

**Documents Within v4.1
Respecification Effort**
*Current Status and Expected Next
Steps*

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November 7, 2024

Document Motivation

- Five documents to provide respecification of NFSv4.1
 - Started with bis documents for RFCs 5661/5662 including tons of errata reports to address
 - WG decide to split out internationalization/security
 - In those cases, existing document text needed to be completely replaced
 - WG later decided to split out ACLs as well
- Drafting is quite far along but ...
 - Need working group and chair help to complete effort as described in **Next Slide** and **Rest of Deck**

Doc Status

Overview

- Drafting pretty much done but WG discussion has lagged.
- Two Documents fairly far along:
 - Internationalization ready but 61bis needs more discussion as described in [*Slides 20-23*](#)
- Other docs (security, acs, 62bis) t auck in Adoption processs
 - Chairs need to address ASAP

List of Active Documents

Document	Status	Slides	Id
Acls	Adoption Requested	<u>Slides 5-9</u>	-10
Internationalization	WGGLC in Progress	<u>Slides 10-12</u>	-11
Security	Adoption Requested (For last <i>two years</i>)	<u>Slides 14-19</u>	-11
Rfc5661bis	WG Document	<u>Slides 20-24</u>	-09

Acls

Overview

- Essentially part of Security Cleanup
 - Semantics need to be clearly defined to provide security (had been avoided in past, due to reliance on POSIX).
- Considerable Progress made:
 - [Acls In Previous Drafts](#)
 - [Acls In Latest Draft \(-05\)](#)
- I've reached a stopping point, but need the following:
 - [Acls: Needed from Chairs](#)
 - [Acls: Needed from Working Group](#)

Acls

In Previous Drafts

- Conceptual restructuring of feature set
 - Define **REQUIRED** core (core UNIX ACLs)
 - Extensions to that are **OPTIONAL** features
 - Replaces unfortunate “Servers do what they do and clients must deal with it” attitude.
- Aclchoice attribute
 - Allows client to determine the extensions supported.
- Attempt (failed) to expand NFSv4 model to encompass draft POSIX ACL semantics.

Acls

In Latest Draft (-05)

- New approach to draft POSIX ACLs
 - Allow multiple ACL models
 - For NFSv4.[01], the only supported model is the NFSv4 ACL model.
- Additional ACL models may be defined by stds-track extension documents
 - E.g., R. Macklems's extension proposal for draft POSIX ACL support.
 - Responsible for defining semantics of new model
 - Includes interaction between the ACL and POSIX-based authorization proper

Acls

Needed from Chairs

- Some action on adoption question.
 - Was to begin “at or before IETF120”.
 - If it did, nothing came of it.
- Needed now is one of the two items below:
 - 1) Adoption so I can submit draft-ietf-nfsv4-acls-00.
 - 2) Clear description of issue blocking adoption so it can be addressed.

Acls

Needed from Working Group

- Review of latest draft to find any major disconnects
 - These include compatibility with Working group's intentions to address draft POSIX ACL semantics in v4.2 extension (e.g. R. Macklem's draft)
 - Need to find these soon , if they exist.
- Will need a more detailed review later to prepare for WGLC
 - Should focus on Consensus items listed in Appendix A

Internationalization Overview

- Needed because internationalization in RFCs 5661 and 8881 is totally broken.
 - Matches that in RFC3530 (never implemented).
- Needs to take approach analogous to that in RF7530.
 - See [Next Slide](#) for needed differences.
- Now in WGLC
 - Chairs /AD Need to follow up

Internationalization

Differences from RFC7530

- IDNA changes
 - Documents that RFC7530 referred to no longer exist
 - Have to address somehow since nfv4 servers for domains with umlauts exist.
- Need to address `fs_charset_cap`
 - Well-intentioned but a total mess
- Needed more clarity about case insensitive fs's.
 - Treated as case fo treatment of string equivalences.
 - Detailed discussion wound up in Appendices.

Internationalization Needed from Chairs/AD

- Proceed with WGLC/submission
- Resolve any existing issues
- Submission and publication
- Need to update drafts that refer to it

Internationalization Needed from Working Group

- **Read The Fantastic Draft**
 - Point out issues that need to be addressed.
- Consider the suggestion in Appendices regarding possible extensions to better support normalization/case-insensitive file systems.
 - Not needed now but will be appropriate after submission in case extensions are proposed.

Security Overview

- Major changes were necessary:
 - Started with long list of weaknesses listed in [**Security: Original Motivations**](#)
 - As I looked at what was there, had to add [**Security Issues Discovered Later**](#)
- I've reached a stopping point, but ...
 - Chair participation needed as described in [**Security: Needed from Chairs**](#)
 - Need WG participation as well: [**Security: Needed From Working Group**](#)
 - There are plans to address issues raised regarding principal identification as described in [**Issues to be Addressed in -12**](#)

Security

Original Motivations

- Absence of Threat Analysis
 - NFSv4 specs never had one. Decided this had to change.
- Treatment of AUTH_SYS with no mention of security issues (“**OPTIONAL** means of *authentication*.”)
 - “**OPTIONAL**” implies no troublesome negative effects □
 - It doesn’t do any authentication
- Inattention to security of data in flight
 - Need to describe use of RPC-with-TLS to deal with this

Security Issues Discovered Later

- Need for specification of ACL semantics:
 - Body of this wound up in a new doc.
 - This one restructured to accommodate that.
- Mode, Owner, and Owner_group had to be made **REQUIRED**
- Clarification needed of new approach to user/group specification
- Non-POSIX authorization features need to be clarified:
 - Owner override
 - Sticky-bit-based handing of authorization for DELETE.

Security

Issues to be Addressed in -12

- Needs to follow-up on resolution of id format issue.
 - Previously mappings were required but were not defined by protocol □
 - In -11 , divided by authentication/identification method
 - Works in 99+% of the cases.
- In -12, will need to deal with exceptions
 - Servers that use name@domain with AUTH_SYS
 - Possible /proposed uses of multiple domains

Security Needed from Chairs

- Response to Latest call for WG document Adoption
 - First one requested in 2022
 - Explanation of this delay is probably impossible.
 - Most recent call was begun “at or before” IETF120
 - No response yet.
- Needed soon, either of the following.
 - Adoption and submission of WG document draft -00
 - Clear description of issue holding up consensus that needs to be addressed.

Security

Needed From Working Group

- **Read The Fantastic Draft**
 - Point out issues that need to be addressed.
- Proposed Foci for review given that diffs are not very helpful:
 - Changes discussed in Appendix A
 - Consensus items presented in Appendix B.

Rfc5661bis Overview

- Pretty Far Along
 - Current draft is -09.
 - WG Document since 3/2023.
 - Being written since before 12/2020
 - Final Submission target date: 7/2026.
- Writing pretty much done
- Needs more Working Group review

Rfc5661bis

Already Done (as of -08)

- Splitting out Security, Internationalization, Versioning.
- Addressed Errata reports.
- Cleanup of transport requirements/recommendations including misuse of RFC2118 terms.
- Shift from calling “**OPTIONAL**” attributes “**RECOMMENDED**”
- Making mode, owner, owner_group **REQUIRED.**
- Cleanup of persistent reply cache, directory delegations

Rfc5661bis

Changes in -09

- Completion of threat analyses to cover minor-version-specific features:
 - Need section regarding persistent sessions.
 - Need to fill in some pieces to pNFS threat analyses.
- Needed to correct discussion of grace period which led to some unnecessary delays.
 - Allow IO on reclaimed OPEN files
 - Problem introduced in RFC5661

Rfc5661bis

Expected for -10

- Clarification of VERIFY/NVERIFY
 - Address issues of attribute values that are “equivalent”
 - Will affect ownership attributes and ACLs
- Any other changes turned up by WG discussion

Rfc5661bis

Needed from Working Group

- **Read The Fantastic Draft**
 - Review and point out issues that need to be addressed.
- Important foci for review:
 - Clarity provided by RFC8435. Is more work required?
 - Changes discussed in Appendices C.2.*

Rfc5662bis

Overview

- Pretty much drafted. Two classes of changes:
 - Miscellaneous cleanup in [*Rfc5662bis: Necessary Cleanup*](#)
 - Adapt to protocol changes made to correct defects as described in [*Rfc5662bis: Changes to Correct Defects*](#)
- Pretty much done from by point of view but the following are needed:
 - Completion of Doc Adoption as described in [*Rfc5662bis: Required from Chairs*](#)
 - Review needed as described in [*Rfc5662bis: Needed from Working Group*](#)

Rfc5662bis

Necessary Cleanup

- Fields that are not to be used, are clearly marked:
 - In LAYOUTCOMMIT4args, loca_offset and loca_length are unused.
 - In notify_deviceid_change4, ndc_immediate is unused
- String typedefs reworked to match reality
 - Component is utf8pref, since it may be non-utf8
 - Linktext4 is declared as opaque
 - Server names are utf8str_mixed.
- Reorganization of definition of open_claim_type4 for clarity

Rfc5662bis

Changes to Correct Defects

- Changes necessary to correct defects as described in Section 9 of RFC8178:
 - Extension of notification definitions for directory delegations
 - Definitions related to Aclchoice attribute.

Rfc5662bis

Expected in -06 (or -00 of WG doc)

- Make changes suggested by Errata reports submitted by P. Rohar
- Anything else that turns up in discussion leading to WGLC

Rfc5662bis

Required from Chairs

- Some action on adoption question.
 - Has been going on for months.
 - Was to begin “at or before IETF120”.
 - If it did, nothing came of it.
- Needed now is one of the two items below:
 - 1) Adoption so I can submit draft-ietf-nfsv4-rfc5662bis-00.
 - 2) Clear description of issue blocking adoption so it can be addressed.

Rfc5662bis

Needed from Working Group

- WG review sufficient to get to WGLC.
Manageable since:
 - Document is only 79 pages
 - The diffs against rfc5662 are quite manageable.
- Should be doable on list
 - Meeting session could be scheduled if necessary.