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Extended Partial Response
Protocol Enhancement to LDAPv3

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1. Abstract

This document describes the ExtendedPartialResponse, an element of LDAPv3 protocol which allows multiple responses to LDAPv3 extended requests. Extended partial responses are backward compatible with the existing LDAPv3 Extended Operation defined in [LDAPv3].

2. Conventions used in this document

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as described in [RFC2119].

3. Motivation for the Extended Partial Response

The Extended Operation ([LDAPv3] Section 4.12) was defined in LDAPv3 to allow additional operations to be defined as part of the protocol without requiring a new revision of the protocol.

The LDAPv3 Extended Operation allows for a single extended response to each extended request, but this paradigm may not be sufficient for some directory operations. For instance, the LDAP search

operation is a directory operation that is much more efficient when multiple partial responses are used to service a single request. The

extended partial response generalizes the current extended operation definition to give LDAP server implementers the ability to make use of a single-request-multiple-response paradigm for extended LDAP operations that require it or that would benefit from it.

Also, a control may modify the behavior of existing LDAP operations in such a way that a single response is insufficient for the semantics specified by the control. The extended partial response can be used to provide a single-request-multiple-response paradigm in this circumstance.

4. Element of Protocol

The ExtendedPartialResponse is defined as

```
ExtendedPartialResponse ::= [APPLICATION 25] SEQUENCE {
    responseName     [0] LDAPOID OPTIONAL,
    response         [1] OCTET STRING OPTIONAL }
```

4.1 Usage with LDAPv3 ExtendedRequest

The LDAPv3 ExtendedRequest and ExtendedResponse are defined in Section 4.12 of [LDAPv3] as

```
ExtendedRequest ::= [APPLICATION 23] SEQUENCE {
    requestName      [0] LDAPOID,
    requestValue     [1] OCTET STRING OPTIONAL }

ExtendedResponse ::= [APPLICATION 24] SEQUENCE {
    COMPONENTS OF LDAPResult,
    responseName     [10] LDAPOID OPTIONAL,
    response         [11] OCTET STRING OPTIONAL }
```

An LDAP server responds to an LDAPv3 ExtendedRequest message with zero or more ExtendedPartialResponse message followed by one ExtendedResponse message. This ensures backward compatibility with existing LDAP extensions that do not make use of the ExtendedPartialResponse. As with all LDAPv3 extensions, LDAPv3 extensions that make use of the ExtendedPartialResponse have predefined syntax and semantics that are defined in RFCs or are private to a particular implementation.

4.2 Usage with other LDAPv3 Operations

Any LDAPv3 operation may be extended by the addition of one or more controls. When a control is defined, part of the controlÆs semantics may include having the server send one or more ExtendedPartialResponse messages as part of the response for the operation when the control is present even though the response to

the operation without the control would not include an ExtendedPartialResponse. As with all LDAPv3 controls, LDAPv3 controls that make use of the ExtendedPartialResponse have

predefined syntax and semantics that are defined in RFCs or are private to a particular implementation.

5. Security Considerations

This draft describes an enhancement to the LDAPv3 protocol [LDAPv3]. All security considerations of [LDAPv3] apply to this draft, however it does not introduce any new security considerations to the LDAPv3 protocol.

6. References

[LDAPv3]
Wahl, M., Howes, T., and S. Kille, "Lightweight Directory Access Protocol (v3)", RFC 2251, December 1997.

[ReqsKeywords]
Scott Bradner. "Key Words for use in RFCs to Indicate Requirement Levels". RFC 2119.

7. Acknowledgments

The author would like to acknowledge the readers of the LDAP Extensions working group mail list who responded to the suggestion that a multiple-response paradigm might be useful for LDAP extended requests. Special thanks go to two individuals: David Wilbur who first introduced the idea on the working group list, and Thomas Salter, who succinctly summarized the discussion and suggested the name ExtendedPartialResponse in his summary.

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Appendix A - Document Revision History

A.1 draft-rharrison-ldap-extPartResp-00.doc

Initial revision of draft.

A.2 draft-rharrison-ldap-extPartResp-01.doc

Changed responseName to be optional to align with [LDAPv3] definition of ExtendedResponse.

A.3 draft-rharrison-ldap-extPartResp-02.doc

Minor terminology corrections. Clarified use of ExtendedPartialResponse with LDAPv3 extended operations and other LDAPv3 operations with controls.

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