RexxLA Symposium 2021

Setting up and running CMS Pipelines in NetRexx

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Overview

- Background

- Installing Pipelines for NetRexx

- Using Pipelines for NetRexx with Rexx

- Summary

Background

- Comment on the ooRexx Help list
  - "very much missing CMS Pipelines on PC"
  - Suggestions made to look at:
    - ooRexx samples
    - Pipelines for NetRexx
    - Experimental version of ooRexx by Jean-Louis Faucher

Background (2)

- Comment on the ooRexx Help list (cont.)
    - Chose to try Pipelines for NetRexx
        - From René: "Pipelines for NetRexx strives to be an exactly compatible, and as complete as possible implementation of CMS Pipelines."
        - Hence, minimize the learning curve for those familiar with CMS Pipelines

Background (3)

- So what exactly is a "pipeline"?

  - From the Pipelines Guide and Reference Introduction:

    - "... a concept that extends and improves pipes as they are known from Unix and other operating systems. The name pipe indicates an interprocess communication mechanism, as well as the programming paradigm it has introduced.

  - An implementation of the Data Flow model

Installing Pipelines for NetRexx

- Where do you get it?
    - http://www.netrexx.org
    - Click on Downloads
    - Click on NetRexx 4.01 GA
    - NetRexx-4.01-GA.zip gets downloaded
- Where should you put it?
    - Anywhere but suggest a folder / directory of its own

Installing Pipelines for NetRexx (2)

- How do you install it?
    - Unzip the file to the folder you chose
    - No "installation" required but …
        - To use it, the programs need to be found
        - So some additional changes to your system are needed
        - On Linux:
            - Define some "aliases"
        - On Windows:
            - Set some environment variables
    - See section 3.1 of Pipelines Guide and Reference (in the download)

Installing Pipelines for NetRexx (3)

- Does it work?

  - The file read.me.first suggests several steps to verify the installation

    - Check that JAVA works

    - Add 'lib' subdirectory to path

      - I created a .bat file to do this as well as set up the environment variables

    - Create hello.nrx file in 'lib' subdirectory

      - One-liner

      - Test the NetRexx interpreter and compiler using hello.nrx

Installing Pipelines for NetRexx (4)

- Does it work?

  - Try a simple pipeline example:
    pipe 'gen 100 | dup 999 | count words | console'

    - What does that do?

      - Four stages

      - 1: generate 100 records/lines containing a single integer each that is the line number

      - 2: copy each input line to the output and duplicate it 999 times

      - 3 & 4: count the words (lines) and display it

•Using Pipelines for NetRexx with Rexx

- Suspect that most users of CMS Pipelines used it in conjunction with Rexx

  – Perhaps to write their own custom pipeline stages in Rexx

  – Perhaps to run a pipeline from within a Rexx program

- Both of these are possible with Pipelines for NetRexx

  – Custom stages can be most easily implemented by writing them in NetRexx

•Using Pipelines for NetRexx with Rexx (2)

- Both of these are possible with Pipelines for NetRexx (con't.)

    - Another possibility is to divide the pipeline into sections, placing the input to the custom stage into a stem (or array), processing the input using a Rexx routine that puts its output into another stem/array, and running the next section of the pipeline with the second stem/array as input.

    - No experience with either approach

•Using Pipelines for NetRexx with Rexx (3)

- Both of these are possible with Pipelines for NetRexx (con't.)

    – Running a pipeline from within a Rexx program is also possible

    – Using the Rexx ADDRESS instruction, it is possible to execute a pipeline and, optionally, capture its output

        • The ADDRESS … WITH capability is available in Regina and ooRexx 5.0.0

    – An example of how one might do that has been developed

Using Pipelines for NetRexx with Rexx (4)

- An example of running a pipeline from within a Rexx program

  – Two programs will be examined

  – NetRexxPipes.rex: implements a public routine, PIPE, that runs a pipeline supplied as an argument and optionally captures its output in various ways

  – nrxpipes.rex: a test program that exercises the PIPE routine

Summary

- Pipelines for NetRexx can provide compatible functionality to CMS Pipelines on the PC
  - Easy to install
  - Easy to integrate with both Regina and ooRexx
  - An additional tool for Rexx programmers
- Questions or comments -
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