

IT Shared Services Standard: End-User Computing Devices

For South Carolina State Agencies
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10.25.17	Department of Administration	Standards	1.0	Recommended by the Executive Oversight Group. Standard finalized.
08.28.18	Department of Administration	Standards	2.0	Updating the changes to technology.

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End-User Computing Devices

End-user computing devices are the main tool used by employees to access, create and modify important state-owned data. The tool used is directly proportional to the employee's job duties and the environment that employee typically operates in when needing to access/modify data. For this reason, end-user computing devices used around the state are many and varied.

This standard was designed by researching the many different types of devices used throughout the state and the many ways agencies tend to group them. This information was analyzed for common definitions across the participating agencies.

The following groups have been identified as necessary for efficient end-user data processing and are included in this standard.

- a. Desktop (Standard)
- b. Desktop (Enhanced)
- c. Laptop (Standard)
- d. Laptop (Enhanced)
- e. Laptop (Rugged-Standard)
- f. Tablet
- g. Smartphone

Agency Exception Requests

Agencies that need to deviate from the standard, and/or technologies specified in this standard, may request an exception from the Technology Work Group (TWG). In such a case, the agency must submit a written statement of their business needs to their Agency Relationship Manager in the South Carolina Department of Administration Program Management Office. The exception request must demonstrate current quantitative performance baselines, or any regulatory compliance required in their business solution. All exceptions must be approved prior to the agency pursuing procurements, deployments, or development activities related to technologies that are not compliant with this standard.

Rationale

Each agency within the state maintains its own methodology in deciding which employee receives end-user computing devices as a necessary tool to access and create state owned information. The decision is based on the employee's job requirements (office only, road travel, site visits, etc.). Desktops are typically assigned to most users unless it is specified that an end user will need to work in remote locations or is mobile during their duties. It is important to limit the provisioning of mobile devices to only where necessary due to an increased operational and security burden. Device distribution is strictly based on business needs and user roles within the agency.

A laptop is classified as portable workstation that has all the same abilities as a workstation but is small enough for easy mobility. Portable computers run off AC power or batteries, such as NiMH, NiCad or Li-ion packs, for several hours.

Laptops are typically assigned to employees who go into the field daily, supervisors and managers who travel for meetings and technology support personnel.

Laptops are often purchased with peripherals such as docking stations, external optical drives, monitors and external storage devices.

Tablets can be a great choice for users with a need for extreme mobility, portability and/or convenience. These devices may be assigned as an additional computing resource for users who need a device smaller than a laptop, but larger than a cellphone. They have proven to be an ideal medium when working with the public for collecting signatures electronically. Many users attach a keyboard to their tablet to use it when traveling. This allows them to address emails and complete light administrative work while on the go.

Current State

In a survey of 78 state agencies for the December 2017, roughly 60,750 end-user computing devices were reported deployed in the state. Of these, 48.6 percent of were desktops while 27.6 percent were laptops. Smart Phones comprised 16.7 percent while tables account for 5.3 percent of the total items reported.

Purchasing

Agencies wishing to purchase End User Computing Devices must consult the state procurement contracts where they will find vendor portals which provide approved models which adhere to the published standard.

Vendor Services

Managed Services Needed

Asset Management Services¹ are needed where the vendor provides the resources (i.e., inventory management solution, processes) and performs the tasks needed to track the devices throughout the full lifecycle until decommission and disposal.

Break Fix Services¹ are needed where the vendor provides on-site and remote personnel to support users through the lifecycle of the device after deployment and before decommissioning. Tasks for the vendor's on-site and remote personnel may include the following but are not limited.

- Determining if an issue is hardware or software based.
- Troubleshooting issues with the operating system.
- Troubleshooting issues with a list of core applications such as Microsoft Office.

¹ Intended for the groups Desktop (Standard), Desktop (Enhanced), Laptop (Standard), Laptop (Enhanced)

Data Sanitization Services¹ are needed where the vendor provides on-site personnel to perform secure data sanitization of storage devices in alignment with state and agency requirements, providing Certificate of Sanitization with used standard.

Decommissioning Services² are needed where the vendor provides on-site personnel to unplug all connected devices for the hardware and package the hardware for either storage or disposal.

Deployment Services² are needed where the vendor provides on-site personnel to complete initial setup of the end-user device and perform basic configuration to ensure the agency's technical support can complete the remaining tasks remotely. Tasks for the vendor's on-site personnel may include the following but are not limited.

- Plugging in the necessary cables to power on the device and see output on all desired displays.
- Reconfigure settings in the firmware based on the specific needs of users above the default settings established before shipping.
- Connecting and configuring all peripherals such as locally attached printers, mice, keyboard and scanners.
- Joining the end user device to Active Directory and/or other central management solutions.

End User Training Services² are needed to provide users training for how to operate the end-user computing device after setup of the device is complete.

Enterprise Mobile Device Provisioning Services³ are needed to ensure a consistent configuration for mobile devices such as tablets and smart phones.

Hardware Disposal Services² are needed to provide on-site personnel to dispose of end-user computing devices according to state policy, procedures, and in compliance with any state term contracts.

Hardware Maintenance Services² are needed where the vendor provides resources needed to ensure proper functioning of hardware for a defined length⁴ of the lifecycle. Resources are to include but not limited to the following.

- Next Business Day On-site Support⁵
- Remote Support

² Intended for the groups Desktop (Standard), Desktop (Enhanced), Laptop (Standard), Laptop (Enhanced)

³ Intended for the groups Tablet (Standard), Smart Phone (Standard)

⁴ See the Maintenance section of the standard for determining the defined length

⁵ Based on cost analysis for Hardware Maintenance Services with response times sooner than 24 hours, spare devices should be purchased to remain in inventory for exchange rather than purchasing these services

⁶ Intended for the groups Desktop (Standard), Desktop (Enhanced), Laptop (Standard), Laptop (Enhanced) ⁷ *The State of End User Computing: A Report on Primary Devices and the Modern Worker – Accenture, 2016.*

- Self-Repair/Part Depot
- Self-Service Portal

Image Management Services⁶ are needed to ensure a consistent image (i.e., set of software and configurations) is loaded on each end-user device by the manufacturer prior to shipping the device onsite. The manufacturer works with the agency to develop an image that will work with the service and meets the agency's needs.

Secure Drive Destruction Services⁶ are needed where the vendor provides on-site personnel to destroy hard drives when disposing of end-user computing devices according to state policy, and procedures, and in compliance with any state term contracts.

Maintenance:

End-user computing devices should be deployed and maintained to a level appropriate for the system, based on the data stored on or accessed through them. Some computers and devices must meet regulations or contractual agreements related to their configuration and management. An effective maintenance cycle is essential to ensuring devices are available for their specified use. Each agency that provides end-user computing devices to its employees is required to have a formal maintenance plan that conforms to the DIST-200, State Information Security and Privacy Standards and all other regulatory bodies with jurisdiction.

Further, the maintenance plan should include a summary report on the following:

1. Resources needed to ensure the maintenance cycle could be administered as designed.
2. Estimated time (per week/month/year) needed to perform maintenance.
3. Training plans to develop the necessary skills for support personnel.

All end-user computing devices must include a maintenance contract⁶ that covers a minimum of 70 percent of the expected life of a device.

Should an agency need assistance designing a maintenance plan tailored to their specific needs, they can request this assistance from the Security and Architecture Review Board (SARB).

Desktop and laptop category devices must support the removal and replacement of hard drives while in the field and without damaging the integrity of the device. Laptop category devices must support the replacement of batteries while in the field and without damaging the integrity of the device. Based on a cost analysis performed, batteries should be purchased as needed versus purchasing an extended battery warranty at the acquisition of the device.

⁶ See "Hardware Maintenance Services" under Managed Services Needed in the Purchasing section

Desktop (Standard)

A desktop workstation is classified as a computer designed for a user involved in business or professional work. It includes one or more monitors, a faster processor than a personal computer and is network configurable. Workstations normally share network resources with one or more large client computers or network servers.

The standard life cycle is five years from the date of acceptance.

Available Form Factors:

Micro Form Factor desktops are designed for users that need to sacrifice performance and availability of ports for overall size. The form factor is intended for workspaces with extremely limited tabletop space.

- Width: 1-2"
- Depth: 6-8"
- Height: 6-8"
- Weight: 2-4 lbs.
- Configurable to meet Energy Star 6.1

Small Form Factor desktops are designed for users that need to sacrifice a small amount of performance and availability of ports for overall size. The form factor is intended for allowing additional tabletop space or foot room depending on the placement of the device.

- Width: 3-4"
- Depth: 10-12"
- Height: 10-12"
- Weight: 10-12 lbs.
- Configurable to meet Energy Star 6.1

Mid-Range Form Factor desktops are designed for the general user that does not need mobility. The form factor has a balance of screen size, overall size and weight.

- Width: 5-7"
- Depth: 10-12"
- Height: 12-16"
- Weight: 15-20 lbs.
- Configurable to meet Energy Star 6.1

Emerging

Not Defined

Strategic

1. Form Factor: Micro Form Factor / Small Form Factor / Standard Form Factor
2. Processor: 3.7 GHz (3.2 GHz - Micro Form Factor) Burst Speed / 4 Cores / 8MB Cache (Intel or AMD)

3. Operating System⁷: Capable of supporting Windows 10 x64⁸
4. Memory: 8GB
5. Hard Drive: 256GB Solid State Drive - SATA
6. Graphics Card: Integrated with minimum 1920x1080 resolution
7. Ports: Minimum of two USB ports with at least one USB 3.0, headphone jack, microphone Jack, RJ-45 network port, capable of supporting display port (optional DVI and VGA integrated or through dongles)
8. Accessories: Wired mouse and keyboard, optional optical drive, optional wireless mouse and keyboard, optional small factor all-in-one stand, optional wired keyboard with smartcard reader
9. Integrated NIC: 1 Gb Ethernet
10. Security: FIPS 140-2 certified trusted platform module (TPM) version 1.2

Transitional/Contained

1. Processor: 2.0-3.0 GHz or above 3.5 GHz / 2 Cores or above 4 Cores (Intel or AMD) ⁹
2. System: Not capable of supporting Windows 10 x64 but can support Windows 7 or Windows 10 x32
3. Memory: 2-6GB

Obsolescent/Rejected

1. Processor: Below 2 GHz or less than 2 Cores
2. Operating System: Capable of supporting Windows Vista or earlier only
3. Memory: Less than 2GB
4. Hard Drive: Less than 150GB
5. Age: Any desktop 5 years from the date of acceptance

Desktop (Enhanced)

An enhanced desktop workstation is classified as a computer designed for high end users such as computer programmers, GIS developers, CADD designers or any other use that requires an unusually large amount of processor power or a significant increase of random access memory (RAM). These devices may also need advanced peripherals such as larger than normal monitors, larger hard drives or more ports. These devices also need to be network compatible.

The standard life cycle is five years from the date of acceptance.

Available Form Factors:

⁷ Windows 7 Operating System End of Life support is January 14, 2020.

⁸ The State of South Carolina has a considerable investment in Microsoft products. Operating systems and productivity tools other than Microsoft require an exception from the Technology Working Group.

⁹ Processor support is narrowed down to the top two vendors in the industry (Intel & AMD)

Micro Form Factor

Micro form factor desktops are designed for users that need to sacrifice performance and availability of ports for overall size. The form factor is intended for workspaces with extremely limited tabletop space.

- Width: 1-2"
- Depth: 6-8"
- Height: 6-8"
- Weight: 2-4 lbs.
- Configurable to meet Energy Star 6.1

Small Form Factor desktops are designed for users that need to sacrifice a small amount of performance and availability of ports for overall size. The form factor is intended for allowing additional tabletop space or foot room depending on the placement of the device.

- Width: 3-4"
- Depth: 10-12"
- Height: 10-12"
- Weight: 10-12 lbs.
- Configurable to meet Energy Star 6.1

Mid-Range Form Factor desktops are designed for the high-end user that does not need mobility. The form factor has a balance of overall size and weight.

- Width: 5-7"
- Depth: 10-12"
- Height: 12-16"
- Weight: 15-20 lbs.
- Configurable to meet Energy Star 6.1

Emerging

Not Defined

Strategic

1. Form Factor: Micro / Small / Mid-Range
2. Processor: 4.3 GHz (3.7 GHz - Micro Form Factor) Burst Speed / 6 Cores / 9MB Cache (Intel or AMD)
3. Operating System¹⁰: Capable of supporting Windows 10 x64¹¹
4. Memory: 16GB
5. Hard Drive: 256GB Solid State Drive - NVMe (Optional 500GB SSD - SATA)

¹⁰ Windows 7 Operating System End of Life support is January 14, 2020.

¹¹ The State of South Carolina has a considerable investment in Microsoft products. Operating systems and productivity tools other than Microsoft require an exception from the Technology Working Group.

6. Graphics Card: Integrated with minimum 1920x1080 resolution (optional external graphics card with up to 2GB Ram).
7. Ports: Minimum of two USB ports with at least one USB 3.0, headphone jack, microphone jack, RJ-45 network port, capable of supporting display port (optional DVI and VGA integrated or through dongles)
8. Accessories: Wired mouse and keyboard, optional optical drive, optional wireless mouse and keyboard, optional wired keyboard with smartcard reader
9. Integrated NIC: 1 Gb Ethernet
10. Security: FIPS 140-2 certified trusted platform module (TPM) version 1.2

Transitional/Contained

1. Processor: 3.0 - 4.2 GHZ or greater than 4.3 GHz / 4 cores or more (Intel or AMD) ⁸
2. Memory: 8-12GB
3. Hard Drive: 120GB-256GB SSD or Greater than 512 GB SSD/ 120GB-500GB HDD
4. Operating System: Not capable of supporting Windows 10 x64 but can support Windows 7 or Windows 10 x32

Obsolescent/Rejected

1. Processor: Below 3.0 GHz / below 4 cores
2. Operating System: Capable of supporting Windows Vista or earlier only
3. Memory: Less than 8GB
4. Hard Drive: Less than 120GB
5. Age: Any desktop 5 years from the date of acceptance

Laptop (Standard)

A laptop is classified as a mobile computing device designed for users who would normally be assigned a desktop workstation, but due to the nature of their work, are mobile within the work environment. This type of worker would lose significant productivity should they be required to do all computing services at a specified office or workspace. What makes this classification unique from the desktop is the mobility needed for the targeted end-user.

Laptops are often purchased with peripherals such as docking stations, external optical drives, monitors and external storage devices.

The standard life cycle is five years from the date of acceptance.

All laptop workstations should comply with the current versions of the following industry standards:

Available Form Factors:

2-in-1 Convertible laptops are designed for users requiring extreme mobility. The user can hold the device while moving and perform basic input with one hand. With 2-in-1 convertible laptops, the keyboard can fold behind the screen allowing the user to hold the small and light form factor with one hand and use an input device such as a stylus or finger. While primarily targeting content consumption, users can easily take notes and perform basic content creation while in the field. Due to the mobile nature of the 2-in-1 devices, the cost of supporting, maintaining and securing a 2-in-1 device is greater than the alternative laptop form factors.

- Diagonal: 12.5” – 13.5”
- Weight: 2.5-3.5 lbs.
- Configurable to meet Energy Star 6.1
- Optional Stylus

Small Form Factor laptops are designed for users that need to sacrifice screen size for less weight.

- Diagonal: 12.5” – 13.5”
- Weight: 2.5-3.5 lbs.
- Configurable to meet Energy Star 6.1

Mid-Range Form Factor laptops are designed for the general user that needs mobility. The form factor has a balance of screen size, overall size and weight.

- Diagonal: 14” – 14.5”
- Weight: 3-4 lbs.
- Configurable to meet Energy Star 6.1

Mid-Range Form Factor with Numeric Keyboard laptops are designed for the general user that needs mobility but also requires the use of a numeric keyboard as part of their job duties.

- Diagonal: 15.0” - 15.6”
- Weight: 4-5 lbs.
- Configurable to meet Energy Star 6.1

Emerging

- Not Defined

Strategic

The following Standards are considered the specification for the given technology:

1. Form Factor: 2-in-1 Convertible / Small / Mid-Range / Mid-Range with Numeric Keyboard
2. Processor: 3.4 GHz Burst Speed/ 4 Cores / 6MB Cache (Intel or AMD) ¹²
3. Firmware: UEFI

¹² Processor support is narrowed down to the top two vendors in the industry (Intel & AMD)

4. Operating System¹³: Capable of supporting Windows 10 x64¹⁴
5. Memory: 8GB
6. Hard Drive: 256GB Solid State Drive - SATA
7. Graphics Card: Integrated with minimum 1920x1080 resolution
8. Integrated Monitor: Provides Anti-Glare capability
9. Ports: Minimum 2 USB ports with at least one USB 3.0, headphone jack, microphone jack
10. Battery Life: Capable of eight hours or more
11. Accessories: Wired mouse and keyboard, optional docking station, optional wireless mouse and keyboard, VGA capable, HDMI capable, optional laptop bag, optional fingerprint reader, optional integrated smartcard reader (Except 2-in-1 Convertible), optional backlight for integrated keyboard, optional integrated camera
12. Wireless: Wi-Fi (802.11 g/n/ac) dual band, Bluetooth 4.1 or later
13. Security: FIPS 140-2 certified trusted platform module (TPM) version 1.2

Transitional/Contained

1. Processor: 2.0-2.5 GHz or greater than 3.0 GHz
2. Firmware: BIOS
3. Operating System: Not capable of supporting Windows 10 x64 but can support Windows 7 or Windows 10 x32
4. Memory: 2-6GB
5. Hard Drive: Less than or greater than 256GB solid state drive (SSD)
6. Battery: Capable of 6-8 hours

Obsolescent/Rejected

1. Processor: Less than 2.0 GHz and/or less than 2 Cores
2. Operating System: Capable of supporting Windows Vista or earlier only
3. Memory: Less than 2GB
4. Wireless: Does not support Wi-Fi (802.11 g/n)
5. Battery: Less than 6 hours
6. Age: Any desktop five years from the date of acceptance

Laptop (Enhanced)

An enhanced laptop is classified as a laptop designed for high end users such as computer programmers, GIS developers, auto-cad designers or any other use that requires an unusually large amount of processor power or a significant increase of random access memory (RAM). What makes this classification unique from the enhanced desktop is the mobility needed for the targeted end-user.

¹³ Windows 7 Operating System End of Life support is January 14, 2020.

¹⁴ The State of South Carolina has a considerable investment in Microsoft products. Operating systems and productivity tools other than Microsoft require an exception from the Technology Working Group.

Enhanced laptops are often purchased with peripherals such as docking stations, external optical drives, monitors and external storage devices.

The standard life cycle is five years from the date of acceptance.

Available Form Factors:

2-in-1 Convertible

2-in-1 convertible laptops are designed for users requiring extreme mobility. The user can hold the device while moving and perform basic input with one hand. With 2-in-1 convertible laptops, the keyboard can fold behind the screen allowing the user to hold the small and light form factor with one hand and use an input device such as a stylus or finger. While primarily targeting content consumption, users can easily take notes and perform basic content creation while in the field. Due to the mobile nature of the 2-in-1 devices, the cost of supporting, maintaining and securing a 2-in-1 device is greater than the alternative laptop form factors.

- Diagonal: 12.5" – 13.5"
- Weight: 2.5-3.5 lbs.
- Configurable to meet Energy Star 6.1
- Optional Stylus

Small Form Factor

Small Form Factor laptops are designed for users that need to sacrifice screen size for less weight.

- Diagonal: 12"
- Weight: 2.5-3.5 lbs.
- Configurable to meet Energy Star 6.1

Mid-Range Form Factor

Mid-range Form Factor laptops are designed for the high-end user that requires mobility. The form factor has a balance of screen size, overall size and weight.

- Diagonal: 14"
- Weight: 3-4 lbs.
- Configurable to meet Energy Star 6.1

Mid-Range Form Factor with Numeric Keyboard

Mid-range Form Factor with numeric keyboard laptops are designed for the high-end user that requires mobility but also requires the use of a numeric keyboard as part of their job duties.

- Diagonal: 15"
- Weight: 4-5 lbs.
- Configurable to meet Energy Star 6.1

Emerging

- Not Defined

Strategic

1. Form Factor: 2-IN-1/ Mid-Range/ Mid-Range with Numeric Keyboard
2. Processor: 4.2 GHz Burst Speed/ 4 Cores / 8MB Cache (Intel or AMD)
3. Firmware: UEFI
4. Operating System¹⁵: Capable of supporting Windows 10 x64¹⁶
5. Memory: 16GB
6. Hard Drive: 256GB Solid State Drive - NVMe (Optional 512GB SSD - NVMe)
7. Graphics Card: Integrated with minimum 1920x1080 resolution
8. Integrated Monitor: Provides Anti-Glare capability
9. Battery: Capable of 8 hours or more
10. Ports: USB 3.0, HDMI, Audio
11. Accessories: Wired mouse and keyboard, optional docking station, optional wireless mouse and keyboard, VGA capable, HDMI capable, optional laptop bag, optional fingerprint reader, optional integrated smartcard reader, optional backlight for integrated keyboard, optional integrated camera
12. Wireless: Wi-Fi (802.11 g/n/ac), Bluetooth 4.1 and later
13. Security: FIPS 140-2 Certified Trusted Platform Module (TPM) version 1.2

Transitional/Contained

1. Processor: 2.0-2.7 GHz Base Frequency / 2-4 cores (Intel or AMD)
2. Operating System: Not capable of supporting Windows 10 x64 but can support Windows 7 or Windows 10 x32
3. Memory: 8-12GB
4. Hard Drive: Not 256GB or 512GB Solid State Drive (SSD) but 128GB or Greater than 512GB
5. Graphics Card: Integrated with minimum 1920x1080 resolution or any external graphics card with greater than to 2GB Ram
6. Ports: USB (3), HDMI, Audio
7. Battery: Capable of 6-8 hours
8. Wireless: Wi-Fi (802.11 g/n)
9. Cables: Display

Obsolescent/Rejected

1. Processor: Less than 2.0 GHz Base Frequency / less than 2 Cores (Intel or AMD)
2. Operating System: Capable of supporting Windows Vista or earlier only
3. Hard Drive: Less than 120GB

¹⁵ Windows 7 Operating System End of Life support is January 14, 2020.

¹⁶ The State of South Carolina has a considerable investment in Microsoft products. Operating systems and productivity tools other than Microsoft require an exception from the Technology Working Group.

4. Memory: Less than 8GB
5. Battery Life: Capable of less than 6 hours
6. Age: Any desktop five years from the date of acceptance

Laptop (Rugged-Standard)

Semi-Ruggedized

Semi-Ruggedized Form Factor Laptops are designed for the high-end users expected to operate in harsh mobile conditions. The harsh operating conditions may include, but are not limited to, vertical drops, water and excessive temperature. The additional device durability leads to an increase in weight and overall size. However, the associated increases are not as significant as the ruggedized form factor. Users of the semi-ruggedized form factor are normally at higher risk of dropping the device, spilling water on the device, or exposing the device to extreme temperatures.

- Width: 12-14"
- Depth: 8-10"
- Height: 1.5-2"
- Weight: 5-7 lbs.
- Configurable to meet Energy Star 6.0
- MIL-STD-810G Testing: Transit drop (36"), blowing dust, vibration, functional shock, humidity, altitude, thermal extremes
- Operating Thermal Range: 20-140° F (-29-60° C)
- Non-Operating Range: -60-160° F (-51-71° C)
- IEC 60529 ingress protection: IP52 (dust-protected, protected against dripping water when tilted up to 15°)

Ruggedized

Ruggedized Form Factor Laptops are designed for high-end users expected to operate in extreme mobile conditions. The extreme operating conditions may include, but are not limited to, vertical drops, water and extreme temperature. The ruggedized device durability leads to an increase in weight and overall size. Users of the ruggedized form factor are normally at the highest risk of dropping the device, spilling water on the device or exposing the device to extreme temperatures, pressurized water and sand.

- Width: 5-7"
- Depth: 10-12"
- Height: 12-16"
- Weight: 7-9 lbs.
- Configurable to meet Energy Star 6.0
- MIL-STD-810G Testing: Transit drop (72", 60", 48"; single unit; 78 drops), operating drop (36"), blowing rain, blowing dust, blowing sand, vibration, functional shock, humidity, salt fog (optional with rubberized keyboard), altitude, explosive atmosphere, solar radiation, thermal extremes, thermal shock, freeze/thaw, tactical standby to operational
- MIL-STD-461F certified – Electromagnetic Interference

- Operating Thermal Range: 20-145 ° F (-29-63 ° C)
- Non-Operating Range: -60-160 ° F (-51-71 ° C)
- IEC 60529 ingress protection: IP65 (dust-protected, protected against pressurized water)
- ANSI/ISA. 12.12.01 certification capable (Class I, Division 2, Groups A, B, C, D)

Emerging

- Not Defined

Strategic

1. Form Factor: Semi-Ruggedized/Ruggedized
2. Processor: 2.3-2.4 GHZ / 2 Cores / 3MB Cache
3. Firmware: UEFI
4. Operating System: Capable of supporting Windows 10 x64 (Optional Windows 7 x64 Support)
5. Memory: 8GB (Optional 16 GB)
6. Hard Drive: 256GB Solid State Drive (Optional 512GB SSD)
7. Graphics Card: Integrated with minimum 1920x1080 resolution (optional external graphics card with up to 2GB Ram)
8. Integrated Monitor: Provides Anti-Glare capability
9. Battery: Capable of 8 hours or more
10. Ports: USB 3.0, HDMI, Audio
11. Accessories: Wired mouse and keyboard, optional docking station, optional wireless mouse and keyboard, VGA capable, HDMI capable, optional laptop bag, optional fingerprint reader, optional integrated smartcard reader, optional backlight for integrated keyboard, optional integrated camera, optional GPS, optional touchscreen, optional Optical Drive, optional Battery Warranty
12. Wireless: Wi-Fi (802.11 g/n/ac), Bluetooth 4.1 and later
13. Security: FIPS 140-2 Certified Trusted Platform Module (TPM) version 1.2

Transitional/Contained

1. Processor: 2.0-2.2 GHZ / 2-4 cores (Intel or AMD)
2. Operating System: Not capable of supporting Windows 10 x64 but can support Windows 7 or Windows 10 x32
3. Memory: Less than 8GB
4. Hard Drive: Not 256GB or 512GB Solid State Drive (SSD) but 128GB or Greater than 512GB
5. Graphics Card: Integrated with minimum 1920x1080 resolution or any external graphics card with greater than to 2GB Ram
6. Ports: USB (3), HDMI, Audio
7. Battery: Capable of 6-8 hours
8. Wireless: Wi-Fi (802.11 g/n)
9. Cables: Display

Obsolescent/Rejected

1. Processor: Less than 2.0 GHz / less than 2 Cores (Intel or AMD)
2. Operating System: Capable of supporting Windows Vista or earlier only
3. Hard Drive: Less than 120GB
4. Memory: Less than 8GB
5. Battery Life: Capable of less than 6 hours
6. Age: Any desktop five years from the date of acceptance

Tablet (Standard)

A tablet is a great tool for a mobile employee with a light focus on computing needs where a laptop is too big or awkward to meet the needs. This type of user typically spends much of their computing time on content consumption (reading emails, looking up reports/policies/procedures on line) but also has a need to produce a marginal amount content (entering data into a database or corporate web portal). A general rule of thumb when determining the assignment of a tablet should be 50 percent content consumption – 50 percent content creation. The tablet is differentiated from a smartphone based on the volume of data that needs to be displayed on a screen for the end-user to read during a typical day.

The standard life cycle is three years from the date of acceptance.

Available Form Factors

Mini Form Factor

Mini Form Factor Tablets are designed for the general user that needs extreme mobility with limited requirement for content creation as part of their job duties in addition to requiring smaller overall size for easier storage. The form factor is ideal for reviewing email, calendar items and tasks.

- Width: 5-6"
- Depth: 0.2-0.25"
- Height: 8"
- Weight: 0.5-0.7 lbs.
- Configurable to meet Energy Star 6.1

Mid-Range Form Factor

Mid-Range Form Factor Tablets are designed for the general user that needs extreme mobility with limited need for content creation as part of their job duties. The form factor is ideal for reviewing content in websites and documents in addition to reviewing email, calendar items and tasks.

- Width: 6-7"
- Depth: 0.2-0.25"
- Height: 9-10"
- Weight: 1-1.25 lbs.
- Configurable to meet Energy Star 6.1

Emerging

This section is TBD.

Strategic

1. Form Factor: Mini / Mid-Range
2. Processor: 1.4 GHz (2.3 GHz Mid-Ranged) / 2 cores
3. Operating System: Capable of supporting the latest version of iOS¹⁷
4. Memory: 2GB
5. Hard Drive: 64 GB
6. Resolution: Integrated with minimum 1920x1080 resolution
7. Ports: 3.5 mm Headphone Jack
8. Battery life: Capable of 8 hours or more
9. Touch: Multi-touch Supported
10. Wireless: Wi-Fi (802.11 g/n/ac) Dual Band and Bluetooth
11. Cellular Data: Optional, based on connectivity need

Transitional/Contained

1. Processor: 1.2-1.6 GHz or Greater than 2.0 GHz / 1 core or greater than 2 cores
2. Operating System: Supports an OS supported by both the OS manufacturer and the hardware manufacturer
3. Memory: 1GB
4. Hard Drive: 16GB
5. Resolution: Integrated with minimum 1024x1080 resolution
6. Battery Life: 6-8 hours
7. Touch: Multi-Touch not supported
8. Wireless: Wi-Fi (802.11 g/n) without Dual Band and/or Bluetooth

Obsolescent/Rejected

1. Processor: Less than 1.2 GHz / 1 Core
2. Operating System: Does not support an OS supported by both the OS Manufacturer and the Hardware Manufacturer
3. Memory: Less than 1GB
4. Hard Drive: Less than 16GB
5. Resolution: Less than 1024 x 600
6. Ports: N/A
7. Battery Life: Less than 6 hours
8. Age: Any device three years from the date of acceptance

¹⁷ Support for Android tablets is still being investigated due to management and security concerns.

Smart Phones (Standard)

A smartphone is a great tool for a mobile employee with the need for mobile communications (e.g., voice, text) and a light focus on computing needs where a tablet is too big or awkward to meet the needs. This type of user typically spends much of their compute time on content consumption (reading emails, looking up reports/policies/procedures online) but also has a need to produce an extremely small amount of content (e.g., replying to emails, creating calendar items, approving meeting requests). A general rule of thumb when determining the assignment of a smartphone should be 90 percent content consumption and 10 percent content creation. The smartphone is differentiated from a tablet based on the need for a communications device and on the volume of data that needs to be displayed on a screen for the end user to read during a typical day.

The standard life cycle is two years from the date of acceptance.

Acceptable Use Case Definition

Mid-Range Form Factor

Mid-Range Form Factor smartphones are designed for the general user that requires extreme mobility and primarily accesses the device for content consumption.

- Width: 2.5-3.5"
- Depth: 0.2-0.4"
- Height: 5-7"
- Weight: 4-6 ounces
- Configurable to meet Energy Star 6.1

Emerging

This section is TBD.

Strategic

1. Processor: 2.0 - 2.5 GHz / 2 cores (1.7 – 2.54 GHz / octa-core Android)
2. Operating System: iOS (Optional Android)
3. Memory: 32GB (64GB Android)
4. Storage: N/A
5. Card: N/A
6. Ports: N/A
7. Camera: Rear - 12 MP /Front – 12 MP
8. Display: 0.7-6.2" Diagonal - 1334-by-750-pixel resolution at 326 ppi or 1334-by-750-pixel resolution at 326 ppi
9. Battery Life: 14 hours (Talk time)/10 days (Standby) Minimum
10. Drop Coverage with Screen Protector

Transitional/Contained

1. Processor: 1.6-2.0 GHz / 2 cores

2. Operating System: iOS (Optional Android)
3. Memory: 16GB
4. Storage: N/A
5. Card: N/A
6. Ports: N/A
7. Camera: Rear – 5 MP or better/Front – Optional
8. Display: 0.7-6.2” Diagonal
9. Battery Life: 12 hours (Talk time)/7 days (Standby) Minimum
10. Drop Coverage with Screen Protector Case

Obsolescent/Rejected

1. Processor: 1.2-1.5 GHz or Greater than 2.0 GHz / 1 core or greater than 2 cores
2. Operating System: BlackBerry, Windows Mobile
3. Memory: Less than or greater than 2GB
4. Storage: Less than or greater than 16GB
5. Card: N/A
6. Ports: N/A
7. Camera: Rear – Less than 5 MP
8. Battery Life: 6-12 hours (talk time)/3-7 days (standby)
9. Case: Required with screen protector

Appendix A

The following decision tree is to be used by agencies as part of this standard to determine what End-User Computing Devices should be allocated for each user based on their job duties. Since many users have multiple job duties with different requirements, it is recommended to evaluate each job duty separately. If different results are determined for different job duties, the agency should consider multiple devices (e.g., smart phone and laptop, smart phone in addition to tablet and desktop). Since non-smartphones (i.e. flip phones) are not covered in this standard, they are not addressed by the following decision tree.

