Getting Started With SCALE
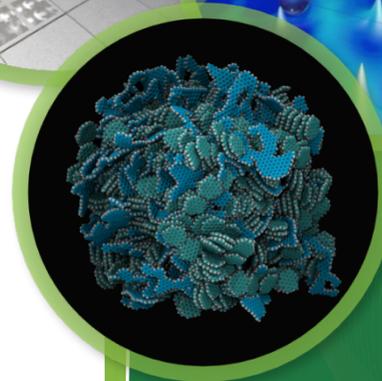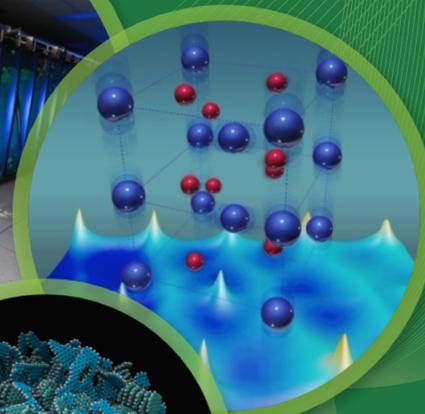
Installation and Updates

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SCALE Users Group Workshop
Sept 26-28, ORNL

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Getting Started Overview

- SCALE Release Process

- Distributions
  - Source + executable, executable only

- Prebuilt Binaries
  - Windows, Mac OSX, and Linux

- Data

- Code Compilation

- Installation Verification

- Frequently Asked Questions

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SCALE Release Process

SCALE Development

Release Candidate

RSICC Release

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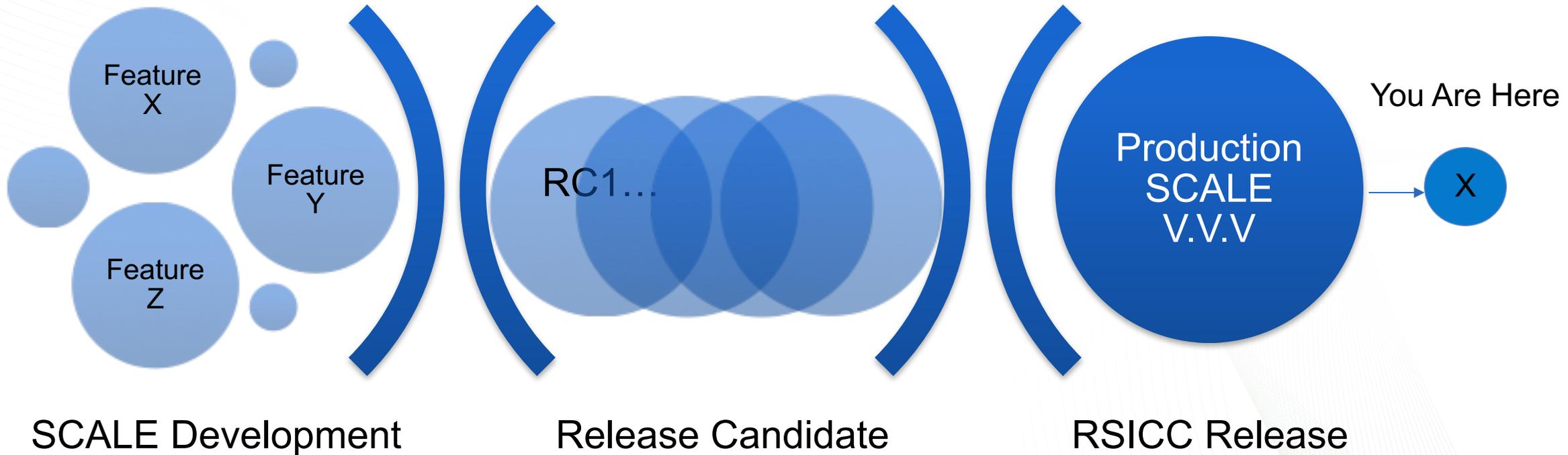
SCALE Release Process – Initial Software Request

- Go to https://rsicc.ornl.gov/

- Under **Request Software**, click **Submit Request**

- Follow the **Request Form** steps

- Receive email from RSICC of software license approval.
  - Read each paragraph carefully and understand licensing and export control restrictions.

- Wait for your stack of DVDs to arrive in the mail

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SCALE Release Process – Software Updates

- Email scalehelp@ornl.gov and request latest SCALE update
  - Requires RSICC License
  - Download link will be emailed once license is verified

- SCALE 6.2 software updates are cumulative
  - No more missed updates, just request and install the latest

- Data has not changed, only executables
  - Copy or link to existing SCALE 6.2 data

- Follow README instructions

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Distributions

- Source + Executables
    - Includes prebuilt binary executables
    - Includes source code from which executables can be recompiled
        - Necessary for parallel MPI executables
    - Available to almost everyone*
    - Includes Data

- Executable Only
    - Only includes prebuilt binary executables
    - No source - can't recompile
        - Cannot compile parallel MPI
    - Includes Data
    - More available to almost everyone*

* Restricted by export control

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Prebuilt Binaries

- Prebuilt Serial Executables
  - Linux – SCALE-6.2.X.tar.gz
  - Mac OS X – SCALE-6.2.x-setup.dmg
  - Windows - SCALE-6.2.x-setup.exe

- Native installers for intuitive installation of **executables***
  - Linux unzip, untar
  - Mac OS X drag-n-drop
  - Windows next, next, finish

* Only executables, not data

Data

- 30 GB - requires 9 DVDs

- Exists in *.pak files

- Has not changed for any SCALE 6.2.x release

- Is the reason the installation takes so long

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Installation Procedure

- Follow the README Instructions
  - https://www.ornl.gov/sites/default/files/SCALE%20Code%20System.pdf#page=45

- Step 1 - Execute your operating system's native installer

- Step 2 – run scale-6.2-data-setup.jar
  - Located on DVD #1
  - Requires Java runtime environment (freely available from Oracle)

- Step 3 – follow the *.pak installation prompts
  - This may require substantial time depending on hard disk and DVD reader speeds

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Code Compilation

- Specific instructions listed at https://www.ornl.gov/sites/default/files/SCALE%20Code%20System.pdf#page=71

- Use specific versions:
  - Intel Compiler 14.1 (Linux, Mac), 15.0.0 (Windows)
  - GNU 4.8.x (Linux, Mac)
  - LAPACK/BLAS 3.5
  - CMake 2.8.12.2 (Linux, Mac), 3.3.2 (Windows)
  - OpenMPI 1.8.1 (Linux, Mac)
  - Qt 4.8.x

- Example scripts available under SCALE/script

- Don't overlook configuration instructions
  - Work around for Trilinos Anasazi configuration bug
  - https://www.ornl.gov/sites/default/files/SCALE%20Code%20System.pdf#page=74

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Installation Verification

- Useful to determine if installation is functional

- Instructions at https://www.ornl.gov/sites/default/files/SCALE%20Code%20System.pdf#page=74

- Can be conducted using Fulcrum or SCALE runtime environment (ScaleRTE)

  - Open Fulcrum and select Run>Run Verification Suite, select directory in which execution will occur*.

  - Go to **empty*** directory and type `path/to/scale/bin/scalerte @samples/samples`

- Runtime is usually 12 hours, can be longer due to slow disk speed or anti-virus on-access scans

* Directory will receive all message, output, results files

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Frequently Asked Questions

- Google user group community - https://groups.google.com/forum/#!categories/scale-users-group/scale-62

- Data installation issues

- SCALE runtime shortcuts

- Fulcrum input auto-completion issues

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Google User Group

- Lots of frequently asked questions already answered
  - Installation questions
  - Technical questions
  - Questions and Answers from prior versions of SCALE

- Protected group
  - must be RSICC licensed for SCALE to be approved

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Data Installation Issues

- Location, Location, Location

- When installing, use the SCALE path, not SCALE/data
  - Install at C:\Scale-6.2.2\ ← Good
    - Installer creates C:\Scale-6.2.2\data
  - Install at C:\Scale-6.2.2\data ← BAD
    - Installer creates C:\Scale-6.2.2\data\data

- Linking data from prior SCALE 6.2 install is simple:
  - Change into the SCALE directory : `cd c:\Scale-6.2.2`
  - Windows : `mklink /D data c:\SCALE-6.2\data`
  - Linux, Mac : `ln -s /scale/release/6.2/data data`

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SCALE Runtime Shortcuts

- ## Place SCALERTE in the PATH environment variable
  - Must be the absolute path – PATH=/scale/release/6.2.2/bin/:$PATH
  - Allows reference to scalerte
  - Can only be used with single installation of SCALE

- ## Use aliases on Linux and Mac OS X
  - Allows references to multiple scalerte versions (SCALE 6.1,6.2, etc.)
  - `alias scale6.2.2="/scale/release/6.2.2/bin/scalerte"`

- ## Use of doskeys on Windows
  - Allows references to multiple scalerte versions (SCALE 6.1,6.2, etc.)
  - `doskey scale6.2.1=c:\scale-6.2.1\bin\scalerte.exe $*`

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Fulcrum Auto-completion (CTRL+SPACE) doesn't work

- Fulcrum auto completion feature doesn't work
  - I.e., nothing is generated in your input upon typing enter

- Issue is likely Java runtime environment
  - Is Java installed?
    - No – install Java
    - Yes – are there multiple versions of Java installed?
      - Is one of them not working?
        - Delete the one that is not working.
        - This is a typical scenario at government offices where 2 Java installations occur, and the operating system (typically Windows) provides the non-functioning Java to Fulcrum

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Questions

- Read the README or Manual's README section – It is useful
  - https://www.ornl.gov/sites/default/files/SCALE%20Code%20System.pdf#page=45

- Have a question?
  - Email scalehelp@ornl.gov or search and use google forum
  - https://groups.google.com/forum/?fromgroups#!forum/scale-users-group

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