bachelor	Information Science/Studies	4.6
Bachelor	Computer and Information Sciences, General	4.2
Bachelor	Business Administration and Management, General	3.3
Bachelor	Management Science	2.9
Graduate	Business Administration and Management, General	2.4
Graduate	Computer and Information Systems Security/Auditing/ Information Assurance	2.4
Bachelor	Management Information Systems, General	2.2
Bachelor	Psychology, General	2.0
Graduate	Information Technology	1.9

Source: VOEE College and Career Outcomes Dataset, 2008–2022

**Figure 1**  
Degree Level of Cybersecurity Analysts, 2008–2022



Source: VOEE College and Career Outcomes Dataset, 2008–2022

# Top Industries of Employment for Cybersecurity Analysts

Employment of cybersecurity analysts in Virginia is concentrated in industries of professional and technical services, finance and insurance, management of companies and enterprises, information, and government. The top national industries for the occupation as classified by the North American Industry Classification System (NAICS) are listed in Table 2.

**Table 2**

Top Industries of Employment for Cybersecurity Analysts in Virginia, 2023

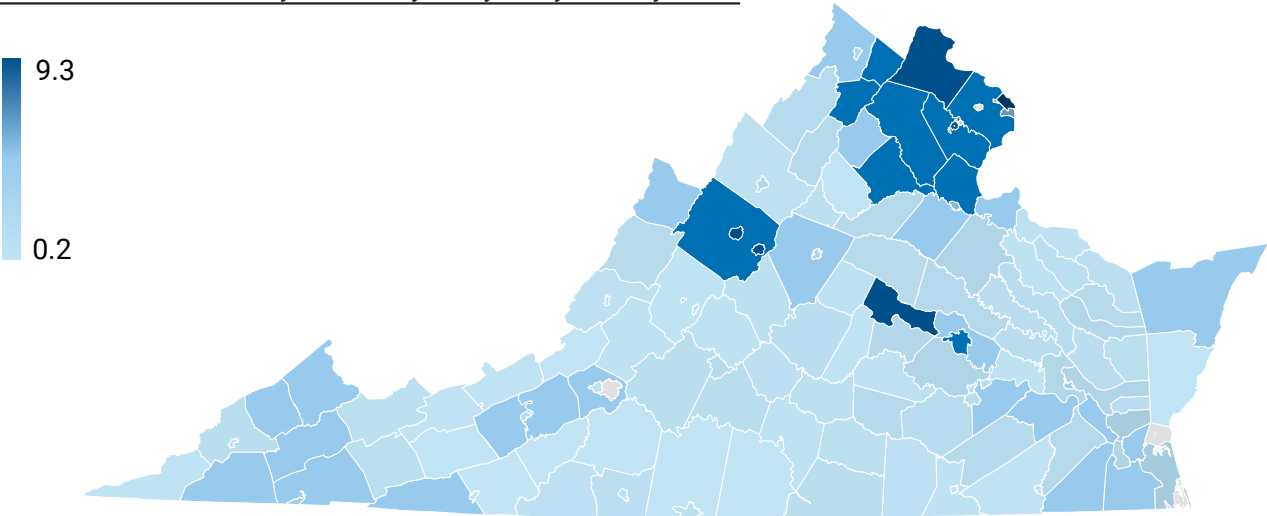
<b>Industry</b>	<b>Cybersecurity Analysts Employed</b>
Computer Systems Design Services	4,039
Custom Computer Programming Services	1,912
Corporate, Subsidiary, and Regional Managing Offices	1,501
Engineering Services	706
Administrative Management and General Management Consulting Services	698
Research and Development in Physical and Life Sciences	640
Data Processing, Hosting, and Related Services	638
Offices of Certified Public Accountants	481
Federal Government, Military	473
Other Computer Related Services	449

Source: Lightcast Staffing Pattern, 2024 Q3 dataset

# Regional Distribution of Cybersecurity Analysts

The map below shows the relative concentration of cybersecurity analyst employment by locality. Localities with darker shading employ a higher percentage of their workforce as cybersecurity analysts compared to localities with lighter shading.

**Figure 2**  
Employment Concentration of Cybersecurity Analysts by Locality, 2024



Source: Lightcast Labor Market Indicators, 2024 Q3 dataset. Employment concentration is equal to the percent of a region's total workforce employed in a given occupation divided by the percent of the nation's workforce employed in that occupation.

# Employment of Cybersecurity Analysts

Although cybersecurity analysts all share similar duties and responsibilities and draw on similar knowledge and skills, they have many different job titles. Table 3 shows the top job titles for cybersecurity analysts in Virginia based on professional social profiles, as surveyed by the workforce analytics firm Lightcast.

**Table 3**  
Top Job Titles of Cybersecurity Analysts in Virginia, 2024

Job Title	Analysts with Title (%)
Cybersecurity Analyst	6.8
Cybersecurity Engineer	4.3
Security Engineer	3.5
Information Systems Security Officer	3.4
Cybersecurity Specialist	2.7
Security Analyst	2.7
Information Security Analyst	2.4
IT Specialist	2.1
Security Consultant	1.9
Cybersecurity Consultant	1.5

Source: Lightcast Profile Analytics, 2024 Q3 dataset

Table 4 summarizes the top employers of cybersecurity analysts based on self-attested job history from professional social profiles analyzed by Lightcast. The industry of the employer based on the North American Industry Classification System (NAICS) is included for reference.

**Table 4**  
Top Employers of Cybersecurity Analysts, 2024

Company	Industry	Number Employed	Occupation Employed (%)
Booz Allen Hamilton	Management Consulting	410	2.0
General Dynamics	Aircraft / Ship building	401	1.9
United States Navy	National Security	352	1.7
United States Department of Homeland Security	National Security	320	1.5
SAIC	Computer Systems Design	298	1.4
Deloitte	Accounting	257	1.2
Amazon	Miscellaneous Retailer	240	1.2
Leidos	Computer Systems Design	228	1.1
ManTech	Educational Support	223	1.1
CACI International	Computer Systems Design	208	1.0

Source: Lightcast Profile Analytics, 2024 Q3 dataset

# Job Progression

When individuals represented in the College and Career Outcomes dataset take a new job as a cybersecurity analyst, they generally transition from other computer and mathematical occupations or from occupations related to management or business and financial operations. When cybersecurity analysts transition to new employers, most remain within the cybersecurity analyst occupation, but transitions in and out of managerial or other analyst positions are also observed. The average duration of employment as a cybersecurity analyst at a single employer in the College and Career Outcomes dataset is 14 months.

**Table 5**  
Previous Occupations of Cybersecurity Analysts, 2008–2022

<b>Occupation of Prior Job</b>	<b>Transitioners (%)</b>
Cybersecurity (Information Security) Analysts	32.7
Computer User Support Specialists	7.5
Network and Computer Systems Administrators	6.5
Management Analysts	3.4
Software Developers, Applications	3.1
Computer Systems Analysts	3.0
Computer and Information Systems Managers	2.9
Computer Occupations, All Other	2.4
(Not Specified)	2.2
Managers, All Other	1.6

Source: VOEE College and Career Outcomes Dataset, 2008–2022

**Table 6**  
Subsequent Occupations of Cybersecurity Analysts, 2008–2022

<b>Occupation of Subsequent Job</b>	<b>Transitioners (%)</b>
Cybersecurity (Information Security) Analysts	41.6
Software Developers, Applications	4.4
Computer and Information Systems Managers	4.3
Management Analysts	4.3
Network and Computer Systems Administrators	3.9
Computer User Support Specialists	3.5
Computer Occupations, All Other	3.0
Managers, All Other	2.4
Computer Systems Analysts	2.3
(Not Specified)	2.2

Source: VOEE College and Career Outcomes Dataset, 2008–2022

# Summary

Virginia employs more cybersecurity analysts than any other state, both absolutely and relative to its population. Northern Virginia and metropolitan Richmond have the highest concentrations of these professionals in the state.

Most cybersecurity analysts have at least a bachelor's degree (90%), with 25% holding a master's degree or higher. Consulting and professional services firms are top employers of these analysts, but demand spans a wide range of industries and firms.

Professionals often transition into cybersecurity analyst roles from similar positions at other firms or from systems administration or other analytical roles. When cybersecurity analysts switch jobs, they commonly remain in the occupation, although some move into software development or managerial positions.

In the future, cybersecurity analysts will continue to play a critical role in the Commonwealth's workforce. Virginia employment in this field is projected to grow at an annualized rate of 1.9% over the next five years, outpacing the overall workforce growth rate of 0.5%.<sup>4</sup>

## Explore the Data

VOEE has launched a dashboard for users to explore the graduate outcomes dataset featured in this report. The Virginia College and Career Outcomes Explorer is an analytical tool that provides insights into the employment and career outcomes of graduates from Virginia's higher education institutions across various fields of study. Aggregating data from over 640,000 alumni from 2008 to 2022, it offers a comprehensive view of the post-graduation employment landscape. For more general information about how Virginia's higher education institutions align with job demands across different geographic regions, explore VOEE's Education and Workforce Alignment dashboard. Both dashboards are available at [www.voee.org/data](http://www.voee.org/data).

<sup>4</sup>Lightcast Labor Market Indicators, 2024 Q4 data run



