Inheritance Follows Reachability

Allocating Control Correlation Identifiers On Systems That Cannot Consume Enterprise Services

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Status: Final

Table of Contents

Table of Figures

Abstract

This paper exists because of a trend in authorization packages for disconnected government systems and defense products. Defense Information Systems Agency (DISA) Control Correlation Identifiers (CCIs) already map to National Institute of Standards and Technology (NIST) Special Publication (SP) 800-53 controls, yet packages still treat “inherited” and “not applicable (N/A)” as substitutes for allocation. The work this paper addresses is deciding which mapped CCIs are satisfied at the organization, at the program, or inside a specific authorization boundary, and whether “inherited” is a true statement for that boundary.

Most Risk Management Framework (RMF) practice assumes a connected enterprise system: an identity provider, a Security Information and Event Management (SIEM) system, a scanner, and a policy shop that the system can actually use. Disconnected government systems and defense products often cannot use those services. Teams then make one of two errors. They either mark enterprise services inherited when the product cannot reach them, or they treat isolation as a waiver and mark the CCI not applicable.

This paper argues a narrower rule. **Inheritance follows reachability.** A policy directive may remain organizational or programmatic. The technical CCI follows the mechanism that makes the sentence true. If the product cannot consume the enterprise implementation, the technical CCI becomes system-specific or compensating. Isolation moves implementation. It does not retire the requirement. Support laptops used to build the product are a different boundary from the product itself.

How to read this paper

This paper does not republish the CCI list. DISA already publishes that correlation. Governance, risk, and compliance (GRC) and authorization tools display it. The paper explains what a CCI is, how it attaches to one 800-53 control, and how to decide whether that CCI applies to a given product authorization boundary.

This paper is a decision framework for people who have to apply that correlation to a real system, including systems that do not join the organization network. Applicability follows product function. Allocation follows after that. The paper separates four things packages routinely collapse:

1. Whether the product authorization boundary has the function the CCI protects
2. The parent 800-53 control
3. The assessable CCI under that control
4. The tier and implementation approach used to satisfy that CCI

1. The problem: connected-enterprise RMF applied to disconnected products

RMF training, GRC workflows, and most inherited-control catalogs are built around a familiar picture. The organization publishes policy. A common-control provider operates identity, logging, vulnerability scanning, and endpoint management. The system joins that environment, inherits those services, and implements only what is left inside its boundary.

That picture is valid for a work laptop, a program development enclave, and many enterprise applications. It is not valid for a product authorization boundary that cannot integrate into the organization network.

The failure is not that people "don't understand CCIs." The failure is that they use one allocation story for two different systems.

Two boundaries get treated as one

A product team usually operates at least two environments:

- **Support environment.** Engineer laptops, build networks, labs, and ground tools. These systems often *can* inherit organization or program policy and many technical common controls.
- **Product authorization boundary. The disconnected or non-integrating system being authorized. It can inherit a directive (password rotation interval, audit policy, access-control policy). It often cannot inherit the mechanism (enterprise identity provider (IdP), enterprise SIEM, domain Group Policy Object (GPO), continuous log forwarding).**

When those boundaries are merged in the package, reviewers demand a full policy organization inside the product team, or they accept "inherited SIEM" on a box that has no path to the SIEM. Both are wrong.

Policy and mechanism are not the same CCI

A CCI marked policy is a directive. A CCI marked technical is a mechanism. Type is a useful first sort. It is not the allocation.

Example: the organization requires authenticator rotation every *X* days.

- The policy CCI and the organization-defined parameter can stay with the organization or program. The product team does not need to author a second corporate password policy if the existing policy already applies to this system type.
- The technical CCI (the product actually expires authenticators at *X*) is system-specific if there is no enterprise identity service inside the product.
- The support laptops used to build the product may enforce that same rule through the program directory. That inheritance belongs on the laptop boundary, not on the product authorization boundary.

People who argue that "the system needs all the policies behind it" are half right. The product must be *under* the organizational directive. They are wrong when they require the product authorization package to recreate the organization's policy stack, or when they treat an unreachable enterprise tool as coverage.

“Inherited” and “N/A” are the two cheap answers

On disconnected products, packages tend to collapse to one of two shortcuts:

- **Inherited.** The organization has an access-control program and a SIEM. The product is marked inherited. The common control does not reach the boundary. The CCI is not satisfied.
- **N/A because isolated.** The product cannot join the enterprise collector, so the audit or access CCI is marked not applicable. Isolation is treated as a waiver. The requirement is still there.

A defensible package does a third thing. It keeps the organizational directive, implements the reachable mechanism locally or at the program enclave, uses a compensating control where the prescribed tool cannot exist, and records residual risk for the authorizing official.

What this paper will not do

It will not republish the DISA CCI list. It will not treat unofficial search indexes as authoritative. It will not claim that every policy CCI is always organizational, or that every technical CCI is always system-specific. Allocation is context-dependent. NIST says so. The operating environment is part of that context.

The next section states the source of truth for the correlation. The section after that states how organization, program, and product authorization boundary share both policy CCIs and technical CCIs.

2. What a CCI is, and what already maps

A Control Correlation Identifier is DISA’s assessable sentence under a NIST SP 800-53 control. The parent control states the outcome. The CCI is the sentence an assessor can mark satisfied, not satisfied, or not applicable. Each CCI points at one 800-53 control. One control usually fans out into several CCIs. A green control with an unsatisfied CCI is not actually done.

That is how a CCI applies. The organization or customer selects an 800-53 control for a baseline or overlay. The CCIs under that control are the testable pieces. Applicability is not automatic from selection. A CCI applies to a product authorization boundary when that boundary has the function the CCI is written to protect. If the function is absent, the CCI does not apply. If every CCI under the parent is absent for that reason, the parent control does not apply. If the function is present, the CCI stays in play and must be inherited, tailored, or implemented.

DISA publishes the official CCI list on Cyber Exchange. Each CCI record points at an 800-53 control, carries a definition, and is typed as policy or technical. Policy CCIs are directives. Technical CCIs are mechanisms. That list is the source of truth for the correlation. NIST publishes 800-53, 800-53A, and 800-53B. NIST does not publish CCIs.

Other tools display the same join. GRC and authorization tools attach CCIs to controls in a package. Security Technical Implementation Guide (STIG) rules cite CCIs, and those CCIs point back to 800-53. Public indexes and scanner audit files make the same data searchable. They are finding aids. They are not a second official map.

This paper does not rebuild that map. It uses the map. The work that remains is allocation: which CCI is satisfied where, by whom, with what evidence.

Policy versus technical is the first sort, not the answer. A policy CCI is a directive. A technical CCI is a mechanism. Either type can exist at the organization. Either type can exist on the product authorization boundary. The program sits between them.

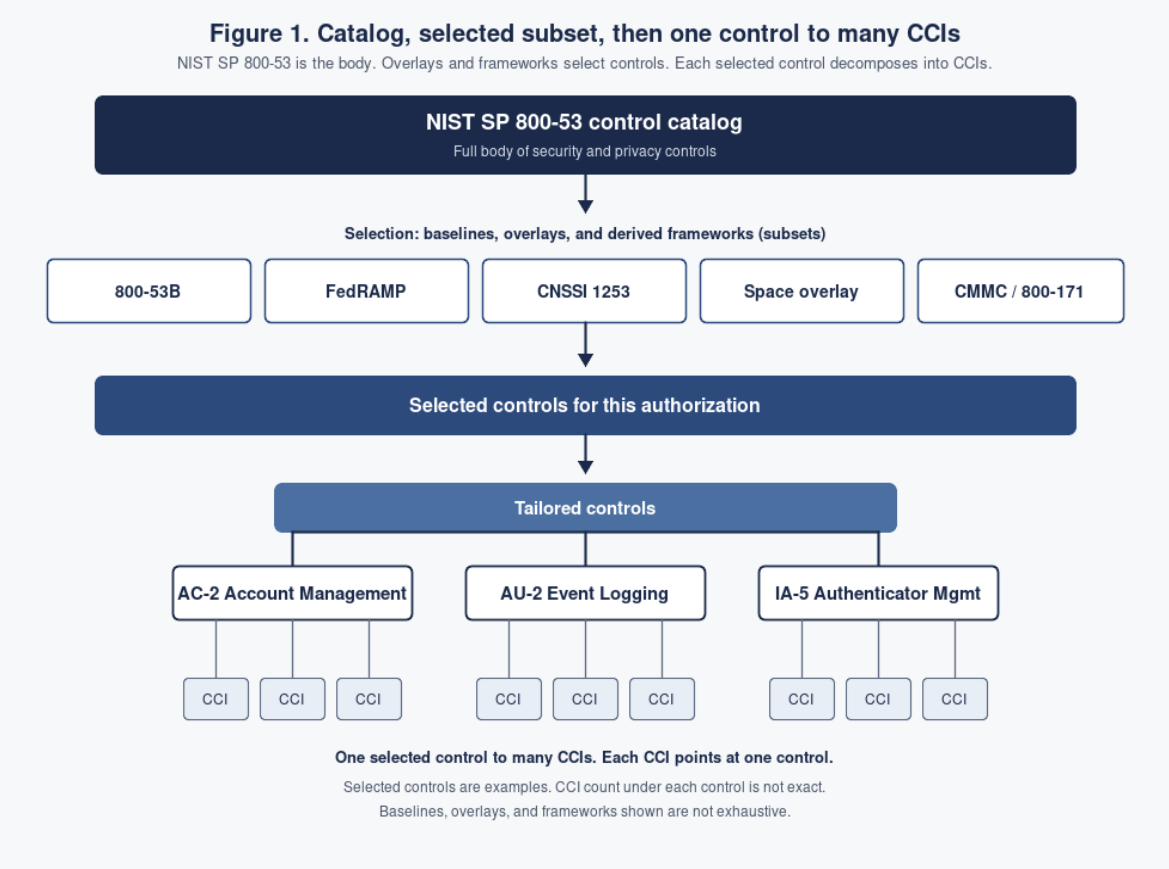

Figure 1: Catalog selected and tailored controls to CCIs

Figure 1. NIST SP 800-53 is the catalog. Baselines, overlays, and derived frameworks select a subset. The program tailors that subset. Each remaining control decomposes into CCIs. Selected controls and CCI counts are examples, not a complete list.

The work runs in this order. Select the catalog subset. Tailor that subset for the program: parameters, overlays, and what this product type owes. Review function on the product authorization boundary. If the function is absent, that CCI is N/A. If every CCI under the parent is N/A, the control is N/A. That N/A is still tailoring. What remains is allocated: inherit and tailor the directive at the program, implement the technical CCI where the mechanism can run. If the enterprise tool cannot reach the product, tailor the implementation. Do not mark that CCI N/A. Tailoring in Figure 1 is adjustment of the selected set. It is not the later claim that a still-applicable CCI is gone because the prescribed tool cannot be installed.

3. Organization, program, and product authorization boundary

NIST describes risk management at three tiers: organization, mission or business process, and information system. In this paper the middle tier is the program. The system tier is the product authorization boundary. NIST also describes three implementation approaches: common, hybrid, and system-specific. Program Management family controls sit outside that trio. They belong in the organization or program plan, not in the product baseline as leftover N/A rows.

The common mistake is to treat those labels as exclusive bins. Policy at the organization only. Technical on the product only. That is not how a disconnected product team actually works, and it is not what NIST requires. Designation is context-dependent. Control language alone does not decide it.

Both types apply at more than one tier

Organizational and policy CCIs can apply to the organization and to the product authorization boundary.

- The organization writes the access-control policy, the audit policy, and the authenticator rules.
- The program inherits those directives and tailors them for the program: parameters, overlays, procedures, and what “applies to this product type” means.
- The product authorization boundary still needs the local procedure that shows how *this* boundary carries out the tailored rule. That procedure is not a second corporate policy shop. It is the product-level half of a policy or process CCI when the org text does not describe the disconnected implementation.

Technical CCIs can apply to the organization and to the product authorization boundary.

- The organization may operate identity, logging, scanning, and endpoint services for systems that can consume them. Those technical CCIs are common for the support environment.
- The product authorization boundary often cannot consume those services. The same parent control then has technical CCIs that are system-specific on the product: local authenticators, local audit generation, local review, local configuration.

The program does not pick one type and ignore the other. It inherits and tailors the organizational and policy layer. It drives the technical implementation onto the product authorization boundary.

What the program actually does

1. Inherit the organization directive where it already applies.
2. Tailor that directive for the program: scope, parameters, overlays, and program procedures.
3. Implement the technical CCIs on the product authorization boundary when the enterprise mechanism cannot reach it.
4. Keep the support environment on a separate inheritance path. Laptops and labs may consume organization or program technical common controls. That does not cover the product authorization boundary.

Password rotation is the simple case. The organization can require rotation every X days. The program can inherit that parameter and tailor it if the product type needs a different value the authorizing official (AO) will accept. The product authorization boundary must enforce rotation. The support laptops may already enforce the organization value through the program directory. Two implementations. One directive.

Audit and monitoring is the same pattern with a worse habit attached. A customer may say “SIEM.” That is an implementation. The parent controls still require records, protection, and review. The program tailors the review method to what the product can do. It does not delete the technical CCIs because the product cannot join the enterprise collector.

Inheritance follows reachability

A CCI is inherited only when a provider implements that CCI for this authorization boundary and can produce evidence. Reachability is the test.

- If the product authorization boundary cannot use the organization IdP, it does not inherit the technical identity CCIs. It implements them.
- If the organization policy already applies, the product team inherits the directive and does not rewrite the policy.
- If the program tailored the directive, the product package points at the tailored program policy, then shows the technical implementation on the product.
- If no provider reaches the boundary, “inherited” is false. “N/A because isolated” is also false unless the CCI truly has no meaning in this environment.

The next section turns this into the decision tests used on each CCI.

4. Decision tests for each CCI

Work at CCI granularity, not at family granularity. The parent 800-53 control stays in the package if it was selected. Each CCI under that control gets an owner, an implementation approach, and an evidence source. Do not mark the parent control satisfied until every in-scope CCI has that.

Product function comes first. If the product authorization boundary does not have the capability the CCI is written to protect, the CCI is not applicable. You cannot implement or test a safeguard for a function that does not exist on that boundary. That is scoping. It is not tailoring away an inconvenient tool, and it is not isolation-as-waiver.

Type is the next sort. Policy CCIs default toward the organization or program, then get tailored. Technical CCIs default toward the product authorization boundary when the function exists and the enterprise mechanism cannot reach it. Either default can be wrong. Run the tests anyway.

Test 1. Does the product have the function this CCI protects?

Ask what capability the CCI assumes: user logon, remote access, wireless, external network connectivity, removable media, a general-purpose operating system, a browser, privileged interactive accounts.

If that function is not present on the product authorization boundary, the CCI is not applicable. Document the missing function. Stop. Do not invent a login architecture so you can inherit an enterprise IdP. Do not write a password procedure for a product that has no user logins.

If the function is present, the CCI stays in play. Applicability is driven by what the product does, not by whether the enterprise already owns a tool that implements the same parent control elsewhere.

This test is why “the product does not have user logins” and “the product cannot join the enterprise SIEM” are different claims. No logons means the logon CCIs are not applicable. No SIEM path means the audit CCIs still apply if the product generates events, and the implementation has to live on the product or in a compensating review process.

If every CCI under a parent control is not applicable because the product lacks the functions those CCIs protect, the parent control is not applicable. Document that from the CCIs up. If any CCI under that control still protects a function the product has, the control remains applicable. Applicability is not a majority vote. One remaining in-scope CCI keeps the control. Zero remaining in-scope CCIs retires it.

Test 2. Is this a Program Management family requirement?

PM controls belong in the organization or program plan. They are not common, hybrid, or system-specific in the 800-53 sense. They are independent of a particular system. Do not dump them onto the product authorization boundary as N/A filler. Account for them where the program is managed.

Test 3. What sentence is this CCI?

- Policy or organizational directive: who may access, how often authenticators change, what must be logged, what must be reviewed.
- Technical mechanism: the product actually enforces the rule, generates the record, stores the authenticator, or performs the review.

If you cannot say which sentence you are allocating, you will allocate the parent control as a blob. That is how packages get marked inherited or N/A in one stroke.

Test 4. Does the organization directive already apply?

If the organization already required the rule, the program inherits it. The program then tailors it for this product type: parameters, overlays, scope, and program procedures. The product authorization boundary does not author a second corporate policy to prove it is “under policy.”

The product still owes a local procedure when the tailored rule does not describe how this disconnected boundary carries out the work. That is a product-level policy or process CCI, not a new policy organization.

Test 5. Can a common-control provider actually reach this boundary?

Inheritance requires three things at once:

1. A named provider.
2. An implementation of *this* CCI that covers *this* authorization boundary.
3. Evidence the provider can give an assessor.

If any one is missing, the CCI is not inherited. Organization SIEM, organization IdP, and organization scanning do not cover the product authorization boundary unless that boundary is a subscriber. Support laptops may be subscribers. The product often is not.

Test 6. Who operates the mechanism that makes the technical CCI true?

- Organization or program operates it and the product consumes it: common, or the common half of hybrid.
- Program operates a shared enclave service that the product consumes: program common, or hybrid.
- The mechanism exists only inside the product authorization boundary: system-specific.

Disconnected products fail Test 5 on most enterprise technical services. Test 6 then puts those technical CCIs on the product.

Test 7. Is the honest answer hybrid?

Most parent controls on a disconnected product are hybrid. The directive is organizational or programmatic. The mechanism is on the product. Forcing the whole control to Common or System-Specific hides one of those halves.

Write the split in the implementation statement. Policy CCI: inherited from organization, tailored by program. Technical CCI: implemented on the product authorization boundary. Evidence: program policy citation plus product configuration and test results.

Test 8. If you want N/A or tailored-out, what is actually gone?

Test 1 already handled true scoping: the function does not exist on the product authorization boundary. Everything else in this test is tailoring of implementation, not a claim that the product has no function to protect.

Isolation is not a waiver. Customer selection of a tool is not a freeze on implementation.

You may replace an unreachable mechanism with a compensating implementation that still meets the control intent. You may record residual risk when the product cannot provide continuous enterprise-style monitoring.

You may not mark the CCI N/A because the prescribed tool cannot be installed. You may not drop a contractual or customer-imposed requirement without the authorizing official who owns that requirement. A contractor AO cannot silently delete what the government customer still expects.

What to write in the package

For each in-scope CCI, the package should be able to answer:

- Parent control
- Function present on the product authorization boundary: yes or no, with rationale
- If every CCI under the parent is not applicable, the parent control is not applicable
- CCI type: policy or technical
- Tier: organization, program, or product authorization boundary
- Approach: common, hybrid, or system-specific

- Provider or implementer
- Whether the mechanism reaches this boundary
- Evidence
- Residual risk if the implementation is compensating or reduced

If those lines are blank, the designation is a label, not an allocation.

The next section applies the tests to the two boundaries that get merged in practice: the support environment and the product authorization boundary.

5. Two boundaries: support environment and product authorization boundary

A product team almost always has two authorization problems. They get written as one package when people are tired.

Support environment. Engineer laptops, build networks, labs, and ground tools used to develop, test, or maintain the product. These systems usually have general-purpose operating systems, user logons, browsers, removable media, and a path to organization or program services.

Product authorization boundary. The disconnected or non-integrating system being fielded. Its functions are whatever the product actually does. That set is often smaller: i.e. no interactive user logon, no enterprise directory, no wireless, no general-purpose desktop stack.

Applicability is decided on each boundary separately. A CCI that applies to a laptop because the laptop has user logons does not become applicable to the product because the same program owns both. Function on that boundary is the gate.

Support environment

Run Test 1 against the laptop or lab, not against the product.

If the support system has user logons, remote access, and enterprise connectivity, the related CCIs apply. The program can inherit organization policy and tailor it. Many technical CCIs can be common because the mechanism reaches those devices: directory authentication, endpoint management, scanning, log forwarding.

The support environment is allowed to look like connected-enterprise RMF. That is not a license to copy those designations onto the product authorization boundary.

Product authorization boundary

Run Test 1 again, against the product.

If the product has no user logons, the logon and authenticator CCIs that assume an interactive user are not applicable. If the product has no external network path, the CCIs that assume continuous enterprise transport are not applicable as written. If the product does generate security-relevant events, the CCIs that protect generation, storage, and review of those events still apply. Missing SIEM is not missing function.

Where the function exists and the enterprise mechanism does not reach the product, the program implements the technical CCI on the product authorization boundary. The organization or program directive can still be inherited and tailored. Hybrid is the normal parent-control answer.

What must not cross the line

Do not use support-environment inheritance as product evidence.

Do not use product scoping as support-environment scoping. The laptop still has logons even if the product does not.

Do not write one applicability statement for “the program.” Applicability is per boundary, per CCI, per function.

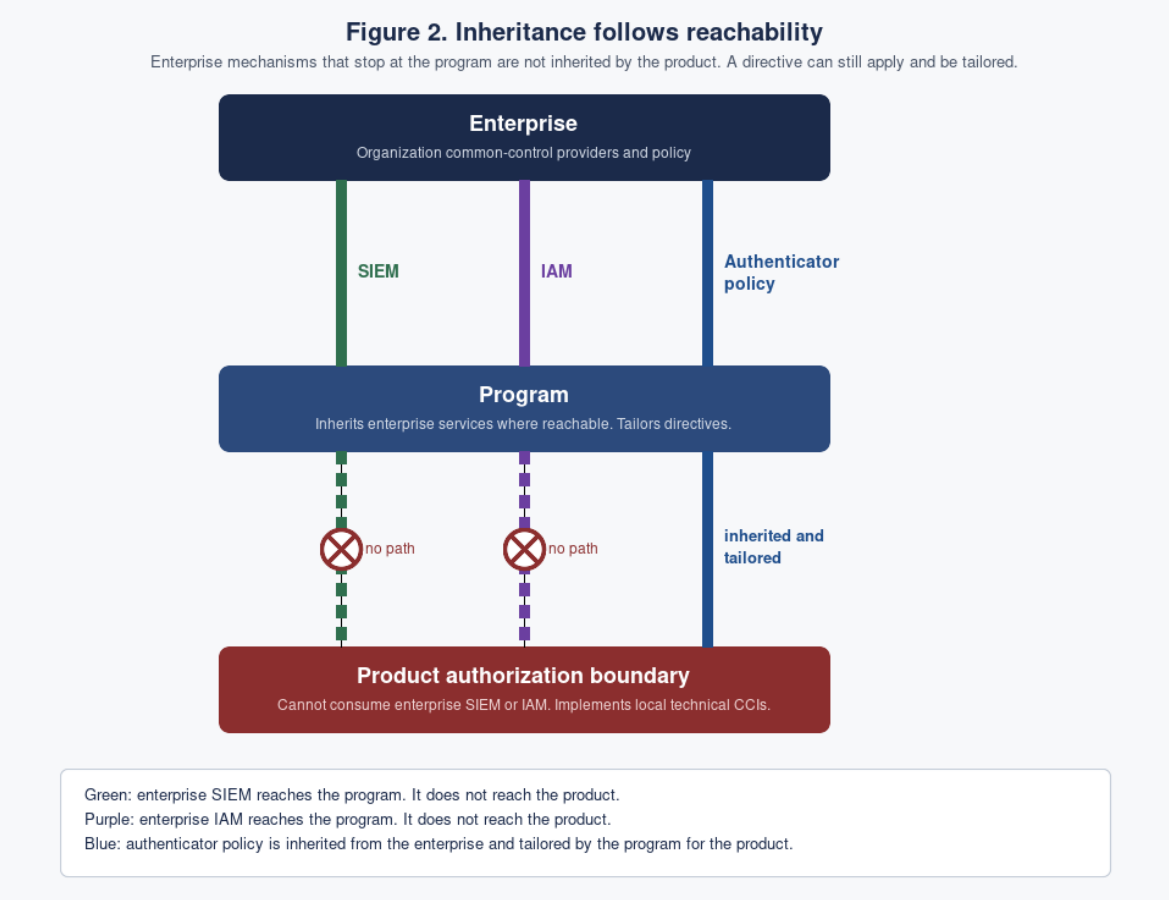

Figure 2: Inheritance follows reachability

Figure 2. Enterprise SIEM and Identity and Access Management (IAM) can reach the program. They do not reach the product authorization boundary. Authenticator policy can still be inherited from the enterprise and tailored by the program for the product. Isolation breaks the mechanism. It does not retire the directive.

The next section shows the same rule on two cases people argue about: authenticator policy and audit monitoring.

6. Two cases: authenticator rules and audit monitoring

Authenticator rules

Start with function.

If the product authorization boundary has no user logons and no authenticators to manage, the CCIs written to protect user authentication are not applicable. Document that. Stop.

If the product has authenticators (local maintenance accounts, service authenticators, hardware tokens, or any login the product actually presents), those CCIs apply. The organization may already require rotation, strength, and lockout. The program inherits that directive and tailors the parameters for this product type if the authorizing official (AO) will accept the tailored value. The product authorization boundary implements the technical enforcement.

The support laptops are a different row. They likely have user logons. They may inherit both the organization directive and the enterprise technical implementation. That row does not satisfy the product row.

The failure mode is copying the laptop package onto the product, or demanding a full password-policy organization inside a product team whose product has no logons. Function decides which of those is the error.

Audit monitoring and “SIEM”

Start with function again.

Ask whether the product authorization boundary generates security-relevant events. If it generates none, the CCIs that assume auditable events may be scoped with that rationale. That is rare, and it has to be true.

If it generates events, the CCIs for generating, protecting, and reviewing those records apply. A SIEM is one implementation of review and correlation. It is not the parent control. Customer selection of a SIEM does not freeze the mechanism, and absence of a SIEM does not delete the CCI.

The program tailors review to what the product can support: onboard storage, export at maintenance, ground review, sampled review after test or operation. The authorizing official accepts residual risk if continuous enterprise correlation is gone. The function (events exist) keeps the CCI in play. The missing tool only changes how the CCI is implemented.

The pattern both cases use

1. Does this boundary have the function?
2. If no, N/A with that function named.
3. If yes, inherit and tailor the organizational or policy CCI at the program.
4. Implement the technical CCI where the mechanism can actually run.
5. Do not move a designation from the support environment onto the product authorization boundary.

The next section lists the failure modes that show up when those five lines are skipped.

7. Failure modes

These are the same argument in different clothes. Function was skipped, or the two boundaries were merged, or a tool was treated as a control.

Inherited, but the mechanism does not reach the product

The organization has an IdP, a SIEM, or a scanner. The product authorization boundary is marked inherited. The product is not a subscriber. The CCI is not satisfied. Inheritance without reachability is a label.

N/A because the product is isolated or cannot host the tool

The product generates events, or it has authenticators, or it has another function the CCI protects. The package marks the CCI not applicable because there is no enterprise collector, no domain, or no way to install the customer's preferred tool. Isolation changed the implementation. It did not remove the function.

N/A because most CCIs under the control were scoped

Some CCIs died on Test 1. One CCI still protects a function the product has. The parent control is marked not applicable anyway. Applicability is not a majority vote. The leftover CCI still belongs in the package.

The hollow control

Every CCI under the parent is not applicable because the functions are absent. The control is left in the baseline as if it were still in play, or it is dumped on the product as N/A theater. If zero CCIs remain, the control is not applicable. Document that from the CCIs up.

One designation for two boundaries

Support laptops have user logons and consume organization technical services. Those designations are copied onto the product authorization boundary. Or the product has no logons, and someone uses that to mark the laptop CCIs not applicable. Applicability is per boundary. Evidence does not travel with the program name.

Policy treated as coverage for the technical CCI

The organization wrote the rule. The package treats that as done. The product still has the function and still needs the mechanism. A directive is not enforcement.

The product team is told to stand up a policy organization

Reviewers want a full policy stack inside the product package even though the organization directive already applies and the program already tailored it. The product owes local procedure only where the tailored rule does not describe this boundary. It does not owe a second corporate policy shop.

The whole control is forced to Common or System-Specific

The parent control has policy CCIs at the program and technical CCIs on the product. One GRC designation is used to hide the other half. Hybrid exists for this. Write the split.

PM controls parked on the product as N/A

Program Management controls are accounted for in the organization or program plan. Putting them on the product authorization boundary as N/A filler confuses a program requirement with a product function.

A function is invented so an enterprise service can be inherited

The product has no user logons. Someone designs a login story so the organization IdP can be listed as inherited. Test 1 forbids this. Do not create a function to make a common control look useful.

The contractor package deletes a customer requirement

A tool or control was selected by the government customer. The package removes it because the product cannot host that implementation. Tailoring the mechanism requires the authorizing official who owns that requirement. A contractor AO cannot silently drop what the customer still expects.

8. What a defensible package looks like

A defensible package can be read without a tour guide. For the product authorization boundary it does four things in order.

First, it names functions. What the product does. What it does not do. That list is the scoping record. CCIs that protect absent functions are not applicable. If that empties a parent control, the control is not applicable.

Second, it keeps organization and program directives where they already apply. The program inherits them and tailors parameters, overlays, and procedures for this product type. The product package cites that tailored directive. It does not rewrite the organization’s policy manual.

Third, it implements technical CCIs on the product authorization boundary when the function exists and the enterprise mechanism cannot reach it. Compensating implementations are named. Residual risk is named. The authorizing official accepts that risk.

Fourth, it keeps the support environment in its own story. Laptop inheritance and laptop evidence stay on the laptop boundary.

A reviewer should be able to pick one CCI and see:

- Function present or absent
- Parent control still applicable or not
- Policy or technical
- Organization, program, or product authorization boundary
- Common, hybrid, or system-specific

- Provider or implementer
- Reachability of any inherited mechanism
- Evidence
- Residual risk

If those answers exist, “inherited” and “N/A” are conclusions. If they do not, they are habits.

The next section states what this allocation means for authorization decisions and for later scrutiny of the package.

9. Authorization and later scrutiny

An authorization decision accepts residual risk for a defined boundary. It does not accept a story about a different boundary. If the package marks enterprise services inherited on a product authorization boundary that cannot consume them, the AO is being asked to accept coverage that does not exist. If the package marks a CCI not applicable when the product still has the function, the AO is being asked to accept a waiver that was never written as a waiver.

That is why function comes first. The AO needs to know what the product does. Then the AO needs to know which CCIs still apply. Then the AO needs to know which of those are inherited directives, which are tailored program rules, and which are technical implementations on the product. Risk acceptance attaches to that chain. It does not attach to a dashboard color.

Assessors will test the same chain. A CCI typed technical will be tested against a mechanism. A citation to organization policy does not close that test. A CCI typed policy will be tested against a directive that actually applies to this product type. A unique product policy manual is not required if the program already tailored the organization rule and the package points to it. An assessor who asks for both is asking the right question in the wrong shape: is there a rule, and is there enforcement.

Customer and program overlays do not change the order. If the government selected a control or a tool, the intent stays until the official who owns that requirement accepts a different implementation. Tailoring is part of authorization. Quiet deletion is not.

Later scrutiny uses the package as a record of what was claimed. Counsel, a follow-on assessor, or a new AO will ask whether “inherited” was reachable, whether “N/A” named a missing function, and whether support-environment evidence was used as product evidence. A package that can answer the Section 8 list will survive that reading. A package that cannot will be read as compliance theater.

Knowing how a CCI joins to 800-53 is a real skill. This paper exists because packages keep skipping the work that skill is for. DISA published the correlation. Using it still requires a decision on each CCI: name the function on this boundary, keep the CCI if the function exists, drop the parent control only when every CCI under it is gone, inherit and tailor the organizational layer at the program, and implement the technical CCI where the mechanism can actually run.

Organizations that can do that will have more confidence in their own process. They will also be able to assess posture against 800-53 and against the standards and frameworks that use the 800-53 catalog, without treating every disconnected product as if it were an enterprise laptop, and without treating isolation as a waiver.

The same order is not unique to government products. Any environment that allocates 800-53 catalog controls across an enterprise and a system that cannot consume enterprise services can use it. This paper works the problem at the government customer and product authorization boundary. Other environments can wait for a later treatment.

Inheritance follows reachability. Applicability follows function. The program tailors the organizational layer. The product implements what the product can actually do. That is the allocation. That is the record an authorizing official can stand on.

10. Conclusion

This paper started from a trend, not from a missing map. DISA already published the correlation from each CCI to one NIST SP 800-53 control. Packages still treat inherited and N/A as if those labels were the work. They are not. The work is deciding which mapped CCI applies to this product authorization boundary, which tier owns the directive, which boundary implements the mechanism, and what risk remains after that decision.

The order does not change. Select the catalog subset from the baseline, overlay, or customer framework. Tailor that subset for the program through parameters, overlays, and what this product type owes. Review function on the product authorization boundary. If the product does not have the capability the CCI is written to protect, that CCI is N/A. If every CCI under the parent is N/A for that reason, the parent control is N/A. That N/A is still tailoring. It is scoping. It is not a missing tool.

What remains after that review is allocated. Organization and program directives stay where they already apply. The program inherits them and tailors them. The product package cites that tailored directive. It does not stand up a second policy organization to prove it is under policy. Technical CCIs follow the mechanism that makes the sentence true. If the enterprise service reaches the boundary and can produce evidence, inheritance is available. If it does not reach the boundary, inheritance is false. Isolation then changes implementation. It does not retire the requirement.

Two boundaries cannot share one story. Support laptops, labs, and build networks may consume organization identity, logging, and scanning. The product authorization boundary often cannot. A CCI that applies to a laptop because the laptop has user logons does not become applicable to the product because the same program owns both. Laptop evidence does not travel with the program name. Function on that boundary is the gate.

The cheap answers fail for the same reason. Inherited with no subscriber is a label. N/A because the product cannot host the customer SIEM or IdP is a waiver that was never written as a waiver. Policy text is not technical enforcement. A hollow control left in the baseline after every CCI is gone is theater. A parent control killed because most of its CCIs were scoped, while one CCI still protects a function the product has, is a majority vote the catalog does not allow.

A defensible package can be read without a tour guide. It names what the product does and what it does not do. It keeps tailored directives at the program. It implements technical CCIs on the product when the function exists and the enterprise mechanism cannot reach it. It names compensating implementations and residual risk. The authorizing official accepts that risk for this boundary, not for a different one. Assessors will test the same chain. Later scrutiny will too. Counsel, a follow-on assessor, or a new AO will ask whether inherited was reachable, whether N/A named a missing function, and whether support-environment evidence was used as product evidence.

Knowing how a CCI joins to 800-53 is a real skill. Using that skill still requires a decision on each CCI. Organizations that can make that decision will have more confidence in their process and a clearer reading of posture against 800-53 and against the frameworks that use the catalog. This paper worked the problem at the government customer and the product authorization boundary. The same order can travel. The record an authorizing official can stand on is still the same. Inheritance follows reachability. Applicability follows function. The program tailors the organizational layer. The product implements what the product can actually do.

About the Author

Hunter Quinlan is a Principal System Security Engineer in Huntsville, Alabama. He publishes this paper independently through Q3 Industries. The views are his own and are not those of his employer.

He takes systems through the full Risk Management Framework: selection, tailoring, implementation and test, authorization, and continuous monitoring. His work is control allocation on product authorization boundaries that cannot consume enterprise services. He selects baselines and overlays, tailors to function and reachability, maps thousands of NIST SP 800-53 controls and their Control Correlation Identifiers, and builds the implementation and STIG evidence an authorizing official can accept.

He holds a CISSP and Security+, a Top Secret clearance, and bachelor's degrees in Security and Cyber Defense and in Computer Science. He is completing a Master of Studies in Law in National Security and Cybersecurity Law at The George Washington University Law School.

Appendix A. Acronyms and abbreviations

Acronyms are expanded at first use in the body. This list is for later reference. It is not exhaustive of every term in RMF practice.

Acronym	Meaning
AO	Authorizing Official
CCI	Control Correlation Identifier
DISA	Defense Information Systems Agency
DoD	Department of Defense
GPO	Group Policy Object
GRC	Governance, Risk, and Compliance
IAM	Identity and Access Management
IdP	Identity Provider
ISSO	Information System Security Officer
N/A	Not Applicable
NIST	National Institute of Standards and Technology
PM	Program Management
RMF	Risk Management Framework
SCA	Security Control Assessor
SIEM	Security Information and Event Management
SP	Special Publication
STIG	Security Technical Implementation Guide