Best Practices in Information Security for Employees

Protecting the Information in Your Care

East Carolina University

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Introduction

The best practices in this manual are designed to help you—as an ECU employee—fulfill your responsibilities for protecting the information in your care. For the purposes of this guide, an “employee” is defined as:

Any person employed by the University or who serves as a University volunteer. This includes anyone performing work on behalf of the University, such as staff and faculty members, student workers, contractors, and unpaid volunteers.

Please keep in mind that the practices in this guide provide general guidance to the University community and many not address all aspects of your job or working environment. So, you may need to take additional precautions to ensure the information in your care is safe and secure. For example, if the information you handle falls under a federal regulation (e.g., HIPAA or FERPA), you will be required to take additional precautions over and above those defined by ECU policies, standards and best practices.

The information in this guide is organized so that you can find the information you need easily and quickly. For each of the best practices you will find:

- **Best practice**: a brief statement on your responsibility for this practice
- **Your activities**: a list of actions for you to take that will help you adopt the best practice
- **Guidance**: additional background information on the best practice and its adoption
- **Relevant Standard**: a reference link to the underlying ECU Information Security Standard

For more information on your responsibilities for legal and regulatory compliance contact your supervisor or departmental compliance coordinator for assistance.

If you have general questions about information security requirements and practices, contact the IT Help Desk at 328-9866.

To learn more, review all of the underlying ECU Information Security Standards.

**Applicability**

All University employees and volunteers must adhere to the standards in this manual.

**Baseline requirements**

The standards in this manual represent a minimum, or baseline, set of requirements for information security. More stringent controls may be warranted, depending on the value and sensitivity of an information resource.

**Alternative controls**

In cases where a standard cannot be implemented due to technical limitations, operational disruptions, or excessive costs, alternative controls shall be implemented that provide a similar level of security or risk. The use of alternative controls shall be approved by the appropriate management authority to ensure that any changes in university risk are within acceptable tolerances.
Higher education environment

The standards in this manual are based on the ISO 27002 Information Technology Security Techniques — Code of practice for information security. These standards are designed for the University’s operating environment and consider the unique aspects of our academic, research, service, administrative, legal, regulatory, and contractual activities and requirements.

Roles and responsibilities

These security manuals are organized according to the roles we serve at the University. While these roles are broadly defined, they are nonetheless helpful in defining our responsibilities for protecting the information resources in our care. These roles are defined as:

- **Employee**: A person employed by the University or who serves as a University volunteer. This includes anyone performing work on behalf of the University, such as staff and faculty members, student workers, contractors, and unpaid volunteers.
- **Management**: The administrative director of a University department, such as an academic department chair, administrative department director or college dean. Administrative directors manage departmental operations and direct the use of departmental resources.
- **IT Support**: an employee who provides technical or end user support of a university owned or managed IT system or service to other persons, regardless of their affiliation with the university.

Depending on your job duties or relationship with the University, you may serve multiple roles. For example, if you are a departmental manager, you would serve two roles: individual and management. Therefore, you would be responsible for adhering to the security standards associated with these two roles.

Depending on the type of information you handle, you may need to supplement this guidance with additional practices that are specific to your job role and responsibilities. For example, if you handle information that is protected by a federal regulation (e.g., student educational records or protected health information), you will be required to take additional precautions over and above those described in these best practices.

For more information on your responsibilities for legal and regulatory compliance, contact your supervisor. If you have general questions about information security requirements and practices, contact the IT Help Desk at 252-328-9866.
Definitions

*Information system:* Any combination of hardware, software, data, and electronic communications that collectively serves a particular purpose. Information systems include, but are not limited to: desktop computers, laptops, tablets, smart phones, file servers, web servers, operating systems, networking devices, and software applications.

*Sensitive information:* Any information for which disclosure may adversely affect individual privacy, public safety, or University operations and obligations. Examples of sensitive information include: student educational records, protected health information, data network diagrams, account passwords, and documents containing the locations of hazardous materials.

*University information:* Information in any form (electronic, printed, spoken, etc.) that is collected, created, processed, stored, transmitted, or otherwise entrusted to the University in association with an authorized university activity.
Information Security Practices for All Employees

Employee Practice #1: Your responsibilities for information security

The Best Practice
Stay abreast of policies, standards, laws, and accepted practices that are relevant to what you do as an employee of the University and maintain the skills needed to carry out your information security responsibilities.

Your Activities
- Meet with your supervisor to review your responsibilities for information security and to identify the policies, standards, laws, and accepted practices that are relevant to your job duties.
- Consult with the relevant compliance offices as needed for guidance on specific compliance requirements.
- Work with your supervisor to assess your ability to fulfill your information security responsibilities, and to identify opportunities to develop and maintain the knowledge and skills you need to carry out those responsibilities.

Guidance
What you need to know about protecting University information depends on the nature of the information in your care. For example, if you handle personnel records for your staff, you should be aware of the most basic of security requirements and practices. This may include accessing the personnel records on the administrative computing system and not downloading them to your smartphone where they are vulnerable to loss or disclosure. However, if you manage a large database of highly sensitive healthcare records, you have a much higher duty of care and must adhere to a strict set of privacy, security, and regulatory practices.

Your responsibilities for information security are conveyed through an assortment of official documents. These include your job description, employee performance plan, University policies, confidentiality statements, and software user agreements. External requirements, such as federal and state laws, often impose additional requirements that extend your responsibilities beyond those defined in official University documents.

If you are unsure of the security requirements that are relevant to what you do, contact your supervisor for assistance. You may also find that some of the information you handle is covered by a state or federal law and you may be directed to work with a compliance advisor in your area.

Your professional development is a shared responsibility between you and your supervisor. A key ingredient of this partnership is to maintain an ongoing dialogue with your supervisor about your professional development needs and potential learning resources.
Employee Best Practices for Information Security: Protecting the information in your care

Keep in mind that there are often many resource options for professional development. If you find that your first choice for a particular development resource is not practical for any reason, look around for alternatives. The options are plentiful, and you are likely to find other suitable learning resources.

Relevant Standards
- 1.1 Awareness and education

Employee Practice #2: Incident reporting

The Best Practice
Report security incidents and issues promptly through designated reporting channels.

Your Activities
- Promptly report security incidents and issues as you encounter them.
- If you are unsure if a particular situation should be reported or to whom it should be reported, contact your supervisor for guidance. If additional assistance is needed, contact the IT Help Desk for guidance at 252-328-9866.

Guidance
When you encounter a security incident or a security weakness, it is important that you report it through the appropriate channels and do so promptly. This allows the University to respond rapidly to contain the situation and the limit the impact to everyone involved.

What is considered a reportable incident or issue depends upon the nature of the information you handle and the information systems you use. Although it is not always clear if you should report a particular situation, there are some common scenarios that indicate a reportable incident:
- a lost or stolen computing device that may contain sensitive data
- observed misuse of University information in violation of University policy or compliance requirements
- signs of unauthorized use of an information system, such as unexplained messages or activities originating from your user account, Web page modifications and defacements, and other suspicious activities
- unauthorized physical access to information systems or work areas where sensitive information is stored or handled

Relevant Standards
- 1.2 Reporting security weaknesses and events
Employee Practice #3: Mobile computing security

The Best Practice
Before you access or store sensitive information on your mobile and off-campus devices you must:
- obtain approval prior to storing sensitive information on your devices
- encrypt all sensitive data stored on your devices
- use secure networks to send or receive sensitive information
- employ passwords and/or PINs to limit access to your devices and data
- report a lost device immediately to your supervisor and to the IT Help Desk at 252-328-9866

Your Activities
- If you have a business need to store sensitive information on a local or mobile device (for example: workstations, laptops, tablets, and smartphones), check with your supervisor to determine if there are other suitable alternatives with less risk to the University.
- If there are no suitable alternatives, consult with your supervisor on the approval process for storing sensitive information on local or mobile devices.
- If you obtain approval, implement and maintain all security requirements and practices.

Guidance
Mobility versus security
Mobile devices take many forms and include such items as laptops, smartphones, tablets, digital music players, removable hard drives, and flash drives. Because these devices are highly mobile by design, they are also highly susceptible to loss and theft. If you lose a mobile device that was used to store or access sensitive information, be sure to notify the IT Help Desk at 252-328-9866.

You are accountable for protecting the information you download
As a rule it is important that you do NOT store sensitive information on your smartphone, tablet, or other mobile device without prior approval. You should only consider doing so when there are no other suitable options. Please keep in mind that when you store sensitive information on one of your devices, you are accountable for taking precautions to protect that information.
If you are authorized to store sensitive information on a mobile device, you must encrypt that information. This will prevent others from gaining access to the information, even when the device is lost or stolen.

When using a smartphone or other device in a public or semi-public area (e.g., restaurant or home office), be sure to prevent others from listening to sensitive conversations, viewing screen contents, or perusing email, voice mails and other stored data.

Passwords and PINs
A good practice is to set a password or PIN directly on your mobile and telework devices. However, be careful with the auto login features of your mobile device. It is important that you do NOT configure your device in a way that allows anyone in possession of your device to have free and unimpeded access to your email account or other sensitive information. For example, if you leave your smart phone at a restaurant and another customer takes it home, she/he should be not be able to access your email, work files, or any other university information system without entering a password or some other form of authentication.
The home office
The home office is a popular choice for teleworkers, but presents special challenges in its own right. Family members and friends may be frequent visitors to the telework space and should be managed to prevent unauthorized access to university information. This may involve orienting your workstation so that others cannot view the information on the screen, locking the screen when not in use, and keeping the door closed when engaged in a conversation involving sensitive information.

Relevant Standards
- 1.3 Mobile and telework computing security

Employee Practice #4: Equipment and media disposal

The Best Practice
Remove all sensitive information from your computing equipment and media when selling, giving away or discarding them to prevent others from recovering the information.

Your Activities
- Assume that all data on a device includes sensitive information. It is unlikely that any device you handle contains only information that should be freely available to the public.
- Before selling, giving away or disposing of electronic equipment or media, contact the IT Help Desk at 252-328-9866 for current guidance on equipment and data sanitization.

Guidance
Assume that all data on a device includes sensitive information
When selling, giving away, or disposing of electronic equipment and media it is important that you remove all sensitive information so that it cannot be recovered by others. As a rule it is best to assume that if the device stores data, the data includes sensitive information. Thus, all of it should be removed.
You don't have to look far to find news stories covering online purchases of used computers, copiers, and hard drives, which were later found to contain the personal information of others.

There's data on that?
Many of the electronic devices we use today are marketed as “smart” or “intelligent” and have the capability to store information internally. For example, you may be surprised to learn that our office printers and copiers may keep images of everything you printed or copied over the last few months. Think about that for a moment. Some of those printouts may include information you would rather keep private, such as SSNs, bank account numbers, employee performance reports, etc. Therefore, when disposing or transferring electronic equipment to others, it is important to determine whether the equipment has the capability to store data. If so, be sure to have the data removed.

Removing all of the data
It is important to note that simple file deletions do not remove all data from storage media. Special forensic programs can be used to extract the data and rebuild some or most of the information on your devices. A common solution is to use a data wiping program to sanitize your devices before disposal. For other media, such as CD-ROMs and used hard drives with little commercial value, it may make sense to
have them physically destroyed (e.g., crushed, shredded, or incinerated). For more information on the secure disposal of equipment and storage media, contact the IT Help Desk at 252-328-9866.

Relevant Standards
- 1.4 Equipment and media disposal

Employee Practice #5: Passphrases, passwords, and PINs

The Best Practice
Do not allow others to use or discover your passwords and be sure to use different passwords at work than you do for your personal accounts.

Your Activities
- Select *passphrases* that are easier to remember, and just as secure as, more complex passwords.
- Use different passphrases for your University user accounts than you do for your personal accounts.
- Hide your passwords so that no one else may see them, especially when logging in to a user account.
- Do not share your password with others, even as a favor to a friend.

Guidance
*Passwords and passphrases*
For now, passwords are the most common form of authenticating our identity when accessing a University information resource. Passwords certainly have their problems. They can be difficult to remember. Avoid the urge to write them down on a piece of paper; it creates an additional problem by creating something else you must hide and secure. Fortunately, there are a few tricks that will help you select strong passwords that are easier to remember.

Password strength is based partly on how difficult it is for another person or software program to guess. The most difficult to guess passwords are those that use a variety of character types (e.g., upper case letters, lower case characters, numerals, and special characters) and are relatively long.

Password recommendations have historically focused on complexity and typically assume a password length of 6 to 10 characters. As you may imagine, as computing power has increased over time, our passwords have become easier to guess or crack with software. This is where the passphrase comes into play.

Passphrases are composed of a sequence of words and are often 12 to 15 characters or more in length. Passphrases derive their strength from their sheer length and a modicum of complexity, which will easily surpass the typical complex password. More importantly, passphrases are composed of meaningful words and are far easier for humans to remember. Chances are that you won’t feel the need to write them down.
Separate your work and personal accounts and passwords
It’s also good to keep your work and personal passwords separate. Do no use the same password for all. Doing so increases the likelihood that the password will be compromised. Then it’s a short path for someone to gain access to your other accounts.

Relevant Standards

- 1.5 Passphrase selection and use
Employee Best Practices for Information Security: Protecting the information in your care

Reference – ECU Information Security Standards for Employees

1.1 Awareness and education

**Purpose**
To ensure that employees with access to university information resources maintain an awareness of applicable security requirements, understand their security responsibilities, and maintain the skills and knowledge necessary for fulfilling their responsibilities.

**Standards**
1.1.1 All employees (i.e., faculty, staff, student workers, vendors, contractors, and others conducting the business of the university) shall:
   a) stay abreast of information security and privacy policies, standards, and practices that are relevant to their job roles and responsibilities
   b) maintain a thorough understanding of their responsibilities for protecting the information resources in their care
   c) maintain the knowledge and skills required to carry out their information security responsibilities

**ISO 27002 References**
- 8.1.3 Terms and conditions of employment
- 8.2.2 Information security awareness, education, and training

1.2 Reporting security weaknesses and events

**Purpose**
To ensure that security weaknesses and events are quickly reported through appropriate channels to minimize the window of exposure and potential harm to the University and its stakeholders.

**Standards**
1.2.1 Employees shall promptly report potential security weaknesses and incidents through formal reporting channels in accordance with applicable incident reporting procedures.

**ISO 27002 References**
- 13.1.1 Reporting information security events
- 13.1.2 Reporting security weaknesses
1.3 Mobile and telework computing security

**Purpose**
To ensure that individuals using mobile or telework computing technologies protect university information resources from unauthorized access and use.

**Standards**
1.3.1 No sensitive information shall be stored on a mobile or telework computing device without prior authorization by the appropriate data steward or delegated management authority.

1.3.2 Mobile and telework computing devices that store sensitive information or provide access to sensitive information on other systems shall have adequate controls in place to protect against unauthorized access and use.

a) Access to sensitive information shall be password controlled in accordance with university passwords standards.

b) All sensitive information stored on a mobile or telework computing device shall be encrypted. When sensitive information is no longer needed for business purposes it shall be promptly removed from the mobile/telework computing device.

c) Sensitive information sent or received by a mobile or telework computing device shall be encrypted when transmitted over non-university networks.

d) Mobile and telework computing devices shall be properly maintained with regard to operating system, application, and security updates, and protected by anti-malware software and security software where applicable.

1.3.1 Mobile and telework computing devices that access or store sensitive information shall be physically protected from misuse, loss, and theft.

a) The use of a mobile or telework computing device in a public or semi-public area (e.g., restaurant or home office) shall be conducted in a manner that prevents unauthorized access to sensitive conversations, voice mails, screen content, remote applications, and stored data.

b) When a mobile or telework computing device containing sensitive information is lost or stolen, the event shall be promptly reported to the immediate supervisor of the person responsible for the device and to the ITCS Help Desk.

**ISO 27002 References**
- 11.7.1 Mobile computing and communications
- 11.7.2 Teleworking

1.4 Equipment and media disposal

**Purpose**
To ensure that electronic equipment and removable media that is to be repurposed, transferred, discarded, or destroyed is done so in a manner that prevents the unauthorized disclosure of sensitive information.
Standards

1.4.1 All sensitive information on electronic equipment and removable media shall be permanently removed or destroyed prior to:
   a) redeployment within the University
   b) transfer of ownership to anyone external to the University
   c) disposal by any means

1.4.2 Unless confirmed otherwise, it shall be assumed that any electronic equipment or removable media that is to be redeployed, transferred, or discarded contains sensitive information and shall be handled accordingly.

ISO 27002 References

• 9.2.6 Secure disposal or re-use of equipment
• 10.7.1 Management of removable media

1.5 Passphrase selection and use

Purpose
To ensure that employees (faculty, staff, contractors, vendors, etc.) follow good practices for protecting their passphrases from disclosure and misuse.

Standards

1.5.1 Employees shall keep their passphrases confidential and not share them with coworkers or others.
1.5.2 Employees shall not use the same passphrases for work and personal user accounts.

ISO 27002 References

• 11.3.1 Passphrase Standard
Resources

The following online resources provide additional information on the secure handling of information and information systems.

Information Technology & Computing Services (ITCS): [www.ecu.edu/itcs](http://www.ecu.edu/itcs)

ECU IT Security: [www.ecu.edu/itcs/security.cfm](http://www.ecu.edu/itcs/security.cfm)