



Office of  
Information  
Technology

IT STANDARD  
**Office of Information Technology Data  
Center Racking**

Standard: IT21006  
Effective Date: November 15, 2017  
Revision Date:  
Review Date: December 21, 2021  
Next Scheduled Review Date: December 21, 2021  
Version #: 1.0  
Administrative Owner: Chief Technology  
Officer

**PURPOSE**

Montgomery College (“College”) information technology resources and digital business information are critical to the administrative business of the College and the success of its students. The task of protecting these resources according to Montgomery College Board of Trustee (“BOT”) policy, Federal and State laws and regulations, and industry based regulations and compliance requirements is the responsibility of the Office of Information Technology (OIT).

The protection of College information resources requires controls to manage risks to the confidentiality, integrity and availability of College information. This standard defines controls for the physical installation of equipment in College data centers to ensure proper functionality, power access, cooling efficiency, and other associated features.

**SCOPE**

This standard applies to all equipment installed in College data centers or campus Points-of-Presence (POPs).

**DEFINITIONS**

Term	Definition
Data Center Operations (DCO)	An OIT group comprised of the Systems Engineers and the Data Center operators.
Network Operations Center (NOC)	The IT monitoring operation, manned by operators utilizing various tools that can be leveraged by other IT staff for various purposes in maintaining their infrastructure devices.
StruxureWare Data Center Expert (DCE)	Schneider Electric’s monitoring software for use with APC devices.

**STANDARD**

**A. Documentation**

1. At the time of installation, a completed Basic Information Sheet (BIS) must be provided to NOC personnel. The BIS form includes, but is not limited to, the following information:
  - For all tenants:
    - Device Name (which will designate the visible label)
    - Device Location
    - Device manufacturer, model, and serial number
    - Service contract details (optional; used only if data center operators are authorized to place service calls)
    - Notification information, including name, office phone, and cell phone.
  - For MC tenants:
    - MC #
    - Operating system and version
    - Application
    - IP addresses
    - Scheduled recycle times

## Office of Information Technology Server Configuration and Security Standard

---

2. The BIS information will be used to update the rack layout (U assignment) information in the data center-mapping tool. Layout sheets will be posted on the end of the rack.
3. Any significant changes to equipment, power, or BIS information will be reported to NOC staff, with revised documentation.

### B. Standards

1. Each rack in the Data Center can support a maximum of 18 kW, with access to power from different data sources available in the racks.
2. Power is 3-phase 208V, with 15A and 30A connections. Connection to the rack PDUs requires a C14 (15A) or C20 (30A) plug type.
3. Each rack has four power distribution units (PDUs), two each of:
  1. APC AP7868 Rack PDU, Metered, Zero U, 12.5kW, 208V, (30) C13, (6) C19
  2. APC AP7968 Rack PDU, Switched, Zero U, 12.5kW, 208V, (21) C13, (3) C19Note: The connections above are the receptors. The plug types for the cords from the devices are provided in #2 above, C14 and C20.
4. Where possible, installed devices should have redundant power supplies plugged into different PDUs so that the device will function even in the event of a loss of input power to one power supply or to a power input feed.
5. Power requirements for all devices must be provided to NOC staff in advance of installation in order to perform capacity planning to ensure that power usage does not exceed the capabilities of the rack or row.
6. Where possible, all devices should have a front-to-back cooling path. If the unit uses side heat ejection, an APC diverter will be used to redirect cool air from the front.
7. Equipment will be in racks such that:
  - a. It is aligned with designated rack U space.
  - b. It is located so that blanking panels can be inserted into all vacant U spaces between devices
  - c. If heat generation is a concern, devices should be separated by at least 1U.
8. Equipment should be mounted with an approved rack mount kit supplied by vendor.
9. Power cables should be secured to the device using vendor supplied materials where appropriate.
10. Power cables will be secured via APC power cable PDU security strips attached to PDUs.
11. All PDUs are monitored by APC Data Center Expert.
12. All cables must be dressed in a neat, manageable manner and run along prescribed paths as designated by NOC staff and Network Engineering.

### C. Procedure

1. Advance specifications of any equipment that will be installed into the data center must be provided to NOC staff in advance of installation. OIT reserves the right to decline equipment that will exceed power, cooling, or space guidelines.
2. Installation or de-commissioning of equipment, shipping of materials to the data center building, and access to the building loading dock should be arranged at least one week in advance. OIT reserves the right to delay access if the proposed schedule conflicts with previously scheduled OIT work.
3. NOC staff will determine the appropriate location for the equipment, factoring in power, cooling, space, and tenant requirements.
4. All equipment installations must be approved by the Director of Data Center Operations prior to installation.
5. With approval and completion of prerequisites, NOC staff will direct personnel to the appropriate location for installation. NOC staff will assist with any installations to ensure that standards are maintained.
6. A physical label will be attached with the system name provided in the BIS.
7. Where applicable, devices will be connected to the nearest row KVM and labeled within the KVM switch.
8. For College devices, appropriate monitoring will be implemented. SNMP service must be installed with the appropriate RO string (available from NOC staff) applied. Where applicable, this will include, but not be limited to:
  - o Heartbeat (by IP/DNS and Ping).
  - o Network connectivity (such as interface traffic).

**Office of Information Technology Server Configuration and Security Standard**

---

- System (such as CPU, Disk, Memory).
  - Access (such as Web access).
9. If NOC staff identify any issue that requires contact, the notification list in the BIS will be used in order until a contact is reached.
- 

**EXCEPTIONS**

This standard is applicable as of its Effective Date. Exceptions to this standard will be considered on a case-by-case basis in accordance with the IT Exception Request Form

---

**COMPLIANCE AND RECOURSE FOR NON-COMPLIANCE**

Montgomery College has established College Policies/Procedures and the OIT has established IT Standards and Processes and associated guiding documents to provide appropriate protection of technology resources, to assure protection of personally identifiable and sensitive information and to promote privacy. Any faculty, staff, contractor, vendor or other agent found to have violated any part of College Policies, Procedures or IT Standards or Processes may be subject to disciplinary action and/or legal action.

---

**RELATED DOCUMENTS**

None.

---

**WEB SITE ADDRESS FOR THIS PROCESS**

- <http://cms.montgomerycollege.edu/WorkArea/linkit.aspx?LinkIdentifier=id&ItemID=7281>
- 

**APPROVALS/HISTORY**

<b>DATE</b>	<b>VERSION / REVISION / NOTES</b>	<b>APPROVER</b>
11/15/2017	Original roll-out of this Data Center Racking	Patrick Feehan, Information Security and Privacy Director/ITPA
12/21/2021	Reviewed and added review cycle date.	Joseph Marshall, Director of Data Center Operations

---