ISO Symposium

August 20, 2014

FBI CJIS Information Security Officer Program Office
iso@leo.gov
Introductions

George White
Chief, CJIS Information Assurance Unit
FBI CJIS Information Security Officer
Representation:
Chairman: Alan Ferretti – TX, DPS
Vice Chair: Jeff Matthews – AL, CJIC
Brenda Abaya – HI, CJDC
Larry Coffee – FL, FDLE
Joe Dominic – CA, DOJ
Troy Goodman – MD, DPS
Blaine Koops – MI, Sheriff of Allegan County
Yosef Lehrman – NY, NYPD
Network Ops
Bill Phillips – AZ, NLETS
Charles Shaffer – FL, FDLE
(Compact Rep)
TJ Smith – CA, LASD
Delton Tipton – SD, LETS
Brad Truitt – TN, BOI
ISO Symposium Presenters

**FBI CJIS Audit Staff:**
Mike McIntyre, Supervisory IT Specialist
Candice Preston, IT Specialist/Systems Auditor
Russell Myers, IT Specialist/Systems Auditor
Ronnie George, Management and Program Analyst

**FBI CJIS ISO Program Staff:**
George White, FBI CJIS ISO
Jeff Campbell, Assistant ISO
Lora Klingensmith, Sr. Management and Program Analyst
Steve Exley, Sr. Technical Analyst
Announcements

• There will be a Happy Hour tonight from 5:30pm-? Sponsored by Diverse Computing, Inc. This will be held at the Bluegrass Brewing Co. 300 West Main Street. Everyone is welcome to attend.

• Peer-to-Peer session tonight from 7-9pm in this room for ISO’s only. Sign up for topic recommendation located in the back of the room.

• ISO Trivia
Opening Remarks

Stephen Morris
Assistant Director, FBI CJIS Division
Housekeeping

• Please place cell phones/pagers/iPads and anything else with a ringer on vibrate as to not disrupt the symposium presenters.
• Breaks will be:
  • 10:30am (on you)
  • 12:00pm Lunch (on you)
  • 2:30pm (snacks and drinks will be served)
• The sign-in sheet will be passed around the room. Please check your information and make any necessary corrections.
• If you do not get the sign in sheet or are somehow bypassed please see me.
• If you need changes in travel, please see one of the CJIS ladies at the registration desk.
Housekeeping

• Please obtain your **ORIGINAL** hotel receipt and ensure there is a **$0** balance.

• Please be sure to send all original receipts, along with your voucher in the packet you received at the Registration Desk. Do not send back restaurant receipts, we don’t need those. If you are being reimbursed but have not picked up your packets, or need to change your banking information, stop by the Registration Desk and see Kathy Oldaker.

• You will not receive a copy of the Symposium PowerPoint presentations. If you are interested in an electronic copy please complete the presentation request form and return to Kathy Oldaker or Registration Desk.
Housekeeping

• Stump the ISO (Open Forum) question submission cards will be located in the back of the room – please fill one out and place in the basket.

• We will have microphones available throughout the symposium for questions – if you want to ask the presenter a question raise your hand and we will get the microphone to you as quickly as possible.

• Surveys – Morning and Afternoon. Feedback is greatly appreciated. Please fill out and leave on your table for collection.

• Have a GREAT Symposium
CJIS Security Policy Version 5.3 Changes

Jeff Campbell
FBI CJIS Assistant Information Security Officer
CJIS ADVISORY PROCESS

CJIS Advisory Policy Board

9 Subcommittees

5 Working Groups
An idea is born... and sent to the state’s CSO.

If deemed feasible, CJIS writes staff paper and forwards it to the Working Groups for consideration.

After deliberation, the Working Groups make a recommendation which is forwarded to the Subcommittee...

The APB’s recommendation is forwarded to the FBI Director for approval and implementation by CJIS.
SIGNIFICANT CHANGES FOR v5.3

- Annual release cycle
- July / August Time Frame
- Incorporates APB approved changes from previous year (2 cycles: Spring / Fall)
- Incorporates administrative changes
Section 4.2.2 Proper Access, Use, and Dissemination of NCIC Restricted Files Information

- Add these files:
  - Violent Person File
  - NICS Denied Transaction File

- Remove this file:
  - Immigration Violator File
SIGNIFICANT CHANGES FOR v5.3

Sections 5.6.2.2.1 Advanced Authentication Policy and Rationale

• Removal of the **INTERIM COMPLIANCE** for advanced authentication (AA)
• Addition of **COMPENSATING CONTROLS** for AA on smartphones and tablets
• Remove requirement for AA for **INDIRECT ACCESS**
• Change decision tree accordingly
Removal of the **INTERIM COMPLIANCE** for advanced authentication (AA)

- Set to expire on Sept. 30, 2014
- For AA purposes, police vehicle = physically secure location
- Devices associated with and located within a police vehicle
- IPSec for AA will expire on Sept. 30, 2014
Addition of **COMPENSATING CONTROLS** for AA

- Applies only to smartphones and tablets
- Possession of agency issued device is a required part of control
- Additional requirements mostly met by MDM
- Compensating Controls are temporary
- CSO approval and support required
SIGNIFICANT CHANGES FOR v5.3

Addition of **COMPENSATING CONTROLS** for AA

- Meet the intent of the CJIS Security Policy AA requirement
- Provide a similar level of protection or security as the original AA requirement
- Not rely upon existing requirements for AA as compensating controls
SIGNIFICANT CHANGES FOR v5.3

Remove requirement for AA for INDIRECT ACCESS

• Add DIRECT or INDIRECT ACCESS as a “determiner” for advanced authentication (AA)
• No ability to conduct transactional activities on state and national repositories
• CSO determines whether access is considered indirect
Appendix A: Create definition of INDIRECT ACCESS

“Having the authority to access systems containing CJI without providing the user the ability to conduct transactional activities (the capability to query or update) on state and national systems (e.g. CJIS Systems Agency (CSA), State Identification Bureau (SIB), or national repositories).”
Section 5.5.5 Session Lock

• Exemption for receive-only terminals

“(3) terminals designated solely for the purpose of receiving alert notifications (i.e. receive only terminals or ROT) used within physically secure location facilities that remain staffed when in operation.”
SIGNIFICANT CHANGES FOR v5.3

Section 5.6.2.1.2 Personal Identification Number

- Addition of PIN requirements
- When used as authenticator must meet password requirements
- Local device authentication – 6 digits
- When used in conjunction with a certificate or token, use the following attributes
SIGNIFICANT CHANGES FOR v5.3

Be a minimum of six (6) digits
Have no repeating digits (i.e., 112233)
Have no sequential patterns (i.e., 123456)
Not be the same as the Userid.

Expire within a maximum of 365 calendar days.

If a PIN is used to access a soft certificate which is the second factor of authentication, AND the first factor is a password that complies with the requirements in Section 5.6.2.1.1, then the 365 day expiration requirement can be waived by the CSO.

Not be identical to the previous three (3) PINs.
Not be transmitted in the clear outside the secure location.
Not be displayed when entered.

EXCEPTION: When a PIN is used for local device authentication, the only requirement is that it be a minimum of six (6) digits.
Section 5.9.1 Physically Secure Location

- “A physically secure location is a facility, a police vehicle, or an area, a room, or a group of rooms within a facility with both the physical and personnel security controls sufficient to protect CJI and associated information systems.”

- Removal of the INTERIM COMPLIANCE for police vehicle and advanced authentication (AA)
SIGNIFICANT CHANGES FOR v5.3

Section 5.10.1.2 Encryption

- CJI at rest exception
- Create passphrase requirements
  - Used for encryption **NOT** authentication
  - Different requirements than passwords
- File versus folder use
Section 5.10.1.2 Encryption

• Create encryption exception for CJI at rest

“EXCEPTION: When encryption is used for CJI at rest, agencies may use encryption methods that are FIPS 197 certified, AES 256 bit as described on the National Security Agency (NSA) Suite B Cryptography list of approved algorithms.”
### SIGNIFICANT CHANGES FOR v5.3

- **NIST cryptographic algorithms approved by NSA**

<table>
<thead>
<tr>
<th>Algorithm</th>
<th>Function</th>
<th>Specification</th>
<th>Parameters</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Advanced Encryption Standard (AES)</strong></td>
<td>Symmetric block cipher used for information protection</td>
<td>FIPS PUB 197 (reference g.)</td>
<td>Use 128 bit keys to protect up to SECRET. Use 256 bit keys to protect up to TOP SECRET.</td>
</tr>
<tr>
<td>Elliptic Curve Diffie-Hellman (ECDH) Key Exchange</td>
<td>Asymmetric algorithm used for key establishment</td>
<td>NIST SP 800-56A (reference h.)</td>
<td>Use Curve P-2561 to protect up to SECRET. Use Curve P-384 to protect up to TOP SECRET.</td>
</tr>
<tr>
<td>Elliptic Curve Digital Signature Algorithm (ECDSA)</td>
<td>Asymmetric algorithm used for digital signatures</td>
<td>FIPS PUB 186-3 (reference f.)</td>
<td>Use Curve P-256 to protect up to SECRET. Use Curve P-384 to protect up to TOP SECRET.</td>
</tr>
<tr>
<td>Secure Hash Algorithm (SHA)</td>
<td>Algorithm used for computing a condensed representation of information</td>
<td>FIPS PUB 180-4 (reference e.)</td>
<td>Use SHA-256 to protect up to SECRET. Use SHA-384 to protect up to TOP SECRET.</td>
</tr>
</tbody>
</table>
**SIGNIFICANT CHANGES FOR v5.3**

- Legacy NIST cryptographic algorithms approved by NSA

<table>
<thead>
<tr>
<th>Algorithm</th>
<th>Function</th>
<th>Specification</th>
<th>Parameters</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diffie-Hellman (DH) Key Exchange</td>
<td>Asymmetric algorithm used for key establishment</td>
<td>NIST SP 800-56A (Reference h.)</td>
<td>Use 2048 bit modulus to protect up to SECRET.</td>
</tr>
<tr>
<td>Digital Signature Algorithm (DSA)</td>
<td>Asymmetric algorithm used for digital signatures</td>
<td>FIPS PUB 186-3 (reference f.)</td>
<td>Use 2048 bit modulus to protect up to SECRET.</td>
</tr>
<tr>
<td>RSA</td>
<td>Asymmetric algorithm used for digital signatures</td>
<td>FIPS PUB 186-3 (reference f.)</td>
<td>Use 2048 bit modulus to protect up to SECRET.</td>
</tr>
</tbody>
</table>
When agencies implement encryption on CJI at rest, the passphrase used to unlock the cipher shall meet the following requirements:

- Be at least 10 characters
- Not be a dictionary word.
- Include at least one (1) upper case letter, one (1) lower case letter, one (1) number, and one (1) special character.
- Be changed when previously authorized personnel no longer require access.
SIGNIFICANT CHANGES FOR v5.3

File Versus Folder Use

Individual Passphrases  Single Shared Passphrase
NEW: Policy area 5.13 Mobile Devices

- Consolidation of mobile centric requirements
- Reference to “companion” sections
- New requirements
Appendix A Terms and Definitions

• Mobile device form factors
  ▪ Pocket/handheld mobile devices
  ▪ Smartphone
  ▪ Tablet Devices

• Indirect Access
• Digital Media
• Receive-only terminal
SIGNIFICANT CHANGES FOR v5.3

Questions?
Personnel Access and Security Requirements

George White
FBI CJIS ISO
PERSONNEL ACCESS & SECURITY REQUIREMENTS

• Types of CJI Access
• Physical Protection
• Security Awareness Training
• Personnel Security
• Scenarios
Types of CJI Access
PERSONNEL ACCESS & SECURITY REQUIREMENTS

Types of CJI Access

• Type of access drives applied requirements
  ➢ Logical Access
  ➢ Physical Access
  ➢ Direct Access
  ➢ Indirect Access

• Access refers to the capability, not necessarily the act

• All access types require security awareness training some require background checks
PERSONNEL ACCESS & SECURITY REQUIREMENTS

Types of CJI Access

Physical Access i.e. “Walkin’ ‘round access”

• Defined by the CJIS Security Policy as:

  The physical ability, right or privilege to view, modify or make use of CJI by means of physical presence within the proximity of computers and network devices (e.g. the ability to insert a boot disk or other device into the system, make a physical connection with electronic equipment, etc.).

• A person within physical proximity of CJI or CJI processing systems who may view, modify, or make use of CJI has physical access.
Types of CJI Access

Logical Access

• Defined by the CJIS Security Policy as:

  The technical means (e.g., read, create, modify, delete a file, execute a program, or use an external connection) for an individual or other computer system to utilize CJI or CJIS applications.

• A person logging into a system/network/application (even remotely) with the ability to gain access to CJI has logical access.
PERSONNEL ACCESS & SECURITY REQUIREMENTS

Types of CJI Access

Direct Access

• Defined by the CJIS Security Policy as:

  1) Having the authority to access systems managed by the FBI CJIS Division, whether by manual or automated methods, not requiring the assistance of, or intervention by, any other party or agency (28 CFR, Chapter 1, Part 20).

  2) Having the authority to query or update national databases maintained by the FBI CJIS Division including national queries and updates automatically or manually generated by the CSA.

• A person with the ability to query or update the national databases directly or through the CSA has direct access.
PERSONNEL ACCESS & SECURITY REQUIREMENTS

Types of CJI Access

Indirect Access

• Defined by the CJIS Security Policy as:

  Having the authority to access systems (i.e., repository, application, or service) containing CJI that do not provide the user the ability to conduct transactional activities (the capability to query or update) on state and national systems (i.e., CJIS Systems Agency (CSA), State Identification Bureau (SIB), or national repositories).

• User can query a local database populated by static copies of CJI

• No direct connectivity to query or send updates to state and national databases
PERSONNEL ACCESS & SECURITY REQUIREMENTS

Types of CJI Access

Physical or Logical Access or Both?

• Determines what level of security awareness is required

Direct or Indirect Access?

• Determine if Advanced Authentication (AA) would be required for remote access

• Fingerprint-based background checks are required for direct access to CJI

• Conversely, background checks may not be required for indirect access to CJI
PERSONNEL ACCESS & SECURITY REQUIREMENTS

Physical Protection
Physical Protection Policy and Procedures

- CJIS Security Policy Section 5.9:
  
  *Physical protection policy and procedures shall be documented and implemented to ensure CJI and information system hardware, software, and media are physically protected through access control measures.*

- Protect CJI through physical access control
Physical Protection

Physically Secure Location

- APB-approved definition change in CJIS Security Policy v5.3:
  
  A facility, a police vehicle, or an area, a room...

- A physically secure location environment permits the “open storage” of CJI – no encryption requirement
  
  - Presents potential for physical access to CJI
  - Security awareness training required for unescorted access
PERSONNEL ACCESS & SECURITY REQUIREMENTS

Physical Protection

Controlled Area

• Required when an agency (CJA or NCJA) has an operational need to access or store CJI, but cannot meet all of the physical, personnel, and technical controls required for establishing a physically secure location

• An area, a room, or a storage container used for CJI access or storage
  
  ➢ Limit access during CJI processing only to authorized personnel
  ➢ Lock the area, room, or storage container when unattended
  ➢ Prevent CJI access and viewing from unauthorized individuals
  ➢ Encrypt CJI at rest in accordance with Section 5.10.1.2
Encryption

Required:
- CJI is transmitted outside the boundaries of a physically secure location (FIPS 140-2 certified, 128 bit)
- CJI at rest outside of physically secure locations (NSA Suite B, 256 bit or FIPS 140-2 certified, 128 bit)
- CJI at rest within controlled areas (AES, 256 bit)

Not required:
- CJI transmitted within a physically secure location
- CJI at rest within a physically secure location
PERSONNEL ACCESS & SECURITY REQUIREMENTS

Physical Protection

Escorting

• In physically secure locations, unauthorized users and visitors must be escorted for access

• Authorized personnel must accompany and monitor unauthorized personnel, but must also be able to intervene when/if necessary to prevent unauthorized actions

• The use of cameras or other electronic means used to monitor a physically secure location does not constitute an escort
PERSONNEL ACCESS & SECURITY REQUIREMENTS

Physical Protection

Advanced Authentication (AA)

Required:
✓ When requesting access to unencrypted CJI from outside the boundaries of a physically secure location (e.g., remote access)

Or
✓ Technical security requirements for a physically secure location have not been met

Not required:
✗ When requesting access to CJI from within the perimeter of a physically secure location

And
✗ The technical security controls have been met

Or
✗ User has indirect access CJI
Physical Protection

Who is responsible for Physical Protection?

• The physically secure location is subject to information exchange agreements, criminal justice agency management control; SIB control; FBI CJIS Security Addendum; or a combination thereof and may be audited by both the CSA and FBI.

• Everyone in the facility is responsible for Physical Protection... educate, educate, educate!
Security Awareness Training
PERSONNEL ACCESS & SECURITY REQUIREMENTS

Security Awareness Training

When is Security Awareness Training Required?

• All personnel within six (6) months of initial assignment receive training
• Biennially thereafter

Note: The CSO/SIB has discretion to accept security awareness training documentation from another agency

Three “Levels” of Training (determined by role):

1. All Personnel (generalized training) – “Level” 1 Only
2. Personnel with Physical and Logical Access (CJI processing) – 1+2
3. Personnel with Technology Roles (administrator roles) – 1+2+3
PERSONNEL ACCESS & SECURITY REQUIREMENTS

Security Awareness Training

Who Needs Security Awareness Training?

• All CJA and NCJA employees with the need for continuous access to CJI (physical, logical, direct, or indirect) to perform their job

Who Does Not Need Security Awareness Training?

• Limited access to CJI controlled via escort for a special scenario (e.g., equipment installation in a server room or a ride-along) may provide an exception, if permitted by the agency
Personnel Security
Personnel Security

- Where statutory or administrative authority allows - Section 5.12 applies to ALL personnel who have unescorted access to CJI
Personnel Security

Personnel Security Policy and Procedures

- State of residency and national fingerprint-based background checks for all personnel with direct access to CJI
  - Within 30 days of assignment
  - Contractors and vendors prior to CJI access

- Reinvestigations recommended every five (5) years unless Rap Back is implemented

- The CSO, or designee*, determines CJI access based on the results of the background checks

* Note: All CSO designees shall be from an authorized criminal justice agency.
Background Checks for NCJAs

• Section 5.12 applies to agencies located within states having passed legislation authorizing or requiring civil fingerprint-based background checks for personnel with access to criminal history record information for the purposes of licensing or employment.

• Agencies located within states without authorizing legislation or authority are exempted from the fingerprint-based background check requirement until such time as appropriate legislation has been written into law.

• Exemption does NOT apply to CJAs!
PERSONNEL ACCESS & SECURITY REQUIREMENTS

Personnel Security

Personnel Termination

• Upon termination of individual employment, immediately terminate access to CJI.

Personnel Transfer

• The agency shall review the CJI access authorizations when personnel are reassigned or transferred to other positions.

Personnel Sanctions

• Employ a formal sanctions process for personnel failing to comply with policies and procedures.
PERSONNEL ACCESS & SECURITY REQUIREMENTS

Scenarios
PERSONNEL ACCESS & SECURITY REQUIREMENTS

Scenarios

So, how do I determine what the requirements for permitting CJI access to an individual?

- What type of CJI access does the user have?
  - Physical, Logical, Admin? (Security Awareness)
  - Direct or Indirect? (Background Checks, AA)

- What is the user’s location? (Background Checks, Encryption, AA)
  - Physically secure location, controlled area, remote location?

- What is the data’s location? (Encryption)
  - Physically secure location, controlled area, remote location?
PERSONNEL ACCESS & SECURITY REQUIREMENTS

Scenarios

Scenario #1:
An officer arrests an individual and runs an NCIC check from an MDT “hard mounted” within his police vehicle.

• The officer has direct, physical, and logical access to CJI –
  ✓ Conduct background check and “level 2” security awareness training (personnel with physical and logical access)

• The NCIC query and return CJI traverses an encrypted VPN (FIPS 140-2 certified, 128 bit) between the police vehicle and PD (both physically secure locations)
  ✓ AA is not required
  ✓ Encryption is not required for CJI at rest
PERSONNEL ACCESS & SECURITY REQUIREMENTS

Scenarios

Scenario #2:

An NCJA employee is converting hard copy files including employee background check information into digital documents, then storing the file in a local RMS database for local HR access.

• The user has physical, logical, and indirect access to static CJI
  ✓ Receive “level 2” security awareness training (personnel with physical and logical access)
  ✓ No background check is required for indirect access
  ✓ AA is not required

• The CJI is stored in a shared drive on the NCJA network
  ✓ Encryption is required for CJI at rest (Section 5.10.1.2)
FAQ #1:

Question:
We have a consolidated server room shared amongst multiple departments. These departments have administrative personnel (not background checked) that need access to do maintenance work on their servers. All CJI in transit and at rest within the server room is encrypted (FIPS 140-2 certified, 128 bit). Must the server room be a physically secure location?

Answer:
No. The CJI is encrypted in accordance with the CJIS Security Policy at rest. Therefore, only authorized users have access to the data. So, it is not required the server room be established as a physically secure location.
FAQ #2:

Question:
Our agency has a contract with a custodial service to provide cleaning services for our physically secure location. These personnel are all private contractors and have had fingerprint-based background checks to allow for unescorted access. Is security awareness training required?

Answer:
Yes. They may come across CJI material lying around on desks, displayed on computer screens, overhear discussions, etc. This is physical access to CJI. So, they should receive the first tier of security awareness training (All Personnel).
PERSONNEL ACCESS & SECURITY REQUIREMENTS

Questions?
BREAK
Hot Topics for Noncriminal Justice Agencies

Lora Klingensmith
FBI CJIS ISO Sr. Management Program Analyst
Repository:
- Since 1924, the FBI has been the national repository for fingerprints and related criminal history data. Over the years, the size of our fingerprint files has grown and the demand for the program's services has steadily increased.

![Fingerprint Repository](chart.png)
Benefits:

• Safety & Trust
  – Of the 28 million civil submissions during 2013 approximately 2.5 million individuals identified as having existing criminal history records.
    - Protection of vulnerable populations
    - Trustworthy applicants

• Revenue
  – Monetary fees for processing civil fingerprint submissions offset the overhead and operational costs of the service, and for maintenance and technological refreshments to our national and state databases.
Noncriminal Justice and the CJIS Security Policy

Processing:

• **Legislation** – why are you running the check?
  - Civil fingerprint checks are submitted to the FBI based upon a specific federal law authorizing a national fingerprint background check, or a state statute or municipal ordinance, if authorized by a state statute, authorizing a national background check in compliance with Public Law 92-544.

• **Technology** – how are you running the check and how are you receiving the response?
  - For its first 75 years of existence, the processing of incoming fingerprint cards by the FBI was predominantly a manual, time consuming, labor intensive process
  - On July 28, 1999 IAFIS changed the way we do business as it permitted the processing of all incoming fingerprint submissions in a totally electronic environment.
  - Livescan devices across the nation are now the predominant technology
  - CSP has had to conform to the technological advancements – efforts are continuous.

• **Distribution** - How are you sending responses to authorized recipient?
  - Mail (still) & web sites are predominant distribution
What is a Channeler?

- An FBI approved contractor, who has entered into an agreement with an Authorized Recipient(s), to receive noncriminal justice applicant fingerprint submissions and collect the associated fees.

- The Channeler ensures fingerprint submissions are properly and adequately completed, electronically forwards fingerprint submissions to the FBI's CJIS Division for national noncriminal justice criminal history record check, and receives electronic record check results for dissemination to Authorized Recipients.

- The Channeler is essentially an "expediter" rather than a user of criminal history record check results.

- Why is it important for you to know this?
Noncriminal Justice and the CJIS Security Policy

Security/Storage:
- Physically secure vs. Non-physically secure
  - When CHRI is stored, agencies shall establish appropriate administrative, technical and physical safeguards to ensure the security and confidentiality of the information.

Audit
- Officially begins October 1, 2014 for the NCJA community.

Training
- CJIS Security Policy – what relates to me?
  - Basic security awareness training shall be required within six months of initial assignment, and biennially thereafter, for all personnel who have access to CJI.
CJIS Security Policy
Appendix J

This appendix is not intended to be used in lieu of the CJIS Security policy but rather should be used as supplemental guidance.

Methodology:
Specifically for those NCJA with access to CJI as authorized by legislative enactment or federal executive order to request civil fingerprint-based background checks.

Who Benefits?
• For those NCJAs new to the CJIS security policy and APB auditing process (all NCJAs will be periodically audited by the CSA/SIB and may be included in a sampling of triennial audits conducted by the FBI) it is strongly recommended that each system processing CJI should be individually reviewed to determine which CSP requirements may apply.
Questions?
NCJA Audit Update and Top Audit Findings

ITS Candice Preston
SITS Mike McIntyre
FBI CJIS Division Audit Unit
acjis@leo.gov
BACKGROUND

• IT Security Audit Overview
• Audit each CSA once every 3 years
• Review adherence to the CJIS Security Policy
• Scope has grown to include multiple CJIS Systems access
• October 2014 kicks off NCJA Audits
NCJA IT Security Audits

• Noncriminal Justice IT Security Audits
  – Kicking off October 1, 2014
  – 3 year zero-cycle audit
  – Will be auditing to all applicable CSP requirements
  – Corresponds to the CJA audit cycle
  – 3-4 NCJAs chosen within the state to start
  – Separate reports for NCJA and CJA
NCJA IT Security Audits

• Your Potential Challenges
  – Relatively new area to both auditors and audited
  – Limited resources
  – Different “languages” used
  – CSP/CJI may be a foreign concept to many NCJAs
  – Incorporating the Outsourcing Standard/Compact

• Our Challenges
  – Much the same!
NCJA IT Security Audits

• Where to begin?
  – Identifying/narrowing the scope of the audit
    • How are they getting the response (paper, livescan, website)?
    • What are they doing with the response (cabinet, local hard drive, RMS)?
    • Who, if anyone, are they sharing it with?
    • What are they doing to destroy it?
NCJA IT Security Audits

• Where to begin (continued)?
  – Mail-in Questionnaire
  – Narrow the scope to the access
    • Hard copy storage and accessibility
    • One user, one desktop storage and accessibility
    • Shared network storage and accessibility
• Where to begin (continued)?
  – The top outs that will follow this part of the presentation
  – Remember the CSP and audits are a continually improving process as was the journey from 4.5 to 5.3 today
    • “Zero cycle” from Sanctions
    • S&A Subcommittee yearly brief
    • Compact tailored brief?
Any questions before we move on to the next part of the presentation?
Question

• How many agencies did the IT Security Audit Program visit last year?

A. Less than 100
B. 196
C. 267
D. Over 300
Question

• How many agencies did the IT Security Audit Program visit last year?

A. Less than 100
B. 196
C. 267
D. Over 300
Question

• How many “shall” statements are in the CJIS Security Policy?

A. 136
B. 249
C. 368
D. Over 400
Question

• How many “shall” statements are in the CJIS Security Policy?

A. 136
B. 249
C. 368
D. Over 400
Background

• March 1, 2013 and February 28, 2014
  – 26 CJIS Systems Agencies (CSAs)
    • 21 States
    • 2 Repositories
    • 3 Federals
  – 229 Local Agencies
Background

What’s being compared:

• 2013 = March 2013 through February 2014
• 2012 = March 2012 through February 2013
• 2011 = March 2011 through February 2012
• 2010 = March 2010 through February 2011

(previous cycle results for agencies audited in the past year)
CSA Audit Findings Summary
March 2013 – February 2014
## Audit Findings
March 2013 – February 2014

### CSA Noncompliance Raw Data

<table>
<thead>
<tr>
<th>Rank</th>
<th>Policy Area</th>
<th>Noncompliance Findings</th>
<th>Noncompliance Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Security Addendums</td>
<td>11</td>
<td>50%</td>
</tr>
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Percentages are determined by applicable policies at the 26 CSAs audited
# Audit Findings

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<td>Event Logging</td>
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Audit Findings
Top CSA Audit Findings Trends

Security Addendums

Security Awareness Training

Advanced Authentication

Personnel Screening
Audit Findings
Top CSA Audit Findings Trends

- Security Audits
- Authentication
- Event Logging
- Encryption
Audit Findings

Local Audit Findings Summary

March 2013 – February 2014
## Audit Findings
March 2013 – February 2014

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<tr>
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Percentages are determined out of applicable policies at the total 229 Local Agencies audited.
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Audit Findings
Top Local Agency Audit Findings Trends

Media Disposal

Authentication

Security Awareness Training

Encryption
Audit Findings
Top Local Agency Audit Findings Trends

Personnel Screening

Security Addendums

Management Control Agreements
Repeat Offenders

So what are the top areas to keep an eye out for at the CSA and Local Agency level?
Repeat Offenders

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## Repeat Offenders

### Top Findings at Both CSA and Local Levels

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Audit Findings

CSA Audit New Policy Findings Summary
March 2013 – February 2014
## Audit Findings
March 2013 – February 2014

### CSA New Policy Noncompliance Raw Data

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<tr>
<th>Rank</th>
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<th>Noncompliance Findings</th>
<th>Noncompliance Rate</th>
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<tbody>
<tr>
<td>1</td>
<td>Identification/User ID (Acct. Validation)</td>
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<td>38%</td>
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<tr>
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<td>Media Protection (Written Policies)</td>
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<td>27%</td>
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<tr>
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<td>Media Disposal (Paper Policies, Witnessed)</td>
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<td>19%</td>
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<td>Physical Security (Policies)</td>
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<td>Event Logging (File Level, Log Review)</td>
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<td>Remote Maintenance (Written Justification)</td>
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<td>Sec. Awareness Training (Levels, Tier 1)</td>
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<tr>
<td>*</td>
<td>System Use Notification</td>
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Percentages are determined by applicable policies at the 26 CSAs audited
Audit Findings

Local Audit New Policy Findings Summary

March 2013 – February 2014
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March 2013 – February 2014

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<td>Media Protection (Written Policies)</td>
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<td>34%</td>
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<td>4</td>
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<td>Event Logging (File Level, Log Review)</td>
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<tr>
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<td>Remote Maintenance (Written Justification)</td>
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<td>24%</td>
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</table>

Percentages are determined out of applicable policies at the total 229 Local Agencies audited
New Policy
Repeat Offenders

So what are the top new policy areas to keep an eye out for at the CSA and Local Agency level?
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<td>Media Disposal</td>
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<tr>
<td>Physical Security</td>
<td>Media Disposal</td>
</tr>
<tr>
<td>Event Logging</td>
<td>Event Logging</td>
</tr>
<tr>
<td>Remote Maintenance</td>
<td>System Use Notification</td>
</tr>
<tr>
<td>Sec. Awareness Training</td>
<td>Personally Owned Info. Systems</td>
</tr>
<tr>
<td>System Use Notification</td>
<td>Remote Maintenance</td>
</tr>
</tbody>
</table>
# Repeat Offenders

<table>
<thead>
<tr>
<th>CSA Top Findings</th>
<th>Local Agency Top Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identification/User ID</td>
<td>Physical Security</td>
</tr>
<tr>
<td>Media Protection</td>
<td>Media Protection</td>
</tr>
<tr>
<td>Media Disposal</td>
<td>Identification/User ID</td>
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<td>Physical Security</td>
<td>Media Disposal</td>
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<td>System Use Notification</td>
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<td>Personally Owned Info. Systems</td>
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<td>System Use Notification</td>
<td>Remote Maintenance</td>
</tr>
</tbody>
</table>
Repeat Offenders

<table>
<thead>
<tr>
<th>Top New Policy Findings at Both CSA and Local Levels</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identification/User ID</td>
</tr>
<tr>
<td>Media Protection</td>
</tr>
<tr>
<td>Media Disposal</td>
</tr>
<tr>
<td>Physical Security</td>
</tr>
<tr>
<td>Event Logging</td>
</tr>
<tr>
<td>Remote Maintenance</td>
</tr>
<tr>
<td>System Use Notification</td>
</tr>
</tbody>
</table>
Coming on the Horizon

• 2011 New Policies will begin to be “Sanctionable” beginning October 1, 2014
NCJA IT Security Audits

Questions?
LUNCH

On Your Own
Mobile Security

Jeff Campbell
FBI CJIS Assistant Information Security Officer
Mobile Requirements Evolution

Fall 2011 Security and Access Subcommittee

• “...creation of a matrix that lists the technology juxtaposed against the requirement.”

• Essentially: Would each device meet the Policy requirements?

Spring 2012 Security and Access Subcommittee

• “…develop policy language to move towards a BlackBerry Enterprise Server-like standard for mobile devices.”

• BES represents the ideal managed environment with both policy and technical controls
Spring 2013 Mobile Security Task Force created

- Chaired by Larry Coffee, FL-ISO, Vice-chair Alan Ferretti, TX-ISO

- Members comprised of state and local agency mobile SMEs:
  - Michelle Young, Kent County, MI
  - Jae Lim, Hawaii Criminal Justice Data Center
  - Chris DeSain, NY Public Safety
  - David Painter, Houston, TX PD
  - Tom Jenkins, Ocala, FL PD

- Review topics related to mobile device security and provide recommendations to the S&A Subcommittee
MOBILE SECURITY

Who’s Winning the Battle?

Operating System

Device Manufacturer

Apple

Microsoft

Android

Samsung

Sony

LG

Nokia

HTC

Apple
MOBILE SECURITY

Operating System Market Share

- **Android**: 43%
- **Apple iOS**: 28%
- **BlackBerry**: 18%
- **Windows Phone**: 6%
- **Windows Mobile**: 1%
- **Others**: 4%

Taken from Nielsen ratings for Q3 2011 of US market share

MOBILE SECURITY

130
MOBILE SECURITY

Taken from Nielsen ratings for June 2012 of US market share

- +9%
- +6%
- -10%
- +2%

Smartphone Operating System Share
June 2012, Nielsen Mobile Insights

5.9%  8.1%
34.3%
51.8%

5.0%  4.0%
36.3%
54.6%

All Smartphone Owners  3 Month Recent Acquirers

Read as: During June 2012, 51.8 percent of Smartphone owners had a handset that runs on the Android operating system.

Source: Nielsen
MOBILE SECURITY

Nielsen U.S. Smartphone OS Market Share Q2 2013

Android NC
Apple iOS +6%
Blackberry -5%
Others -4%

Source: Nielsen
Nielsen U.S. Smartphone OS Market Share Q1 2014

Android NC
Apple iOS +2%
Windows +1%
Blackberry -1%
Others -1%
MOBILE SECURITY

Trend of U.S. Smartphone OS Market
## MOBILE SECURITY

### Nielsen U.S. Smartphone OEM Market Share Q2 2013

<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>Android OS</th>
<th>Apple iOS</th>
<th>Windows Phone</th>
<th>BlackBerry</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apple</td>
<td></td>
<td>40%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Samsung</td>
<td>24%</td>
<td>24%</td>
<td>.7%</td>
<td></td>
</tr>
<tr>
<td>HTC</td>
<td>9%</td>
<td>.4%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Motorola</td>
<td>9%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LG</td>
<td>7%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RIM</td>
<td>3%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td>2%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nokia</td>
<td>1.2%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Huawei</td>
<td>1%</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Read as: During Q2 2013, 24% of U.S. smartphone owners used Samsung's Android handsets and .7% had Samsung Windows Phone handsets.

Source: Nielsen
Nielsen U.S. Smartphone OEM Market Share Q1 2014

Apple +2.5%
Samsung +4.3%
Blackberry -1%
HTC -3.3%

Source: Nielsen
Current mobile specific requirements:

- 5.5.6.1 – Personally Owned Information Systems
- 5.5.7 – Wireless Access Restrictions
- 5.5.7.3 – Cellular
- 5.5.7.3.1 – Cellular Risk Mitigations
- 5.5.7.3.2 – Voice Transmission Over Cellular Devices
- 5.5.7.3.3 – Mobile Device Management (MDM)
- 5.5.7.4 – Bluetooth
MOBILE SECURITY

Mobile Devices: Where were we (5.2)?

Current generally applicable requirements:

• 5.3 – Incident Response
• 5.4 – Auditing and Accountability
• 5.5 – Access Control
• 5.10.4.2 – Malicious Code Protection
• 5.10.4.3 – Spam and Spyware Protection
• 5.10.4.4 – Personal Firewall
5.5.7.3.1 Cellular Risk Mitigations

1. Apply available critical patches and upgrades to the operating system as soon as they become available for the device and after necessary testing as described in Section 5.10.4.1.

6. Employ personal firewalls or run a Mobile Device Management (MDM) system that facilitates the ability to provide firewall services from the agency level.

7. Employ antivirus software or run a MDM system that facilitates the ability to provide antivirus services from the agency level.
5.5.7.3.3 Mobile Device Management

- Centralized oversight of configuration control, application usage, and device protection and recovery [if so desired by the agency]
- No devices with unauthorized changes (rooted or jailbroken)
- Minimum MDM controls when allowing CJI access from...
5.5.7.3.3 Mobile Device Management

1. CJI is only transferred between CJI authorized applications and storage areas of the device.
2. MDM with centralized administration capable of at least:
   i. Remote locking of device
   ii. Remote wiping of device
   iii. Setting and locking device configuration
   iv. Detection of “rooted” and “jailbroken” devices
   v. Enforce folder or disk level encryption
A dedicated policy area (5.13)

- Consolidation of existing requirements
- Cross-reference to “general” requirements

Additional requirements based on the current G.4 Mobile Appendix
Mobile Device Categories

**FORM FACTOR**

Large Form Factor – vehicle mount or a carrying case and include a monitor with attached keyboard (MDTs/Laptops)

Medium Form Factor – vehicle mount or portfolio sized carry case that typically consist of a touch screen without attached keyboard (Tablets)

Small Form Factor – intended for carry in a pocket or ‘holster’ attached to the body (Smartphones)
MOBILE SECURITY

Mobile Device Categories

Operating System (OS)

Full-feature OS – Windows, Linux/Unix, Apple OSX

Limited-feature OS – iOS, Android, BlackBerry
Mobile Device Categories

Three categories based on two characteristics

MDTs/Laptops
- Large form factor
- Full featured OS

Tablets
- Medium form factor
- Limited feature OS

Smartphones
- Small form factor
- Limited feature OS
Mobile Device Connectivity Types

Three (3) different types based on two (2) technologies:

1. Cell only – always on
2. WiFi only – could include cell “on demand”
3. Cell only (always on) plus WiFi “on demand”
Mobile Device Connectivity: Cellular Only (Always On)

Cellular only connectivity characterized by:

- ‘Always on’ network connection using the device internal radio to a network provider
- Reasonable assurance that device can be tracked, managed, or wiped remotely if lost or stolen
WiFi only connectivity is characterized by:

- Network access via a public or private hotspot or wireless access point
- Management and tracking not assured
- Could include cell on-demand
Mobile Device Connectivity: Cellular Only (Always On) + WiFi (On Demand)

Hybrid connectivity scenario that has become typical with most smartphones.

• These devices provide the always on cellular connection

• On-demand WiFi access for enhanced bandwidth using built-in capability.
Mobile Device Connectivity Types

Three (3) different types based on two (2) technologies

<table>
<thead>
<tr>
<th>Device Connectivity</th>
<th>MDT / Laptops</th>
<th>Tablets</th>
<th>Pockets / Handhelds</th>
</tr>
</thead>
<tbody>
<tr>
<td>cell only (always on)</td>
<td>X</td>
<td>X</td>
<td>✓</td>
</tr>
<tr>
<td>wifi only (includes ‘on demand’ cell)</td>
<td>✓</td>
<td>✓</td>
<td>X</td>
</tr>
<tr>
<td>cell only (always on) + ‘on demand’ wifi</td>
<td>X</td>
<td>X</td>
<td>✓</td>
</tr>
</tbody>
</table>
MOBILE SECURITY

Solution Example

Agency Network

Secure App Gateway

Internet Proxy

EMM/MDM

Mobile DMZ

Device Level VPN

Agency Issued Device

CJI Compartment VPN / Tunnel

Device Initialization

Local Device Authentication

Advanced Authentication (AA)

Device Policy
Device UHO Cert
VPN Authentication
VPN Credentials

Approved Apps

Unique Cert

File Folders

Secure Storage

Secure Browser

Approved Functions
MOBILE SECURITY

Mobile Devices: Where are we now (5.3)?

5.13 New Policy Area 13: Mobile Devices
5.13.1 5.5.7 Wireless Communication Technologies
5.13.1.1 5.5.7.1 All 802.11 Wireless Protocols
5.13.1.2 5.5.7.3 Cellular
5.13.1.3 5.5.7.4 Bluetooth
5.13.2 5.5.7.3.3 Mobile Device Management (MDM)
5.13.3 5.5.7.3.1 Wireless Device Risk Mitigations
5.13.4 New System Integrity
5.13.4.1 New Patching/Updates
5.13.4.2 New Malicious Code Protection
5.13.4.3 New Physical Protection
5.13.4.4 5.10.4.4 Personal Firewall
5.13.5 New Incident Response
5.13.6 New Auditing and Accountability
5.13.7 New Access Control
5.13.8 New Wireless Hotspot Capability
5.13.9 New Identification and Authentication
5.13.9.1 New Local Device Authentication
5.13.10 New Device Certificates
5.5.6.1 Personally Owned Information Systems

A personally owned information system shall not be authorized to access, process, store or transmit CJI unless the agency has established and documented the specific terms and conditions for personally owned information system usage. When bring your own devices (BYOD) are authorized, they shall be controlled using the requirements in Section 5.5.7.3 Cellular. When personally owned mobile devices (i.e. bring your own device [BYOD]) are authorized, they shall be controlled in accordance with the requirements in Policy Area 13: Mobile Devices.
Mobile Devices: Where are we now (5.3)?

5.13.1 Wireless Communications Technologies

5.13.1.1 All 802.11 Wireless Protocols

Agencies shall implement the following controls for all agency managed wireless access points:

5.13.1.2.2 Voice Transmissions Over Cellular Devices

Any cellular device used to transmit CJI via voice is exempt from the encryption and authentication requirements when an officer determines there is an immediate need for the CJI to further an investigation or situations affecting the safety of an officer or the general public.
5.13.2 Mobile Device Management

1. CJI is only transferred between CJI authorized applications and storage areas of the device.
2. MDM with centralized administration capable of at least:
   i. Remote locking of device
   ii. Remote wiping of device
   iii. Setting and locking device configuration
   iv. Detection of “rooted” and “jailbroken” devices
   v. Enforce folder or disk level encryption
   vi. Application of mandatory policy settings on device
   vii. Detection of unauthorized configurations or software/applications
5.13.3 Wireless Device Risk Mitigations

5. Erase cached information, *to include authenticators (see Section 5.6.2.1) in applications*, when session is terminated.

6. Employ personal firewalls or run a Mobile Device Management (MDM) system that facilitates the ability to provide firewall services from the agency level.

7. Employ antivirus software or run a MDM system that facilitates the ability to provide antivirus services from the agency level.

5.13.4.2 Malicious Code Protection

*An appropriately configured MDM shall be used on smartphones and tablets to prevent the installation of unauthorized software or applications.*
5.13.4.5 Personal Firewall

- “...employed on all mobile devices that are mobile by design **have a full-featured operating system** (i.e. *laptops*, handhelds, personal digital assistants, etc. **or tablets** with *Windows* or *Linux/Unix* operating systems).”

- On limited-feature OS devices, application management using a MDM suffices.
Mobile Devices: Where are we now (5.3)?

5.13.5 Incident Response

• In addition to Section 5.3

• Additional reporting procedures in these situations:
  o Loss of device control (lock state, duration)
  o Total loss of device (CJI, lock state, remote wipe)
  o Device compromise
  o Device loss or compromise outside the U.S.
5.13.6 Auditing and Accountability

A mobile device not capable of providing required audit and accountability on its own accord shall be monitored by a MDM, other management system, or application capable of collecting required log data.
MOBILE SECURITY VALIDATION

SANS SEC575: Mobile Device Security & Ethical Hacking Takeaways

• MDM – must have, even rudimentary
• Application Management – malware/virus protection
• WiFi Considerations – just say no, unless absolutely required, cell service more secure
• Backend is Bigger Target – device not so much
• No Rooting/Jailbreaking – breaks inherent security features
Questions?
Technical Use Cases and FAQs

Steve Exley
FBI CJIS ISO Sr. Technical Analyst
TECHNICAL USE CASES & FAQs

• Encryption

• Virtualized Environments

• Cloud Computing

• Advanced Authentication

• Questions?
Encryption
Encryption

CJI must be encrypted when:

- Stored (at rest) outside the boundary of a physically secure location
- Immediately when transmitted outside the boundary of a physically secure location (two exceptions: 5.5.7.3.2 – cellular call and 5.10.2 - fax)
- When encryption is used for CJI:
  - In transit: must be FIPS 140-2 certified, at least 128 bit
  - At rest: can be FIPS 140-2 certified, 128 bit or AES, 256 bit
Encryption for Data in Transit
- An officer has an agency-issued laptop used to remotely connect to the agency network.
- The officer establishes an encrypted (FIPS 140-2 certified, 128 bit) virtual private network (VPN) tunnel between his laptop and the agency.
- The agency requires the officer use Advanced Authentication (AA) at the network-VPN connection.
- The officer may run NCIC queries through this connection.

Note: Any CJI stored on the laptop would also be require protection via encryption.
Encryption for Data at Rest

• A county board of education (BOE) is converting all employee records (may contain CJI) to electronic files.

• The files will be saved (stored, at rest) on a network server - server is NOT located in a secure data center.

• Therefore, the files are protected at rest via encryption (FIPS 140-2 certified, 128 bit or AES, 256 bit)

• The agency implemented the following access control measures: The agency is using folder encryption. Each folder contains different files. Each folder has its own CSP-compliant passphrase that provides access to all subsequent files within.
Encryption FAQ #1

Question:
If CJI is saved or stored on a laptop assigned to a police vehicle, must the CJI be encrypted?

Answer:
Per CJIS Security Policy v5.3, the police vehicle is a physically secure location. So, the applicable encryption requirements are the same as any other physically secure location: CJI may be saved unencrypted to a computer that is within a physically secure location, but if removed from the physically secure location (police vehicle) the encryption requirement comes into play.
Question:
How Do I Check for FIPS 140-2 Certification?

Answer:
FIPS certification information can be found at the following NIST links:

- FIPS 140-2 Modules Currently in Testing:

- FIPS 140-2 Certifications Sorted by Vendor

- All Certified FIPS 140-2 Cryptographic Modules
  - [http://csrc.nist.gov/groups/STM/cmvp/documents/140-1/140val-all.htm](http://csrc.nist.gov/groups/STM/cmvp/documents/140-1/140val-all.htm)
Virtualized Environments
Virtualized Environments

There are a few specific security control requirements that need to be implemented to mitigate inherent vulnerabilities, such as:

• Isolating the host from the virtual machine (VM)
• Maintaining audit logs for all VMs and hosts and store the logs outside the host’s virtual environment.
• Separating/segregating Internet facing VMs (web servers, portal servers, etc.) from VMs that process CJI internally (current Policy states physical separation – working to change this).
• Ensuring “critical” device drivers are not shared
TECHNICAL USE CASES & FAQS

Virtualized Environments

The following are technical security industry best practices and should be implemented wherever feasible:

• Encrypt network traffic between the virtual machine and host.

• Implement IDS and IPS monitoring within the virtual machine environment.

• Virtually firewall each virtual machine from each other (or physically firewall each virtual machine from each other with an application layer firewall) and ensure that only allowed protocols will transact.

• Segregate the administrative duties for the host.
Logical Separation

- A PD network was incorporated within a virtualized network as part of a county network consolidation effort.
- The virtual network consists of both CJI and non-CJI processing virtual machines (VM).
- So, the VMs are segregated (CJI-processing VMs from non-CJI VMs) and separated via virtual firewalls.
- The agency has adapted the industry best practice recommendation of encrypting network traffic between the VM and the Host.
- The virtual network resides completely within a physically secure location (no remote connections), so encryption is not a requirement for CJI at rest.
Physical and Logical Separation

- The state police (SP) recently transitioned to a virtualized network.
- The entire network resides completely within the PD which is a physically secure location – no encryption requirement for CJI at rest.
- The SP manages the state switch and will allow remote connections to/from the virtual network via a web portal interface – link is protected via encryption (FIPS 140-2 certified, 128 bit)
- Internet facing VM (web portal interface) is physically separated from non-Internet facing VMs.
- The network consists of both CJI and non-CJI processing virtual machines (VM) - VMs are segregated (CJI-processing VMs from non-CJI VMs) and separated via virtual firewalls.
Virtualized Environments

Logical and Physical Separation

Server #1 – CJI and non-CJI applications
- CJI-processing VM (#1)
- Non-CJI processing VM (#2)

Server #2 – Internet-facing
- Web Portal Interface VM (#3)

Host Operating System / Hypervisor

Hardware
(single physical server)
Virtualized Environments

Example of Physical Separation

LEGEND

- CJIS Data
- Normal Data
- Server to Interconnect
- FCoE Storage Connections

Switches
Fabric Interconnects
Front View
Rear View
CJIS Virtual Pool
Normal Virtual Pool
Storage Array
Virtualized Environments FAQ #1

Question:
In section 5.10.3.2 Virtualization, item number 3 in the second paragraph states:

"Virtually firewall each virtual machine from each other (or physically firewall each virtual machine from each other with an application layer firewall) and ensure that only allowed protocols will transact."

So, is this a requirement? Will this be audited?

Answer:
No. This is not an auditable requirement. It is simply industry best practice guidance. Appendix G.1 provides some additional best practice guidance to provide better security for your virtualized environment.
Virtualized Environments FAQ #2

Question:
In section 5.10.3.2 Virtualization, Item number 4 states:
"Device drivers that are “critical” shall be contained within a separate guest."
I am not sure what this requirement is asking? Does this mean that critical device drivers should be stored in separate virtual machine?

Answer:
The requirement is to place the critical drivers for each guest (or more specifically, VM) within that guest/VM. In other words, don’t store the drivers in the hypervisor, or host operating system, for sharing. The intent is for each VM to be treated as their own systems – secured independently.
Cloud Computing
Cloud Computing

What is Cloud Computing?

• Defined by the CJIS Security Policy as:

A distributed computing model that permits on-demand network access to a shared pool of configurable computing resources (i.e., networks, servers, storage, applications, and services), software, and information.
Cloud Computing

The Cloud Model Explained

Cloud Essential Characteristics
- Broad Network Access
- On-Demand Self-Service
- Rapid Elasticity
- Resource Pooling
- Measure Service

Cloud Service Models
- SaaS (Software as a Service)
- PaaS (Platform as a Service)
- IaaS (Infrastructure as a Service)

Cloud Deployment Models
- Public
- Private
- Hybrid
- Community
Cloud Computing

Cloud Essential Characteristics

- Pay-as-you-go
- On-Demand Self-Service
- Measured Service
- Rapid Elasticity
- Resource Pooling (Multi-tenant)
- Broad Network Access
- Reachability
- User Empowerment
- Economies of Scale

TECHNICAL USE CASES & FAQS
Cloud Computing

Cloud Service Models

- **Software as a Service (SaaS)**: End-user applications delivered as a service, rather than on-premises software.
- **Platform as a Service (PaaS)**: Application platform or middleware as a service on which developers can build and deploy custom applications.
- **Infrastructure as a Service (IaaS)**: Compute, storage or other IT infrastructure as a service, rather than as dedicated capability.
Cloud Computing

Cloud Deployment Models

**Private cloud**
is operated solely for an organization and the cloud may be on or off the premises.

**Community cloud**
is shared by several organizations and supports a specific community of customers that have similar information technology requirements.

**Public cloud**
has an infrastructure that is made available to the general public or large industry group.

**Hybrid cloud**
has an infrastructure that is composed of two or more clouds that remain unique entities but are bound together by standardized or proprietary technology.
Cloud Computing

What Does a Cloud Deployment Actually Look Like?
TECHNICAL USE CASES & FAQS

Cloud Computing

This is a More Realistic Cloud Deployment Diagram
TECHNICAL USE CASES & FAQS

Cloud Computing

Benefits of Cloud Computing

Reduced Budgets

Improved Efficiency

Disaster Recovery

Service Consolidation
Delineation of Responsibility/Governance in Cloud Computing
TECHNICAL USE CASES & FAQS

Cloud Computing

Security Concerns with Cloud Computing

• Privileged user access
• Regulatory compliance
• Data location
• Data segregation
• Recovery
• Investigative support
• Long-term viability
Cloud Computing

Cloud Computing and the CJIS Security Policy

• Section 5.10.1.5 Cloud Computing
  - The metadata derived from CJI shall not be used by any cloud service provider for any purposes.
  - The cloud service provider shall be prohibited from scanning any email or data files for the purpose of building analytics, data mining, advertising, or improving the services provided.

• Appendix G.3 Cloud Computing White Paper
Cloud Computing Use Case #1

Encryption for Data in the Cloud

- An NCJA decides to start utilizing cloud storage to backup files which do contain CJI.
- The agency encrypts the files using a FIPS 140-2 certified, 128 bit.
- Then, the agency sends the files to a cloud storage solution.
- The agency maintains the decryption passphrases so no cloud service provider will have access to unencrypted CJI.
Personnel Security for Cloud Service Provider

- A local PD is transitioning to a cloud-based virtualized network service and will permit the storage and transmission of CJI to/from the cloud.

- The cloud service provider as part of the service level agreement will provide encryption services for:
  - Data at rest (AES, 256 bit), and
  - An encrypted link for data in transit – TLS/SSL (FIPS 140-2 certified, 128 bit)

- This concept is not much different than outsourcing to a non-cloud provider. Any cloud service provider employee that has the capability of accessing the CJI in an unencrypted state (remember: cloud service provider is providing encryption services) must undergo a finger-print based background check, security awareness training, and sign the Security Addendum (SA)
Question:
If our agency wants to store our backup data in a public cloud environment would we be required to have the cloud service provider (a private vendor) employees sign a Security Addendum and be subject to fingerprint-based background checks?

Answer:
Yes. The Security Addendum must be incorporated or referenced in the contract with the cloud service provider, and the Security Addendum Certificate pages must be signed by any and all cloud service provider employees who have access to unencrypted CJI. This ensures the provider agrees to abide by the requirements of the CJIS Security Policy (CSP) including submitting those cloud service provider employees (with access to the unencrypted CJI) for a fingerprint-based background check.
Cloud Computing FAQ #2

Question:
Our city has recently been considering moving to cloud-based email service covering all city departments and agencies, to include the local police department. Our question is: Are we allowed to send criminal justice information (CJI) through email?

Answer:
You can send e-mail containing Criminal Justice Information (CJI) as long as it remains within your physically secure environment (as described in the Policy), you send the e-mail along an encrypted path (FIPS 140-2 certified, 128 bit) to the recipient, or you encrypt (FIPS 140-2 certified, 128 bit) the payload of an e-mail.
Advanced Authentication (AA)
When AA is Required

Required:

✓ When requesting access to unencrypted CJI from outside the boundaries of a physically secure location (e.g., remote access)

Or

✓ Technical security requirements for a physically secure location have not been met

Not required:

x When requesting access to CJI from within the perimeter of a physically secure location

And

x The technical security controls have been met

Or

x User has indirect access CJI
Advanced Authentication (AA)

The Purpose of AA

• To provide additional assurance the user is who they claim to be.
  ➢ Authorized User?

• AA provides additional security beyond the typical user identification (e.g., user ID) and authentication (e.g., password):
  ➢ Increased Assurance of User Identity
  ➢ Non-repudiation
  ➢ Lower Risk for Data Exfiltration
Advanced Authentication (AA)

Achieving AA

• The intent of AA is to meet the standards of two-factor authentication.

• Authenticators provide the “something you know”, “something you are”, or “something you have” within a two factor authentication solution.

• A Risk-based Authentication (RBA) solution can be used to provide one of the authenticators.

• The AA equation:
  \[(\text{ID}) + (\text{authenticator 1}) + (\text{authenticator 2}) = \text{AA}\]
Advanced Authentication (AA)

Proper Implementation of AA

- Each individual’s identity shall be authenticated at either the local agency, CSA, SIB or Channeler level.
- The authentication strategy shall be part of the agency’s audit for policy compliance.
  - The credentials used for determining CJI access will be audited for CJIS Security Policy compliance.
- Users cannot use the same password or PIN in the same logon sequence.
Advanced Authentication (AA) Use Case #1

Use of a Smart Card – PKI solution using user-based certificates

- Using a terminal within a controlled area, the user launches an NCIC application to run a CJI query.
- When prompted, the user enters a username, password, and inserts the smart card – user is required to enter a PIN to unlock (or activate) the smart card to allow the use of the digital user certificate.
- The credentials are sent to the authentication management server at the local agency where they are validated. And access is granted.
- The AA equation: username (ID) + password (“something you know”) + digital user certificate (“something you have”) = AA
Out of Band One-Time-Password (OTP) – Mobile phone-based

- A user established a remote connection to the agency network via an encrypted (FIPS 140-2 certified, 128 bit) virtual private network (VPN) connection.

- Upon establishing the VPN, the user is prompted to enter a username and password. Then, a text message containing a one-time password (OTP) is sent via text message (out of band) to the user’s agency-issued cell phone.

- The user enters the OTP.

- The credentials are sent to the authentication management server at the local agency where they are validated. And access is granted.

- **The AA equation**: username (ID) + password (“something you know”) + OTP (“something you have”) = AA
Question:
If I am using a computing device from within my police vehicle, do I need AA?

Answer:
Maybe. There are technical controls (Sections 5.5. & 5.10) that have to be met as with any physically secure location. Additionally, you must be able to know the originating CJI request came from within a police vehicle (physically secure location).

If a device (e.g., laptop, tablet, smartphone) is not mounted in the vehicle and is usable while mobile outside of the vehicle, then the location of the query cannot be positively determined. Therefore, AA would be a requirement.
Advanced Authentication (AA) FAQ #2

Question:
We use live scan devices at our agency to collect and submit fingerprints. Officer swipes a subject's fingerprint through the scanner. The data is sent to the national database for analysis. Is AA required on these devices?

Answer:
If CJI is returned to the scanner and the request for access can be determined to have originated from within a physically secure location then AA isn't required. Otherwise, AA would be required due to device location and CJI being sent to the device.

Conversely, If the scanner is only used to submit data (regardless of location) or only receive a hit/no hit or red/green light response, then AA would not be required.
Questions?
BREAK
“On the Horizon”

Jeff Campbell
FBI CJIS Assistant Information Security Officer
ON THE HORIZON

- Encryption Exemption
- Requirement Tiering
- Certificate Use Clarification
- Partitioning and Virtualization
- Virtual Escorting
- In/Out-of-band Clarification
- Auditing Facilities in Other Jurisdictions
- Policy Area 13: Mobile Devices Update
- Mobile Appendix Update
- Cloud Appendix Update
- Faxing Requirements Update
- Appendix K Value
ON THE HORIZON

Title: Exception to CJIS Security Policy Section 5.10.1.2 Exemptions

Current Status: Being presented to the Fall 2014 Working Groups for action

Physical or technical controls to allow cabling carrying unencrypted CJI between physically secure locations.
Title: Integrating Risk-based Compliance and Requirement Tiering into the CJIS Security Policy

Current Status: Being presented to the Fall 2014 Working Groups for action

Final stages of determining if and how to integrate requirement tiers into the Policy.
Propose modification to the CJIS Security Policy to clarify the use of certificates, especially in the advanced authentication process.

Title: Clarifying Types of Certificates

Current Status: Being presented to the Fall 2014 Working Groups for action
Title: Clarification of Virtualization and Partitioning in the CJIS Security Policy

Current Status: Being presented to the Fall 2014 Working Groups for action

Present recommended changes to the Policy to clarify the practice of virtualization and partitioning.
ON THE HORIZON

Title: Virtual Escorting

Current Status: Being presented to the Fall 2014 Working Groups for action

Identify a method to virtually escort a remote session for system maintenance.
Title: In/Out-of-Band Clarification


Add or modify Policy language to clarify the meaning of in/out-of-band use of supplying logon credentials.
Title: Auditing Facilities in Other Jurisdictions

Current Status: Topic paper request received and topic being developed for Spring 2015 Working Groups.

This topic will focus on discussing how to modify the CJIS Security Policy to allow a CSA to perform facility inspections of vendors that are in a different state.
ON THE HORIZON

Title: **Update Policy Area 13: Mobile Devices**

Current Status: Topic paper request submitted by Mobile Security Task Force chairman

During the process to modify the Policy with the mobile updates, a Mobile Security Task Force was created to review mobile-centric topics and provide recommendations to the Security and Access Subcommittee. The task force reviewed the proposed changes and will make recommendations for modifying the Policy.
The FBI CJIS ISO Program is developing an update to the Mobile Appendix - bringing the information up to current industry best practices.

Title: Mobile Appendix Update

Current Status: In development – target Spring 2015
ON THE HORIZON

Title: Cloud Appendix Update

Current Status: Being considered

The FBI CJIS ISO is considering an update to the Cloud Appendix to level the information with current industry best practices.
Update the language in Section 5.10.2 to keep pace with new fax technology such as fax servers or web based fax services that essentially function as email.
ON THE HORIZON

Title: Appendix K Value

Current Status: Draft

Review Appendix K and determine if it still provides value as a tool to criminal justice agencies with respect to the CJIS Security Policy requirements.
ISO RESOURCES

CJIS Security Policy Resource Center

- Publically Available:
  

- Features:
  
  - Search and download the CSP
  - Download the CSP Requirements and Transition Document
  - Use Cases (Advanced Authentication and others to follow)
  - Cloud Computing Report & Cloud Report Control Catalog
  - Mobile Appendix
  - Submit a Question (question forwarded to CJIS ISO Program)
  - Links of importance

iso@leo.gov
ISO RESOURCES

CJIS Security Policy Resource Center


Step #1 Select “About Us”

Step #2 Select “Criminal Justice Information Services”
Step #3
Select "Security Policy Resource Center"

CJIS Security Policy Resource Center


Nestled in the hills of West Virginia is a high-tech hub that supports crime-fighting and national security.

Here, statisticians are compiling vast amounts of data from law enforcement into a series of regular reports detailing the state of crime in communities across the country. The world's largest repository of criminal fingerprints and history records is being searched in a flash by investigators and police professionals working to catch crooks and terrorists.

Some of the proactive checks built to ensure the thorough and sound use of our programs:

ISO RESOURCES

Criminal Justice Information Services

Explore Our Services

Crime Statistics/UCR
Crime in the U.S., Hate Crime, LEOKA, and more.

Fingerprints and Other Biometrics
IAFIS, Next Generation Identification, global initiatives, etc.

LEO: Law Enforcement Online
A secure website for criminal justice professionals.

N-DEx: Law Enforcement National Data Exchange
An automated system for exchanging criminal justice data

Criminal Background Check
A system for verifying the criminal history of individuals

Gun Checks
A system for verifying the background of gun purchasers

NCIC: National Crime Information Center
An electronic clearinghouse of crime information available 24/7.

Other Programs

Advisory Policy Board | Compact Council | Community Outreach
| Intelligence Group | Security Policy Resource Center
4 CRIMINAL JUSTICE INFORMATION AND PERSONALLY IDENTIFIABLE INFORMATION

4.1 Criminal Justice Information (CJI)
Criminal Justice Information is the term used to refer to all of the FBI CJIS provided data necessary for law enforcement and civil agencies to perform their missions including, but not limited to biometric, identity history, biographic, property, and case/incident history data. The following categories of CJI describe the various data sets housed by the FBI CJIS architecture:

1. Biometric Data—data derived from one or more intrinsic physical or behavioral traits of humans typically for the purpose of uniquely identifying individuals from within a population. Used to identify individuals. To include: fingerprints, palm prints, iris scans, and facial recognition data.

2. Identity History Data—textual data that corresponds with an individual's biometric data, providing a history of criminal and/or civil events for the identified individual.

3. Biographic Data—information about individuals associated with a unique case, and not necessarily connected to identity data. Biographic data does not provide a history of an individual, only information related to a unique case.

4. Property Data—information about vehicles and property associated with crime when accompanied by any personally identifiable information (PII).

5. Case Incident History—information about the history of incident incidents.
ISO RESOURCES

CJIS Security Policy Resource Center


CJIS Security Policy Frequently Asked Questions Submission

This page is intended for use by members of law enforcement and non-criminal justice agencies of the CJIS community as well as vendors who provide support to law enforcement and non-criminal justice agencies. All submitted questions should specifically pertain to the CJIS Security Policy and its application—not to any other business processes performed by the CJIS Division or the FBI in general. Submissions received that are unrelated to the CJIS Security Policy will neither be answered nor retained.

Please fill out the form below. The red square indicates a required field.

First Name

Last Name

Your E-Mail Address

Your State

Subject

Comments

3000 characters remaining

ReCaptcha
Open Forum Discussion

George White
FBI CJIS Information Security Officer
Chief, CJIS Information Assurance Unit
Closing Remarks

George White
FBI CJIS Information Security Officer
Chief, CJIS Information Assurance Unit
DINNER

On Your Own
Peer-to-Peer Discussions

George White
FBI CJIS Information Security Officer
Chief, CJIS Information Assurance Unit
Closing Remarks

George White
FBI CJIS Information Security Officer
Chief, CJIS Information Assurance Unit