# CIP-005 R2:
# Electronic Access Controls

*Knowing who is in your network*

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# Objectives

- Improve your understanding of CIP-005 R2
- Share areas of concern and issues of non-compliance we have seen
- Discuss ways you can improve overall security of Critical Cyber Assets
  - Successful practices we have seen during audits
  - Best practices to consider

# What are Electronic Access Controls (EAC)?

- Control access to your environment
- Protect your environment from those on the outside
- Processes or procedures to secure your electronic network from unauthorized access
- Associated configuration and change control process to ensure each access point stays up-to-date

# EAC is like a guarded fence with access points

# Registered Entities must….

- Develop policies and procedures about your EAC and how it works
- Develop good internal controls for your systems
- Know who accesses your Electronic Security Perimeter (ESP) and why
- Document and control access

# EAC Policies and Procedures

- Policies and Procedures = Internal Controls
  - Always start with a Policy + Management
  - Develop procedure after clear policy is in place
  - Policy supports the rest of what you do
    - What about your Physical Security Perimeter?
- Documentation must cover:
  - How your network is configured
  - All of your access control points
  - Sufficiently detailed network diagram

# Deny by Default – R2.1

- Discover your access points (R1)
  - Must know where traffic is entering network to manage/restrict it
- "Build a fortress" with your ESP
- "Deny by Default" means let nothing in or out
  - Start with Deny by Default
- Most people assume it is okay to allow "inside to outside"
  - Should restrict data both ways

# Access Points– R2.2

- Prepare to show your access control lists to auditors
  - Include comments
- Document list of open/running ports and services with explanation
  - Vendor's generic list is not sufficient
- Have you considered all access points?
  - Firewalls
  - Modems
  - VPN servers
  - Digiboards
  - Dual-homed systems
- Verify what is documented to what is actually occurring

# Say it, prepare to show it!

- Subject Matter Experts need to explain why ports and services are open
- Must verify that what is written matches what is audited

# Real-Life Example

- Subject matter expert – close to retirement - was very knowledgeable on access points and firewalls
- When we interviewed expert, what he told us was not supported by documentation
- Company needed to get knowledge out of expert's head and on paper
- This disconnect resulted in "area of concern"

# Dial Up – R2.3

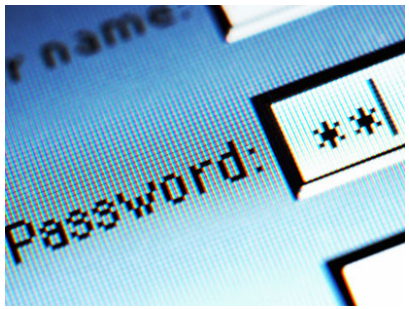
- Secure your modems
- Document a procedure on how to secure your dial-up system, even if you don't have or plan to have one
  - How is dial-up controlled?
  - Does it have dial back?
  - Is the physical connection made?
- Treat your dial-up the same as any other access point
- NERC has called our attention to this

# Strong Technical/Procedural Controls – R2.4

- Be prepared to explain your “strong controls”
- How do you know “Steven Keller” really is “Steven Keller” accessing your network?
- Consider using “two factor” authentication (not required)

Two of the following:

1. Something you have
2. Something you know
3. Something you are

# Access Controls Documentation– R2.5

- Documentation should, at least, identify and describe:
  - Process for access request and authorization
  - Your authentication methods
  - How you review your authorization rights
  - Controls used for securing dial-up
- Document, Document, Document
  - Should match what your processes are
  - Give detail how 2.5.1 through 2.5.4 are specifically met

# Appropriate Use Banner – R2.6

- Banner is like “Do Not Trespass” sign: Only authorized users are allowed
- Banner documentation must match your banner
- Banner must appear before user attempts to log in
- R2.6 was included in “Paragraph 81”project that will retire some low-risk standards, per FERC approval
- SPP RE is no longer auditing R2.6 but you still must apply for a TFE if you are unable to display a banner
  - Until FERC’s approval of Paragraph 81 retirements

# Best practices we have seen (not required)

- Spreadsheet including active ports, why they are active, software used
- Documented services associated with active ports
- Restricted inbound and outbound traffic
- Restricted traffic to specific host IP addresses
- Defined process to validate need for new port

Resources:

Compliance Analysis Report CIP-005
Current draft CIP-005-5 Guidance Section

# Summary

- Good documentation demonstrates your EAC is effective and well-maintained
- Make sure someone not familiar with your company could understand your EAC
- Ports and Services should be well documented by you - not your vendor
- Have a documented dial-up procedure, even if you do not allow it
- Document your authentication methods to request and receive access
- Implement what you have documented!

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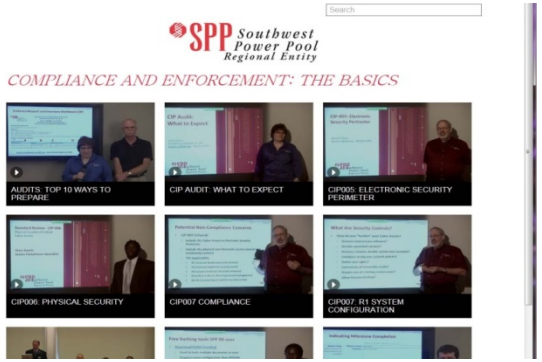
# SPP RE Training Videos: vimeopro.com/sppre/basics




- Audits: Top 10 Ways to Prepare
- CIP Audit: What to Expect
- CIP-005: Electronic Security Perimeter
- CIP-005-3 R3
- CIP-006: Physical Security
- CIP-007 Compliance
- CIP-007: R1 System Configuration
- CIP-007 R3 and R4
- Compliance Education at My Company
- Internal Compliance Programs Q&A
- Event Analysis-Entity Perspective
- Evidence Submission
- Firewalls: 13 Ways to Break Through
- Hashing: How To
- Human Performance - Entity Perspective
- Human Performance -NERC
- Mitigation Plans: Milestones, Completion, and Evidence
- Mock 693 Audit
- Self-Reporting: When and How
- TFE Expectations and Issues
- Training Employees on Compliance