DATA SECURITY AND PRIVACY STANDARDS
FOR NEW YORK STATE EDUCATIONAL AGENCIES

NIST CYBERSECURITY FRAMEWORK

DEVELOPED BY:

RIC one
TWELVE REGIONAL INFORMATION CENTERS WORKING AS ONE

VERSION DATE:

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NYS RICS OVERVIEW:

12 NYS centers organized under and supporting the 37 BOCES to provide shared technology services.

INTRODUCTION TO THE NIST CYBERSECURITY FRAMEWORK

NATIONAL DATA SECURITY FRAMEWORK OVERVIEW

Education Law 2-d requires educational agencies to adopt a policy on data security and privacy that aligns with the state's data security and privacy standard. The Department adopted the National Institute for Standards and Technology Cybersecurity Framework (NIST CSF) as the standard for educational agencies. **At the center of the framework is the Core, which is a set of activities and desired outcomes designed to help organizations manage data security and privacy risk**. The Core is organized into functions, categories, and subcategories.

FRAMEWORK CORE 5 FUNCTIONS AND 23 CATEGORIES

IDENTIFY	ASSET MANAGEMENT	BUSINESS ENVIRONMENT	GOVERNANCE	RISK ASSESSMENT	RISK MANAGEMENT STRATEGY	SUPPLY CHAIN
PROTECT	ACCESS CONTROL	AWARENESS AND TRAINING	DATA SECURITY	INFORMATION PROTECTION	MAINTENANCE	PROTECTIVE TECHNOLOGY
DETECT	ANOMALIES AND EVENTS	SECURITY MONITORING	DETECTION PROCESSES			
RESPOND	RESPONSE PLANNING	COMMUNICATIONS	ANALYSIS	MITIGATION	IMPROVEMENTS	
RECOVER	RECOVERY PLANNING	IMPROVEMENTS	COMMUNICATIONS			

IDENTIFY FUNCTION

Develop an **ORGANIZATIONAL UNDERSTANDING TO MANAGE CYBERSECURITY RISK** to systems, people, assets, data, and capabilities.

ASSET MANAGEMENT

ID.AM-1	**Physical devices** and systems within the organization are **inventoried**
ID.AM-2	**Software platforms** and applications within the organization are **inventoried**
ID.AM-3	Organizational communication and **data flows** are **mapped**
ID.AM-4	**External** information **systems** are **catalogued**
ID.AM-5	**Resources** are **prioritized based on** their **classification, criticality, and business value**
ID.AM-6	**Cybersecurity** roles and **responsibilities** for the entire workforce and third-party stakeholders **are established**

BUSINESS ENVIRONMENT

ID.BE-1	The organization's **role in the supply chain** is **identified** and communicated
ID.BE-2	The organization's **place in** critical infrastructure and its **industry sector** is **identified** and communicated
ID.BE-3	Priorities for **organizational** mission, **objectives**, and activities are **established** and communicated
ID.BE-4	Dependencies and **critical functions** for delivery of critical services are **established**
ID.BE-5	**Resilience requirements** to support delivery of critical services are **established** for all operating states

GOVERNANCE

ID.GV-1	Organizational **cybersecurity policy** is **established** and communicated
ID.GV-2	Cybersecurity roles and **responsibilities** are **coordinated** and aligned with **internal roles and external partners**
ID.GV-3	**Legal and regulatory requirements** regarding cybersecurity, including privacy and civil liberties obligations, are understood and **managed**
ID.GV-4	Governance and **risk management processes address** cybersecurity **risks**

IDENTIFY FUNCTION

Develop an **ORGANIZATIONAL UNDERSTANDING TO MANAGE CYBERSECURITY RISK** to systems, people, assets, data, and capabilities.

RISK ASSESSMENT

ID.RA-1	Asset **vulnerabilities** are identified and **documented**
ID.RA-2	**Cyber threat intelligence** is **received** from information sharing forums and sources
ID.RA-3	**Threats**, both internal and external, are **identified and documented**
ID.RA-4	Potential **organizational impacts** and likelihoods are **identified**
ID.RA-5	**Threats, vulnerabilities, likelihoods, and impacts** are **used** to **determine risk**
ID.RA-6	**Risk responses are identified** and prioritized

RISK MANAGEMENT

ID.RM-1	**Risk management processes** are **established**, managed, and agreed to by organizational stakeholders
ID.RM-2	Organizational **risk tolerance** is **determined** and clearly expressed
ID.RM-3	The organization's determination of **risk tolerance** is i**nformed by** its role in critical infrastructure and **sector specific risk analysis**

SUPPLY CHAIN

ID.SC-1	Cyber **supply chain risk management processes** are identified, established, assessed, managed, and **agreed to** by organizational stakeholders
ID.SC-2	Suppliers and **third party partners** of information systems, components, and services **are identified, prioritized, and assessed** using a cyber supply chain risk assessment process
ID.SC-3	**Contracts** with suppliers and third-party partners are **used to implement** appropriate measures designed to meet the objectives of an organization's cybersecurity program and Cyber **Supply Chain Risk Management Plan**
ID.SC-4	Suppliers and **third-party partners** are **routinely assessed** using audits, test results, or other forms of evaluations **to confirm** they are **meeting** their **contractual obligations**
ID.SC-5	**Response and recovery** planning and **testing** are conducted **with** suppliers and **third-party providers**

PROTECT FUNCTION

Develop and **IMPLEMENT APPROPRIATE SAFEGUARDS** to ensure delivery of critical services.

ACCESS CONTROL

PR.AC-1	**Identities** and credentials are issued, **managed**, verified, revoked, and audited for authorized devices, users and processes
PR.AC-2	**Physical access to assets** is **managed** and protected
PR.AC-3	**Remote access** is **managed**
PR.AC-4	Access **permissions** and authorizations are **managed**, incorporating the principles of least privilege and separation of duties
PR.AC-5	**Network integrity** is **protected** (e.g., network segregation, network segmentation)
PR.AC-6	**Identities** are **proofed** and bound to credentials and asserted in interactions
PR.AC-7	Users, devices, and other assets are **authenticated** (e.g., single-factor, multi-factor) **commensurate with the risk of the transaction** (e.g., individuals' security and privacy risks and other organizational risks)

AWARENESS AND TRAINING

PR.AT-1	All **users** are informed and **trained**
PR.AT-2	**Privileged users understand roles** and responsibilities
PR.AT-3	**Third-party stakeholders** (e.g., suppliers, customers, partners) **understand** their roles and **responsibilities**
PR.AT-4	**Senior executives understand** their **roles** and responsibilities
PR.AT-5	Physical and **cybersecurity personnel understand** their roles and **responsibilities**

DATA SECURITY

PR.DS-1	**Data-at-rest** is **protected**
PR.DS-2	**Data-in-transit** is **protected**
PR.DS-3	**Assets** are formally **managed throughout removal, transfers, and disposition**
PR.DS-4	Adequate **capacity** to **ensure availability** is **maintained**
PR.DS-5	**Protections against data leaks** are implemented
PR.DS-6	**Integrity checking** mechanisms are used **to verify software, firmware, and information integrity**
PR.DS-7	The development and **testing environment(s)** are **separate from** the **production environment**
PR.DS-8	**Integrity checking** mechanisms are used **to verify hardware integrity**

PROTECT FUNCTION

Develop and **IMPLEMENT APPROPRIATE SAFEGUARDS** to ensure delivery of critical services.

INFORMATION PROTECTION

PR.IP-1	A **baseline configuration** of information technology/industrial control systems is **created and maintained** incorporating security principles (e.g. concept of least functionality)
PR.IP-2	A **System Development Life Cycle** to manage systems is **implemented**
PR.IP-3	**Configuration change** control **processes** are in place
PR.IP-4	**Backups** of information are **conducted, maintained, and tested**
PR.IP-5	Policy and regulations regarding the **physical operating environment** for organizational assets are **met**
PR.IP-6	**Data** is **destroyed according to policy**
PR.IP-7	**Protection processes** are **improved**
PR.IP-8	**Effectiveness of protection** technologies is **shared**
PR.IP-9	**Response plans** (Incident Response and Business Continuity) **and recovery plans** (Incident Recovery and Disaster Recovery) are **in place** and managed
PR.IP-10	**Response and recovery plans** are **tested**
PR.IP-11	Cybersecurity is included in **human resources practices** (e.g., deprovisioning, personnel screening)
PR.IP-12	A **vulnerability management plan** is developed and **implemented**

MAINTENANCE

PR.MA-1	**Maintenance** and repair of organizational assets are **performed and logged**, with approved and controlled tools
PR.MA-2	**Remote maintenance** of organizational assets is **approved**, logged, and performed in a manner that prevents unauthorized access

PROTECTIVE TECHNOLOGY

PR.PT-1	**Audit/log records** are determined, documented, implemented, and **reviewed** in accordance with policy
PR.PT-2	**Removable media** is **protected and** its use **restricted** according to policy
PR.PT-3	The **principle of least functionality** is incorporated by configuring systems to provide only essential capabilities
PR.PT-4	**Communications and control networks** are **protected**
PR.PT-5	**Mechanisms** (e.g., failsafe, load balancing, hot swap) are **implemented to achieve resilience** requirements in normal and adverse situations

DETECT FUNCTION

Develop and implement appropriate activities to **IDENTIFY THE OCCURRENCE OF A CYBERSECURITY EVENT**.

ANOMALIES AND EVENTS

DE.AE-1	A baseline of **network operations and expected data flows** for users and systems is established and **managed**
DE.AE-2	**Detected events** are **analyzed** to understand attack targets and methods
DE.AE-3	**Event** data are collected and **correlated** from multiple sources and sensors
DE.AE-4	**Impact of events** is **determined**
DE.AE-5	Incident **alert thresholds** are **established**

SECURITY MONITORING

DE.CM-1	The **network** is **monitored** to detect potential cybersecurity events
DE.CM-2	The **physical environment** is **monitored** to detect potential cybersecurity events
DE.CM-3	**Personnel activity** is **monitored** to detect potential cybersecurity events
DE.CM-4	**Malicious code** is **detected**
DE.CM-5	**Unauthorized mobile code** is **detected**
DE.CM-6	**External service provider activity** is **monitored** to detect potential cybersecurity events
DE.CM-7	**Monitoring for unauthorized** personnel, **connections**, devices, and software is performed
DE.CM-8	**Vulnerability scans** are **performed**

DETECTION PROCESSES

DE.DP-1	Roles and **responsibilities for detection** are well **defined** to ensure accountability
DE.DP-2	**Detection activities comply with** all applicable **requirements**
DE.DP-3	**Detection processes** are **tested**
DE.DP-4	**Event detection information** is **communicated**
DE.DP-5	Detection **processes** are **continuously improved**

RESPOND FUNCTION

Develop and implement appropriate activities to **TAKE ACTION REGARDING A DETECTED CYBERSECURITY INCIDENT**.

RESPONSE PLANNING

RS.RP-1	**Response plan** is **executed** during or after an event

COMMUNICATION

RS.CO-1	**Personnel know** their **roles** and order of operations when a response is needed
RS.CO-2	**Incidents** are **reported** consistent with established criteria
RS.CO-3	**Information** is **shared** consistent with response plans
RS.CO-4	**Coordination with stakeholders** occurs consistent with response plans
RS.CO-5	**Voluntary information sharing** occurs with external stakeholders **to achieve broader cybersecurity situational awareness**

ANALYSIS

RS.AN-1	**Notifications from detection systems** are **investigated**
RS.AN-2	The **impact of the incident** is **understood**
RS.AN-3	**Forensics** are **performed**
RS.AN-4	**Incidents are categorized** consistent with response plans
RS.AN-5	**Processes** are **established to** receive, analyze and **respond to vulnerabilities** disclosed to the organization **from internal and external sources** (e.g. internal testing, security bulletins, or security researchers)

MITIGATION

RS.MI-1	**Incidents** are **contained**
RS.MI-2	**Incidents** are **mitigated**
RS.MI-3	**Newly identified vulnerabilities** are **mitigated** or documented as accepted risks

IMPROVEMENTS

RS.IM-1	**Response plans incorporate lessons** learned
RS.IM-2	**Response strategies** are **updated**

RECOVER FUNCTION

Develop and implement appropriate activities to **MAINTAIN PLANS FOR RESILIENCE AND TO RESTORE ANY CAPABILITIES** or services that were impaired due to a cybersecurity incident.

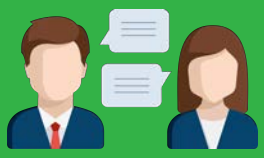
RECOVERY PLANNING

RC.RP-1	**Recovery plan** is **executed** during or after a cybersecurity incident

IMPROVEMENTS

RC.IM-1	**Recovery plans incorporate lessons** learned
RC.IM-2	**Recovery strategies** are **updated**

COMMUNICATIONS



RC.CO-1	**Public relations** are **managed**
RC.CO-2	**Reputation** is **repaired** after an incident
RC.CO-3	**Recovery activities** are **communicated** to internal and external stakeholders as well as executive and management teams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