

From a258c17c6937f79529c8319a829310e09cddb216 Mon Sep 17 00:00:00 2001  
 From: Reini Urban <rurban@cpanel.net>  
 Date: Wed, 25 Jan 2017 11:27:07 -0600  
 Subject: [PATCH] Storable: protect against classname len overflow

name lengths can be max. I32 (hek\_len), but are read from system size integers. e.g. -1 you can cause a malloc fail => exit.

Even worse len > LG\_BLESS didn't detect that so you could overwrite the stack by malcrafted Storable files.  
 Found out by JD. RT #130635. No CVE since p5p believes local Storable files are not exploitable.

(cherry picked from commit c82e80f6d88891738e2b5329723606b48347fa31)

Conflicts:

```
.git-rr-cache
Porting/Maintainers.pl
dist/Storable/Storable.xs
pod/perlcdelta.pod
t/porting/customized.dat
```

---

```
dist/Storable/ChangeLog | 27 ++++++
dist/Storable/README    | 16 ++++++-----
dist/Storable/Storable.xs | 35 ++++++-----
dist/Storable/t/retrieve.t | 31 ++++++-----
4 files changed, 86 insertions(+), 23 deletions(-)
```

```
diff --git a/dist/Storable/ChangeLog b/dist/Storable/ChangeLog
index 038a0e791df0..11f6eee7011f 100644
```

```
--- a/dist/Storable/ChangeLog
```

```
+++ b/dist/Storable/ChangeLog
```

```
@@ -1,3 +1,30 @@
```

```
+Wed Jan 25 11:27:07 2017 -0600 Reini Urban <rurban@cpanel.net>
```

```
+ Version 3.05c
```

```
+
```

```
+ * Protect against classname len overflow on the stack
+ and 2x on the heap with retrieve_bless and retrieve_hook.
+ A serious security issue with malcrafted storable files or buffers,
+ but p5p accepts no CVE on Storable attacks. See RT #130635 (detected by JD).
+ * Fix NULL ptr SEGVs with retrieve_code and retrieve_other.
+ See RT #130098(JD)
+ * Fix the remaining 2-arg open calls
```

```
+Sat Jan 7 09:01:29 2017 +0100 Reini Urban <rurban@cpanel.net>
```

```
+ Version 3.04c
```

```
+
```

```
+ * fix printf types and warnings, esp. for 32bit use64bitint
+ * Change sv_setpvn(..., "...", ...) to sv_setpvs(..., "...")
```

```
+
```

```
+Tue Jul 26 11:49:33 2016 +1000 Tony Cook <tony@develop-help.com>
```

```
+ Version 3.03c
```

```
+
```

```
+ * remove . from @INC when loading optional modules
```

```
+
```

```
+Sun Nov 20 18:06:45 2016 +0100 Reini Urban <rurban@cpanel.net>
```

```
+ Version 3.02c
```

```
+
```

```
+ * Fix -Wc++11-compat warnings, fix -Wchar-subscripts
```

```
+
```

```
Fri Sep 16 01:32:59 2016 +0200 Reini Urban <rurban@cpanel.net>
```

```
Version 3.01c
```

```
diff --git a/dist/Storable/README b/dist/Storable/README
```

```
index c70b1003436f..f2fca638f119 100644
```

```
--- a/dist/Storable/README
```

```
+++ b/dist/Storable/README
```

```
@@ -1,7 +1,7 @@
```

```
-           Storable 3.00
+           Storable 3.05c
+           Copyright (c) 1995-2000, Raphael Manfredi
+           Copyright (c) 2001-2004, Larry Wall
-           Copyright (c) 2016, cPanel Inc
+           Copyright (c) 2016,2017 cPanel Inc
```

```
-----
This program is free software; you can redistribute it and/or modify
@@ -48,7 +48,7 @@ To compile this extension, run:
There is an embedded POD manual page in Storable.pm.
```

```
Storable was written by Raphael Manfredi <Raphael_Manfredi@pobox.com>
-Maintenance is now done by the perl5-porters <perl5-porters@perl.org>
+Maintenance is now done by cperl, https://github.com/perl11/cperl
```

```
Please e-mail us with problems, bug fixes, comments and complaints,
although if you have complements you should send them to Raphael.
```

```
@@ -69,9 +69,10 @@ Thanks to (in chronological order):
```

```
  Marc Lehmann <pcg@opengroup.org>
  Justin Banks <justinb@wamnet.com>
  Jarkko Hietaniemi <jhi@iki.fi> (AGAIN, as perl 5.7.0 Pumpkin!)
-  Todd Rinaldo <toddr@cpanel.net>, JD Lightsey <jd@cpanel.net>
-  for optional disabling tie and bless for increased security
-  Reini Urban <rurban@cpanel.net> for the 3.00 >2G support and rewrite
+  Todd Rinaldo <toddr@cpanel.net> and JD Lightsey <jd@cpanel.net>
+  for optional disabling tie and bless for increased security.
+  Reini Urban <rurban@cpanel.net> for the 3.0x >2G support and rewrite
+  JD Lightsey <jd@cpanel.net>
```

for their contributions.

```
@@ -108,6 +109,3 @@ bring you this Storable release:
```

```
  Tim Bunce <Tim.Bunce@pobox.com>
  VMSperlrs
  Yitzchak Scott-Thoennes <sthoen@efn.org>
```

```
-If I've missed you out, please accept my apologies, and e-mail your
-patch to perl5-porters@perl.org.
```

```
diff --git a/dist/Storable/Storable.xs b/dist/Storable/Storable.xs
```

```
index 3e4730950311..9a28a76180b9 100644
```

```
--- a/dist/Storable/Storable.xs
```

```
+++ b/dist/Storable/Storable.xs
```

```
@@ -1105,7 +1105,7 @@ static const char byteorderstr_56[] = {BYTEORDER_BYTES_56, 0};
```

```
#define SAFEPVREAD(x,y,z) \
    STMT_START { \
        if (!cxt->fio) \
-           MBUF_SAFEPVREAD(x,y,z); \
+           MBUF_SAFEPVREAD(x,y,z); \
        else if (PerlIO_read(cxt->fio, x, y) != y) { \
            Safefree(z); \
            return (SV *) 0; \

```

```
@@ -3672,8 +3672,8 @@ static int store_blessed(
```

```
  HV *pkg)
  {
-  SV *hook;
-  I32 len;
+  char *classname;
+  I32 len;
+  I32 classnum;
```

```

    TRACEME(("store_blessed, type %d, class \"%s\"", type, HvNAME_get(pkg)));
@@ -3724,7 +3724,7 @@ static int store_blessed(
    } else {
        unsigned char flag = (unsigned char) 0x80;
        PUTMARK(flag);
-        WLEN(len); /* Don't BER-encode,
this should be rare */
+        WLEN(len); /* Don't BER-encode, this
should be rare */
    }
    WRITE(classname, len); /* Final \0 is omitted */
}
@@ -4325,11 +4325,18 @@ static SV *retrieve_blessed(pTHX_ stcxt_t *cxt, const char *cname)
    GETMARK(len); /* Length coded on a single char? */
    if (len & 0x80) {
        RLEN(len);
-        TRACEME("*** allocating %d bytes for class name", (int)len+1);
+        TRACEME("*** allocating %ld bytes for class name", (long)len+1);
+        if (len > I32_MAX)
+            CROAK(("Corrupted classname length %lu", (long)len));
+        PL_nomemok = TRUE; /* handle error by ourselves */
        New(10003, classname, len+1, char);
+        PL_nomemok = FALSE;
+        if (!classname)
+            CROAK(("Out of memory with len %ld", (long)len));
+        PL_nomemok = FALSE;
        malloced_classname = classname;
    }
-    SAFEPVREAD(classname, (SSize_t)len, malloced_classname);
+    SAFEPVREAD(classname, (I32)len, malloced_classname);
    classname[len] = '\0'; /* Mark string end */

    /*
@@ -4510,17 +4517,19 @@ static SV *retrieve_hook(pTHX_ stcxt_t *cxt, const char *cname)
    else
        GETMARK(len);

-    if (len > I32_MAX) {
-        CROAK(("Corrupted classname length"));
-    }
-
-    if (len > LG_BLESS) {
-        TRACEME("*** allocating %d bytes for class name", (int)len+1);
+        TRACEME("*** allocating %ld bytes for class name", (long)len+1);
+        if (len > I32_MAX) /* security */
+            CROAK(("Corrupted classname length %lu", (long)len));
+        else if (len > LG_BLESS) /* security: signed len */
+            PL_nomemok = TRUE; /* handle error by ourselves */
+            New(10003, classname, len+1, char);
+            PL_nomemok = FALSE;
+            if (!classname)
+                CROAK(("Out of memory with len %u", (unsigned)len+1));
+            malloced_classname = classname;
    }

-    SAFEPVREAD(classname, (SSize_t)len, malloced_classname);
+    SAFEPVREAD(classname, (I32)len, malloced_classname);
    classname[len] = '\0'; /* Mark string end */

    /*
@@ -6050,7 +6059,7 @@ static SV *retrieve_flag_hash(pTHX_ stcxt_t *cxt, const char *cname)
    static SV *retrieve_code(pTHX_ stcxt_t *cxt, const char *cname)
    {
        #if PERL_VERSION < 6
-        CROAK(("retrieve_code does not work with perl 5.005 or less\n"));

```

```

+      CROAK(("retrieve_code does not work with perl 5.005 or less\n"));
+     #else
+       dSP;
+       I32 type, count;
diff --git a/dist/Storable/t/retrieve.t b/dist/Storable/t/retrieve.t
index 652118961c23..ccd907b8d6eb 100644
--- a/dist/Storable/t/retrieve.t
+++ b/dist/Storable/t/retrieve.t
@@ -1,12 +1,14 @@
 #!./perl
 #
 # Copyright (c) 1995-2000, Raphael Manfredi
+# Copyright (c) 2017, cPanel Inc
 #
 # You may redistribute only under the same terms as Perl 5, as specified
 # in the README file that comes with the distribution.
 #

sub BEGIN {
+  unshift @INC, 'dist/Storable/t' if $ENV{PERL_CORE} and -d 'dist/Storable/t';
  unshift @INC, 't';
  unshift @INC, 't/compat' if $] < 5.006002;
  require Config; import Config;
@@ -19,7 +21,7 @@ sub BEGIN {

  use Storable qw(store retrieve nstore);
-use Test::More tests => 14;
+use Test::More tests => 20;

  $a = 'toto';
  $b = \$a;
@@ -54,4 +56,31 @@ is($d1, $d2);
  isnt($root->[1], undef);
  is(length $root->[1], 0);

+# $Storable::DEBUGME = 1;
+{
+  # len>I32: todo patch the storable image number into the strings, fake 2.10
+  # $Storable::BIN_MINOR
+  my $retrieve_blessed =
+"\x04\x0a\x08\x31\x32\x33\x34\x35\x36\x37\x38\x04\x08\x08\x08\x11\xff\x49\x6e\x74\xff\x72\x6
e\x61\x6c\x73\x02\x00\x00\x00\x00";
+  my $x = eval { Storable::mretrieve($retrieve_blessed); };
+  # Long integer or Double size or Byte order is not compatible
+  like($@, qr/^(Corrupted classname length|.* is not compatible|panic: malloc)/, "RT
#130635 $@" );
+  is($x, undef, 'and undef result');
+}
+
+{
+  # len>I32
+  my $retrieve_hook =
+"\x04\x0a\x08\x31\x32\x33\x34\x35\x36\x37\x38\x04\x08\x08\x08\x13\x04\x49\xfe\xff\x72\x6
e\x61\x6c\x73\x02\x00\x00\x00\x00";
+  my $x = eval { Storable::mretrieve($retrieve_hook); };
+  like($@, qr/^(Corrupted classname length|.* is not compatible|panic: malloc)/, "$@" );
+  is($x, undef, 'and undef result');
+}
+
+{
+  # len<I32, len>127: stack overflow
+  my $retrieve_hook =
+"\x04\x0a\x08\x31\x32\x33\x34\x35\x36\x37\x38\x04\x08\x08\x08\x13\x04\x49\xfe\xff\x7f\x72\x6
e\x61\x6c\x73\x02\x00\x00\x00\x00";

```

5/1/26, 5:16 PM

```
+ my $x = eval { Storable::mretrieve($retrieve_hook); };
+ is($?, 0, "no stack overflow in retrieve_hook()");
+ is($x, undef, 'either out of mem or normal error (malloc 2GB)');
+}
+
+ END { 1 while unlink("store$$", 'nstore') }
```