GOODBYE, MEMORY ERRORS!

KARL DONAUBAUER

KARL DONAUBAUER

Access developer, MVP

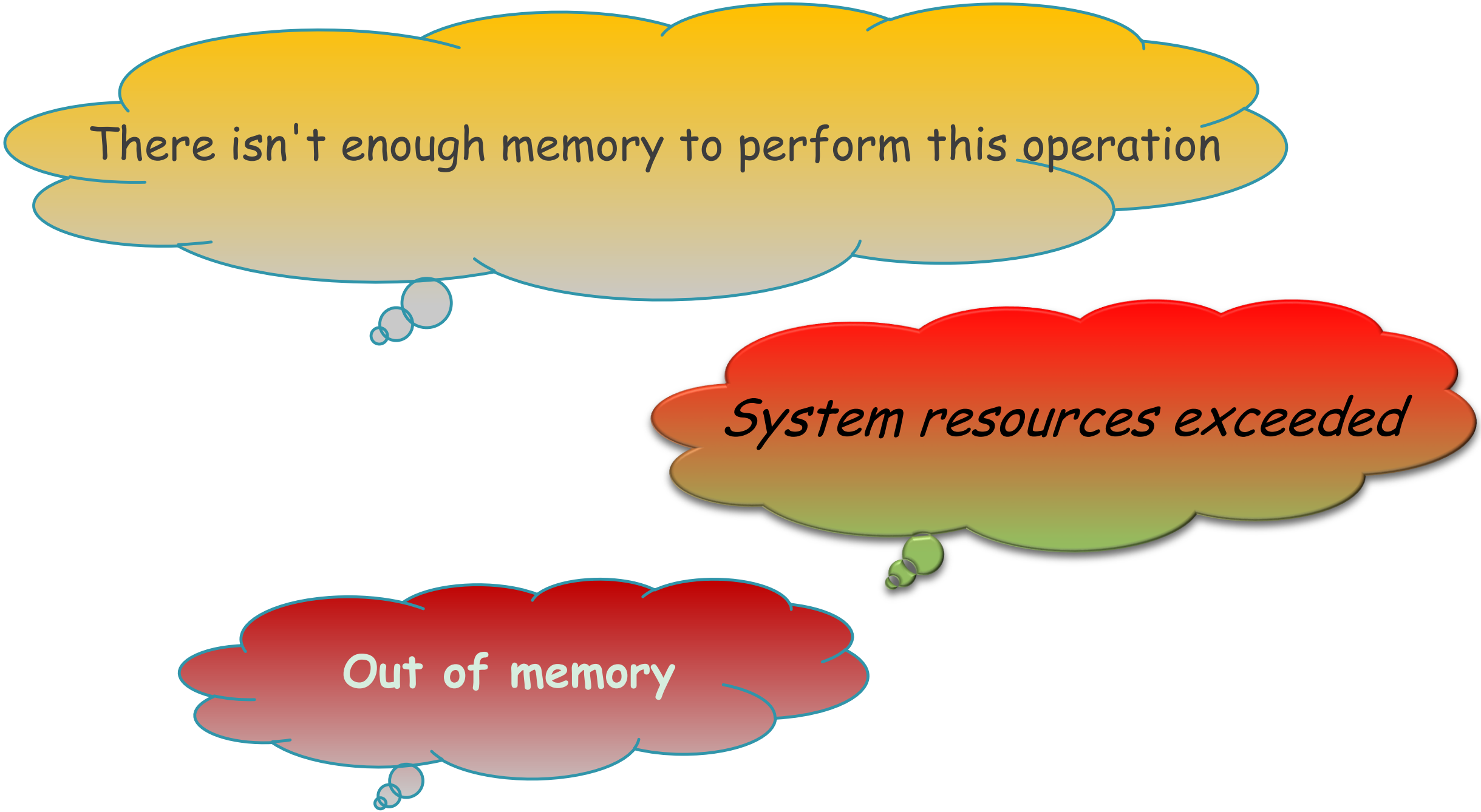
Vienna, Austria, Europe, Earth

office@donkarl.com

AccessDevCon.com

Access DevCon Vienna

April 25+26, 2020


There isn't enough memory to perform this operation
System resources exceeded
Out of memory

AGENDA

- Basics
  - Virtual memory, 32 bit vs. 64 bit
- Problems
  - Examples, errors
  - Measures, thresholds
- Solutions
  - Classical methods
  - LAA switch

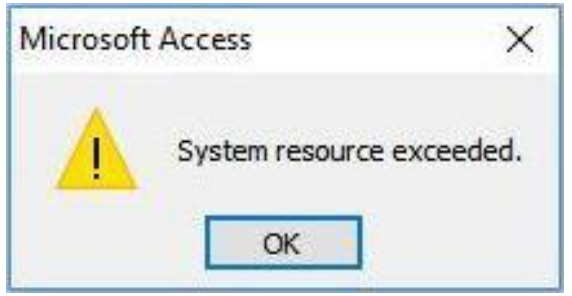
VIRTUAL MEMORY (VM)

- OS provides a process with abstracted memory = VM
- exe, dlls, add-ins... mapped into Virtual Address Space
- RAM or swap files (hard disc, optical drive, flash etc.)
- 32 bit programs → max. addressable VM = 4 GB
  - Evenly divided between process and Windows (by default)
  - **2 GB for the process** + 2 GB reserved for Windows
- 64 bit programs → VM limit = 16 TB

VIRTUAL MEMORY

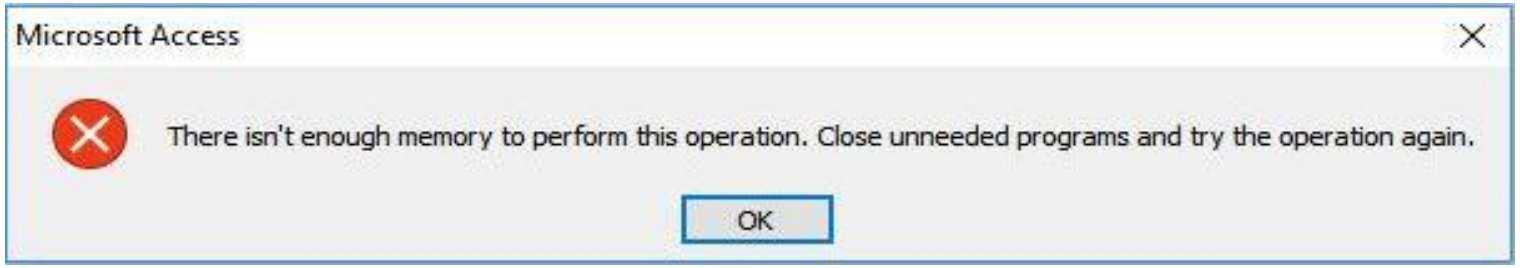
- Access needs more VM with each version
  - The higher the version the less VM for your application

  → Memory problems at version upgrades
- Popular misconceptions
  - ~~High amount of physical RAM~~ → doesn‘t help
  - ~~2 GB file size limit of accdb~~ → nothing to do with it



PROBLEM SITUATIONS

- Many forms or multiple heavy forms
  - with subforms, combos, tab controls etc.
- Complex queries
- Complex reports
- Multiple PDFs
- Combinations



MEASURE VM

- API: GlobalMemoryStatusEx
- MSFT tool: vmmap.exe

credits: Stephan Kraft (dokuwork)

CLASSIC SOLUTIONS

- Queries
  - Optimize index use, combine multiple queries
- Reports
  - No combos etc. but include the tables in the report query
  - Use work tables instead of queries to deliver report data
- Forms
  - „Late loading“ of subforms, tab controls, combos etc.

LARGEADDRESSAWARE (LAA)

- Win 64 bit doesn‘t need the 2 GB VM share
- Flag in the (PE) header of Windows exe files like... msaccess.exe
- Tells Windows that exe can handle >2 GB VM

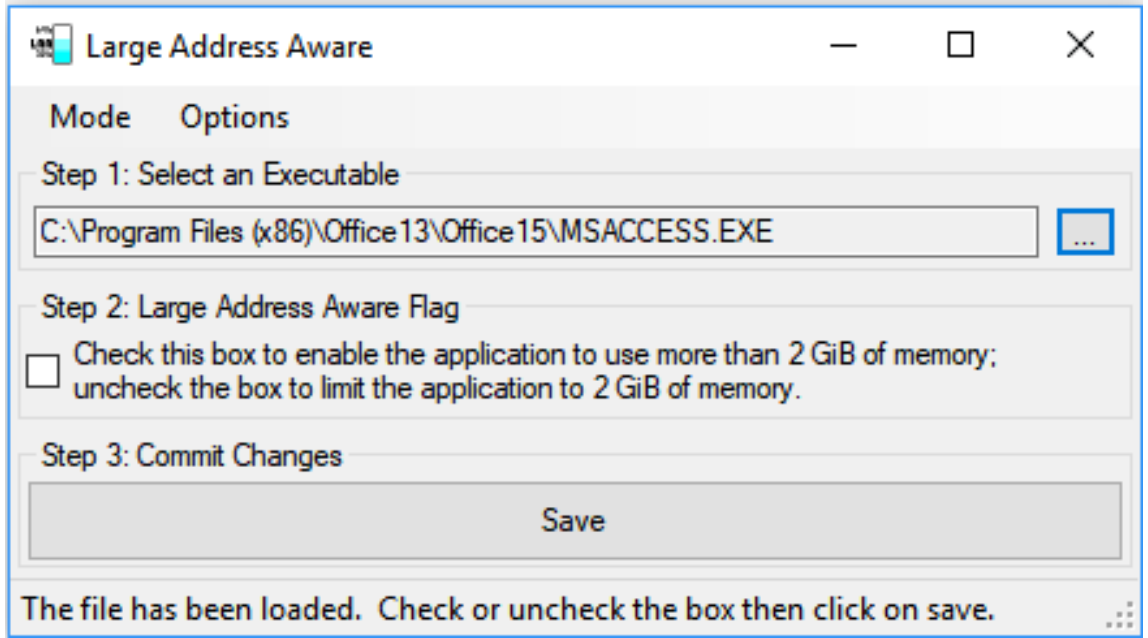
  → Win 64 bit process gets 4 GB of VM

SET LARGEADDRESSAWARE (LAA) – METHOD 1

- Visual Studio (credits: Björn Fox, Avantgarde)
  - editbin.exe
  - Make a security copy of your msaccess.exe
  - Start command prompt as administrator
  - "C:\Program Files (x86)\Microsoft Visual Studio 12.0\VC\bin\editbin.exe" /LARGEADDRESSAWARE "C:\Program Files (x86)\Microsoft Office\Office14\MSACCESS.EXE"

SET LARGEADDRESSAWARE (LAA) – METHOD 2

- Free tool Large Address Aware.exe
  - 10 year old "gamer tool"
  - Only requires .NET Framework 3.5 or newer



LARGEADDRESSAWARE HURDLES

- Admin rights
- Microsoft updates exchange msaccess.exe

TO MICROSOFT

- Set LARGEADDRESSAWARE as default!
  - Excel and Outlook have it for years
  - Do it for ALL Access versions in support (not only 365)
- UserVoice wish – LAA as default

Vote for it!

THANKS, I'M DONE

Questions?