Description

This BT/dump/thingy has appeared in another ticket #858069, but that ticket has 3 different dumps for between 3 and 5 different bugs and a completely inappropriate title.

To trigger it you need to compile with -fsanatize=address and I used llvm, but it should be the same with gcc. Then, sadly, you have to play for a while. Load a savegame, do a turn or two, start a New Game with a new ruleset, play a turn. Then when it's primed, Leave Game, Start New Game, don't touch anything (ruleset says default) except you click Pick Nation, and it dumps (which is quite pretty, with colours and all).

I can reliably reproduce it, but any exact written instructions never seem to work more than once.

chippo@chippo-Aspire-V3-731:~$ ASAN_OPTIONS="detect_leaks=0" freeciv-qt-26 -F
2: Loading tileset "amplio2".
2: Loading tileset "delta2".
2: Loading tileset "amplio2".
QSocketNotifier: Invalid socket 41 and type 'Read', disabling...
2: last message repeated 2 times
2: Loading tileset "delta2". ===============================
2826ERROR: AddressSanitizer: heap-use-after-free on address 0x6030027b16b8 at pc 0x00000099c5e4 bp 0x7ffe6f90c350 sp 0x7ffe6f90c348
READ of size 1 at 0x6030027b16b8 thread T0
#0 0x99c5e3 in skip_intl_qualifier_prefix /home/chippo/Downloads/git_clones/freeciv/utility/fcintl.c:48:7
#1 0x845c3c in nation_set_by_rule_name /home/chippo/Downloads/git_clones/freeciv/common/nation.c:766:23
#2 0x726c40 in races_dialog::nationset_changed(int) /home/chippo/Downloads/git_clones/freeciv/client/gui-qt/dialogs.cpp:984:10
#3 0x5924f0 in races_dialog::qt_static_metacall(QObject*, QMetaObject::Call, int, void**) /home/chippo/Downloads/git_clones/freeciv/client/gui-qt/meta_dialogs.cpp:369:21
#4 0x7efc52de4f67 in QMetaObject::activate(QObject*, int, int, void**) (/usr/lib/x86_64-linux-gnu/libQt5Core.so.5+0x2b1467)
#5 0x7efc5270f7c4 in QComboBox::currentIndexChanged(int) (/usr/lib/x86_64-linux-gnu/libQt5Widgets.so.5+0x270c74)
#6 0x7efc52712075 (/usr/lib/x86_64-linux-gnu/libQt5Widgets.so.5+0x273075)
#7 0x7efc5271489c (/usr/lib/x86_64-linux-gnu/libQt5Widgets.so.5+0x27589c)
#8 0x7efc52714af2 in QComboBox::setCurrentIndex(int) (/usr/lib/x86_64-linux-gnu/libQt5Widgets.so.5+0x275af2)
#9 0x723098 in races_dialog::update_nationset_combo() /home/chippo/Downloads/git_clones/freeciv/client/gui-qt/dialogs.cpp:487:18
#10 0x720f6c in races_dialog::races_dialog(player*, QWidget*) /home/chippo/Downloads/git_clones/freeciv/client/gui-qt/dialogs.cpp:414:3
#11 0x727208e in popup_races_dialog /home/chippo/Downloads/git_clones/freeciv/client/gui-qt/dialogs.cpp:1034:23
#12 0x5a1410 in fc_client::slot_pick_nation() /home/chippo/Downloads/git_clones/freeciv/client/gui-qt/pages.cpp:2045:3
#13 0x5564c8 in QtPrivate::FunctionPointer<void (fc_client::*)(), QtPrivate::List*, void>(fc_client::*)(fc_client::*) /usr/include/x86_64-linux-gnu/qt5/QtCore/qobjectdefs_impl.h:152:13
#14 0x5564b3 in void QtPrivate::FunctionPointer<void (fc_client::*)(fc_client::*)* /usr/include/x86_64-linux-gnu/qt5/QtCore/qobjectdefs_impl.h:185:13
#15 0x5563e7 in QtPrivate::QSlotObject<void (fc_client::*)(fc_client::*)>::call(void) (/usr/include/x86_64-linux-gnu/qt5/QtCore/qobjectdefs_impl.h:185:13
#16 0x5563e7 in QtPrivate::QSlotObject<void (fc_client::*)(fc_client::*)>::call(void) (/usr/include/x86_64-linux-gnu/qt5/QtCore/qobjectdefs_impl.h:185:13
#17 0x7efc526fe235 in QAbstractButton::clicked(bool) (/usr/lib/x86_64-linux-gnu/libQt5Widgets.so.5+0x2f3f235)
#18 0x7efc526fe45d (/usr/lib/x86_64-linux-gnu/libQt5Widgets.so.5+0x2f3f235)
#19 0x7efc526fa82 (/usr/lib/x86_64-linux-gnu/libQt5Widgets.so.5+0x2b35a2)
#20 0x7efc526fa64 in QAbstractButton::mouseReleaseEvent(QMouseEvent*) (/usr/lib/x86_64-linux-gnu/libQt5Widgets.so.5+0x2b35a2)
#21 0x7efc5264c04d in QWidget::event(QEvent*) (/usr/lib/x86_64-linux-gnu/libQt5Widgets.so.5+0x2b35a2)
#22 0x7efc5260a85 in QApplicationPrivate::notify_helper(QObject*, QEvent*) (/usr/lib/x86_64-linux-gnu/libQt5Widgets.so.5+0x2b35a2)
#23 0x7efc52613052 in QApplication::notify(QObject*, QEvent*) (/usr/lib/x86_64-linux-gnu/libQt5Widgets.so.5+0x2b35a2)
#24 0x7efc52613052 in QApplication::notify(QObject*, QEvent*) (/usr/lib/x86_64-linux-gnu/libQt5Widgets.so.5+0x2b35a2)
Stack left redzone: f1
Stack mid redzone: f2
Stack right redzone: f3
Stack after return: f5
Stack use after scope: f7
Global redzone: f9
Global init order: f6
Poisoned by user: fc
Container overflow: fc
Array cookie: ac
Intra object redzone: bb
ASan internal: fe
Left alloca redzone: ca
Right alloca redzone: cb
Shadow gap: cc
2826ABORTING

Related issues:
Related to Freeciv - Bug #859139: Qt: Temporary QByteArrays often used after ... Closed

History

#1 - 2020-02-02 09:20 PM - Marko Lindqvist
Which commit this was with? gui-qt/dialogs.cpp has changed several times recently (within a week) and I suspect those line numbers in your trace are not the same as in current S2_6 HEAD.

#2 - 2020-02-02 09:37 PM - Marko Lindqvist
Chippo Elder wrote:

Load a savegame, do a turn or two, start a New Game with a new ruleset, play a turn. Then when it's primed, Leave Game, Start New Game, don't touch anything (ruleset says default) except you click Pick Nation, and it dumps (which is quite pretty, with colours and all).

Do you use "Pick Nation" when starting the earlier games, or do you go by the random nation selection that is the default?

#3 - 2020-02-03 12:36 AM - Chippo Elder
Marko Lindqvist wrote:

Which commit this was with?

The dump I'm going to show you below is from 2.6.1+ (modified ec0f40dcb), gui-qt client.

Marko Lindqvist wrote:

Do you use "Pick Nation" when starting the earlier games, or do you go by the random nation selection that is the default?

The latter. This is the first time during this program run that you touch the Pick Nation button.

So I followed my own instructions above and get this:

chippo@chippo-Aspire-V3-731:~$ ASAN_OPTIONS="abort_on_error=1:disable_coredump=0:unmap_shadow_on_exit=1" freeciv-qt-26
2: Loading tileset "amplio2".
2: Loading tileset "delta2".
QSocketNotifier: Invalid socket 41 and type 'Read', disabling...
2: Loading tileset "amplio2".
2: Loading tileset "delta2".
QSocketNotifier: Invalid socket 41 and type 'Read', disabling...
2: Loading tileset "delta2".
2: Loading tileset "امپلیو2".
2: Loading tileset "دلتا2".
2: Loading tileset "امپلیو2".
2: Loading tileset "دلتا2".
=================================================================
==28888==ERROR: AddressSanitizer: heap-use-after-free on address 0x6030002b8598 at pc 0x0000000000000000 bp 0x7fff21e4b570 sp 0x7fff21e4b568
READ of size 1 at 0x6030002b8598 thread T0
#0 0x9758f3 in skip_intl_qualifier_prefix /home/chippo/Downloads/git_clones/freeciv/utility/fcintl.c:48:7
#1 0x82f3cc in nation_set_by_rule_name /home/chippo/Downloads/git_clones/freeciv/common/nation.c:766:23
#2 0x719750 in races_dialog::nationset_changed(int) /home/chippo/Downloads/git_clones/freeciv/client/gui-qt/dialogs.cpp:984:10
#3 0x592450 in races_dialog::qt_static_metacall(QObject*, QMetaObject::Call, int, void**) /home/chippo/Downloads/git_clones/freeciv/client/gui-qt/meta_dialogs.cpp:369:21
2021-08-09
Heap left redzone:       fa
Freed heap region:       fd
Stack left redzone:      f1
Stack mid redzone:       f2
Stack right redzone:     f3
Stack after return:      f5
Stack use after scope:   f8
Global redzone:          f9
Global init order:       f6
Poisoned by user:        f7
Container overflow:      fc
Array cookie:            ac
Intra object redzone:    bb
ASan internal:           fe
Left alloca redzone:     ca
Right alloca redzone:    cb
Shadow gap:              cc
@==28888==ABORTING
AddressSanitizer:DEADLYSIGNAL
Aborted (core dumped)

And since I worked out my ASAN core dump troubles, I can get a full backtrace:

Core was generated by `freeciv-qt-26'.
Program terminated with signal SIGABRT, Aborted.
#0  __GI_raise (sig=sig@entry=6) at ../sysdeps/unix/sysv/linux/raise.c:50
    ../sysdeps/unix/sysv/linux/raise.c: No such file or directory.
    [Current thread is 1 (Thread 0x7f1a4e3baac0 (LWP 28888))]
    (gdb) bt full
#0  __GI_raise (sig=sig@entry=6) at ../sysdeps/unix/sysv/linux/raise.c:50
    set = {
      val = {0, 5106555, 895, 0, 0, 281470681751461, 0, 0, 0, 0, 0, 0, 0, 206158430216, 140733762021568}
    pid = <optimized out>
    tid = <optimized out>
#1  0x0000000000082f3cd in _GL_abort () at abort.c:79
    save_stage = 1
    act = {
      __sigaction_handler = {sa_handler = 0x3fe6b5ce50b7821a, sa_sigaction = 0x3fe6b5ce50b7821a},
      sa_mask = {__val = {0, 13975167971584, 13731440, 2, 2, 2, 0, 0, 0, 0, 0, 3, 0, 0}},
      sa_flags = 0, sa_restorer = 0xc85e68 <__asan::error_message.buf_mutex>
    }
    sigs = {__val = {32, 0 <repeats 15 times>}}
#2  0x000000000004f8e27 in ()
#3  0x000000000004f7801 in ()
#4  0x000000000004df389 in ()
#5  0x000000000004e0aff in __asan::ReportGenericError(unsigned long, unsigned long, unsigned long, unsigned long, bool, unsigned long, int, bool) ()
#6  0x000000000004e11d8 in __asan_report_load1 ()
#7  0x00000000009758f4 in skip_intl_qualifier_prefix (str=0x6030002b8598 "all") at fcintl.c:48
    ptr = <optimized out>
#8  0x0000000000082f3cd in skip_intl_qualifier_prefix (str=0x6030002b8598 "all") at fcintl.c:48
    _t = 0x2
#9  0x0000000000082f3cd in nation_set_by_rule_name (name=0x2 <error: Cannot access memory at address 0x2>) at nation.c:766
    qname = "all"
#10 0x0000000000082f3cd in nation_set_by_rule_name (name=0x2 <error: Cannot access memory at address 0x2>) at nation.c:766
    rule_name = {static null = {<No data fields>}, d = 0x60300087bcb0}
    poption = 0x627000f7adb0
    rn = 0x603000002b8598 "all"
#11 0x0000000000082f3cd in nation_set_by_rule_name (name=0x2 <error: Cannot access memory at address 0x2>) at nation.c:766
    _t = 0x2
#12 0x0000000000082f3cd in nation_set_by_rule_name (name=0x2 <error: Cannot access memory at address 0x2>) at nation.c:766
    _t = 0x2
#13 0x0000000000082f3cd in nation_set_by_rule_name (name=0x2 <error: Cannot access memory at address 0x2>) at nation.c:766
    _t = 0x2
#14 0x0000000000082f3cd in nation_set_by_rule_name (name=0x2 <error: Cannot access memory at address 0x2>) at nation.c:766
    _t = 0x2
#15 0x0000000000082f3cd in nation_set_by_rule_name (name=0x2 <error: Cannot access memory at address 0x2>) at nation.c:766
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    _t = 0x2
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    _t = 0x2
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    _t = 0x2
#20 0x0000000000082f3cd in nation_set_by_rule_name (name=0x2 <error: Cannot access memory at address 0x2>) at nation.c:766
    _t = 0x2
#21 0x0000000000082f3cd in nation_set_by_rule_name (name=0x2 <error: Cannot access memory at address 0x2>) at nation.c:766
    _t = 0x2
#22 0x0000000000082f3cd in nation_set_by_rule_name (name=0x2 <error: Cannot access memory at address 0x2>) at nation.c:766
    _t = 0x2
#23 0x0000000000082f3cd in nation_set_by_rule_name (name=0x2 <error: Cannot access memory at address 0x2>) at nation.c:766
    _t = 0x2
#24 0x0000000000082f3cd in nation_set_by_rule_name (name=0x2 <error: Cannot access memory at address 0x2>) at nation.c:766
    _t = 2021-08-09
I still don’t fully understand what happens here. If we’re lucky, attached wild experiment helps, but I’m not surprised if it doesn’t.

If the problem is in the lifetime of the temporary QByteArray when using construct like ‘char *buf = str.toLocal8Bit().data()’, the bad news is that Qt-client and ruledit code has lots of such usage. And I now think it’s a bug in principle, even if this one is not about it.

grep -r "data()" client/qui-qt tools/ruledit

I can’t trigger it anymore. I tried a lot. The combination of the two patches (0007-Do-not-unqueue-mapview-updates-when-tileset-is-not-f.patch and QByteArrayLifetime.patch) has done the trick. Close the ticket.

This BT looks very similar to the last, but there are some largeish differences like the "set = {__val = {" values, so I’ll include it here in case.

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Marko Lindqvist wrote:

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This BT looks very similar to the last, but there are some largeish differences like the "set = {__val = {" values, so I’ll include it here in case.
I betcha that with the QByteArrayLifetime.patch applied, I don't see this again.

#8 - 2020-02-06 01:55 PM - Chippo Elder

Seen in master, 3.0.32-dev (modified 5fa96c064c).

chippo@chippo-Aspire-V3-731:/ $ ASAN_OPTIONS="abort_on_error=1:disable_coredump=0:unmap_shadow_on_exit=1:detect_leaks=0" freeciv-qt-dev -F

1: Lost connection to server: server disconnected.
QSocketNotifier: Invalid socket 41 and type 'Read', disabling...
3: Loading tileset "amplio2".

=================================================================
==592689==ERROR: AddressSanitizer: heap-use-after-free on address 0x6030002be868 at pc 0x0000009d06c4 bp 0x7fffb727e248 sp 0x7fffb727e250
READ of size 1 at 0x6030002be868 thread T0
#0 0x9d06c3 in skip_intl_qualifier_prefix /home/chippo/Downloads/git_clones/freeciv/freeciv-dev/utility/fcintl.c:48:7
#1 0x86b6bc in nation_set_by_rule_name /home/chippo/Downloads/git_clones/freeciv/freeciv-dev/common/nation.c:766:23
#2 0x63c590 in races_dialog::nationset_changed(int) /home/chippo/Downloads/git_clones/freeciv/freeciv-dev/client/gui-qt/dialogs.cpp:1097:10
#3 0x9d06d3 in skip_intl_qualifier_prefix /home/chippo/Downloads/git_clones/freeciv/freeciv-dev/utility/fcintl.c:48:7
#4 0x63c590 in races_dialog::nationset_changed(int) /home/chippo/Downloads/git_clones/freeciv/freeciv-dev/client/gui-qt/dialogs.cpp:1097:10
#5 0x700f50 in QComboBoxPrivateContainer::itemSelected(QModelIndex const&) /usr/lib/x86_64-linux-gnu/libQt5Widgets.so.5+0x270de5
#6 0x700f50 in QComboBoxPrivateContainer::itemSelected(QModelIndex const&) /usr/lib/x86_64-linux-gnu/libQt5Widgets.so.5+0x270de5
#7 0x700f50 in QComboBoxPrivateContainer::itemSelected(QModelIndex const&) /usr/lib/x86_64-linux-gnu/libQt5Widgets.so.5+0x270de5
#8 0x700f50 in QComboBoxPrivateContainer::itemSelected(QModelIndex const&) /usr/lib/x86_64-linux-gnu/libQt5Widgets.so.5+0x270de5
#9 0x700f50 in QComboBoxPrivateContainer::itemSelected(QModelIndex const&) /usr/lib/x86_64-linux-gnu/libQt5Widgets.so.5+0x270de5
#10 0x700f50 in QComboBoxPrivateContainer::itemSelected(QModelIndex const&) /usr/lib/x86_64-linux-gnu/libQt5Widgets.so.5+0x270de5
#11 0x700f50 in QComboBoxPrivateContainer::itemSelected(QModelIndex const&) /usr/lib/x86_64-linux-gnu/libQt5Widgets.so.5+0x270de5

I betcha that with the QByteArrayLifetime.patch applied, I don't see this again.
previously allocated by thread T0 here:
#0 0x4bd6d in free (/home/local/bin/freeciv-qt-dev+0x4bd6d)
#1 0x5e2552 in QTypedArrayData::char*::ideallocate(QArrayData*) /usr/include/x86_64-linux-gnu/qt5/QtCore/qarraydata.h:239:9
#2 0x5df69b in races_dialog::nationset_changed(int) /home/chippo/Downloads/git_clones/freeciv/freeciv-dev/client/gui-qt/gui_main.cpp:179:17
#3 0x5d049b in ui_main /home/chippo/Downloads/git_clones/freeciv/freeciv-dev/client/gui_main.cpp:59:3
#4 0x5d2627 in client_main /home/chippo/Downloads/git_clones/freeciv/freeciv-dev/client/client_main.c:685:3
#5 0x463ad5 in _start (/home/chippo/Downloads/git_clones/freeciv/freeciv-dev/client/gui-qt/gui_main.cpp:100:10)
#6 0x700f50 in races_dialog::qt_static_metacall(QObject*, QMetaObject::Call, int, void**) /home/chippo/Downloads/git_clones/freeciv/freeciv-dev/client/gui-qt/gui_main.cpp:369:21
#7 0x7fdc568d8467 in QMetaObject::activate(QObject*, int, int, void**) /usr/lib/x86_64-linux-gnu/libQt5Core.so.5+0x2b1467
#8 0x70e82a in __libc_start.main (/build/glibc-4WA41p/glibc-2.30/csu/../csu/libc-start.c:308:16)
#9 0x4db6dd in free (/usr/local/bin/freeciv-qt-dev+0x4db6dd)
previously allocated by thread T0 here:
#0 0x4bd6d in free (/home/local/bin/freeciv-qt-dev+0x4bd6d)
#1 0x5e2552 in QTypedArrayData::char*::ideallocate(QArrayData*) /usr/include/x86_64-linux-gnu/qt5/QtCore/qarraydata.h:239:9
#2 0x5df69b in races_dialog::nationset_changed(int) /home/chippo/Downloads/git_clones/freeciv/freeciv-dev/client/gui-qt/gui_main.cpp:179:17
#3 0x5d049b in ui_main /home/chippo/Downloads/git_clones/freeciv/freeciv-dev/client/gui_main.cpp:59:3
#4 0x5d2627 in client_main /home/chippo/Downloads/git_clones/freeciv/freeciv-dev/client/client_main.c:685:3
#5 0x463ad5 in _start (/home/chippo/Downloads/git_clones/freeciv/freeciv-dev/client/gui-qt/gui_main.cpp:100:10)
#6 0x700f50 in races_dialog::qt_static_metacall(QObject*, QMetaObject::Call, int, void**) /home/chippo/Downloads/git_clones/freeciv/freeciv-dev/client/gui-qt/gui_main.cpp:369:21
#7 0x7fdc568d8467 in QMetaObject::activate(QObject*, int, int, void**) /usr/lib/x86_64-linux-gnu/libQt5Core.so.5+0x2b1467
#8 0x70e82a in __libc_start.main (/build/glibc-4WA41p/glibc-2.30/csu/../csu/libc-start.c:308:16)
#9 0x4db6dd in free (/usr/local/bin/freeciv-qt-dev+0x4db6dd)
previously allocated by thread T0 here:
#0 0x4bd6d in free (/home/local/bin/freeciv-qt-dev+0x4bd6d)
#1 0x5e2552 in QTypedArrayData::char*::ideallocate(QArrayData*) /usr/include/x86_64-linux-gnu/qt5/QtCore/qarraydata.h:239:9
#2 0x5df69b in races_dialog::nationset_changed(int) /home/chippo/Downloads/git_clones/freeciv/freeciv-dev/client/gui-qt/gui_main.cpp:179:17
#3 0x5d049b in ui_main /home/chippo/Downloads/git_clones/freeciv/freeciv-dev/client/gui_main.cpp:59:3
#4 0x5d2627 in client_main /home/chippo/Downloads/git_clones/freeciv/freeciv-dev/client/client_main.c:685:3
#5 0x463ad5 in _start (/home/chippo/Downloads/git_clones/freeciv/freeciv-dev/client/gui-qt/gui_main.cpp:100:10)
#6 0x700f50 in races_dialog::qt_static_metacall(QObject*, QMetaObject::Call, int, void**) /home/chippo/Downloads/git_clones/freeciv/freeciv-dev/client/gui-qt/gui_main.cpp:369:21
#7 0x7fdc568d8467 in QMetaObject::activate(QObject*, int, int, void**) /usr/lib/x86_64-linux-gnu/libQt5Core.so.5+0x2b1467
#8 0x70e82a in __libc_start.main (/build/glibc-4WA41p/glibc-2.30/csu/../csu/libc-start.c:308:16)
#9 0x4db6dd in free (/usr/local/bin/freeciv-qt-dev+0x4db6dd)
I'm going to try the `QByteArrayLifetime.patch` and see if that helps.

#9 - 2020-02-06 04:20 PM - Chippo Elder
It applies cleanly in master and seems to do the job. I haven't managed to trigger this bug in master since applying it. I recommend that it gets committed.

#10 - 2020-02-07 07:07 PM - Marko Lindqvist
- Status changed from New to In Progress
- Assignee set to Marko Lindqvist
- Sprint/Milestone set to 2.6.2

Marko Lindqvist wrote:

> ... the lifetime of the temporary `QByteArray` when using `construct like 'char *buf = str.toLocal8Bit().data()'`, the bad news is that Qt-client and ruedited code has lots of such usage.

-> Bug #859139

#11 - 2020-02-07 07:31 PM - Marko Lindqvist
- File 0008-Qt-Fix-heap-use-after-free-in-nations-dialog.patch added
- Status changed from In Progress to Resolved

Patch with commit message. No functional changes.

#12 - 2020-02-09 09:21 AM - Marko Lindqvist
- Status changed from Resolved to Closed

#13 - 2020-02-09 01:55 PM - Jacob Nevins
- Related to Bug #859139: Qt: Temporary `QByteArrays` often used after their lifetime has ended added