

index.f90

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!  
! Description: How to create and use an index to access messages from  
a file.  
!           Demo also loading and writing an index from a file.  
!  
!  
program index  
  use grib_api  
  implicit none  
  
  integer          :: ired  
  character(len = 256) :: error  
  integer,dimension(:),allocatable :: step,level,number  
  character(len=20),dimension(:),allocatable :: shortName  
  integer          :: ostep,olevel,onumber  
  character(len=20) :: oshortName  
  integer          :: shortNameSize,numberSize,  
levelSize,stepSize  
  integer          :: i,j,k,l  
  integer          :: idx,igrib,count  
  logical          :: index_exists  
  character(len=10) :: index_file='index.idx'  
  
  ! uncomment following line to load index from file  
  !call grib_index_read(idx,index_file)  
  
  ! create an index from a grib file using some keys  
  call grib_index_create(idx,'../..../data/index.grib','shortName,number,  
level,step')  
  
  ! get the number of distinct values of shortName in the index  
  call grib_index_get_size(idx,'shortName',shortNameSize)  
  ! allocate the array to contain the list of distinct shortName  
  allocate(shortName(shortNameSize))  
  ! get the list of distinct shortName from the index  
  call grib_index_get(idx,'shortName',shortName)  
  write(*,'(a,i3)') 'shortNameSize=',shortNameSize  
  
  ! get the number of distinct values of number in the index  
  call grib_index_get_size(idx,'number',numberSize)  
  ! allocate the array to contain the list of distinct numbers  
  allocate(number(numberSize))  
  ! get the list of distinct numbers from the index  
  call grib_index_get(idx,'number',number)  
  write(*,'(a,i3)') 'numberSize=',numberSize  
  
  ! get the number of distinct values of level in the index  
  call grib_index_get_size(idx,'level',levelSize)  
  ! allocate the array to contain the list of distinct levels  
  allocate(level(levelSize))  
  ! get the list of distinct levels from the index  
  call grib_index_get(idx,'level',level)  
  write(*,'(a,i3)') 'levelSize=',levelSize
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! get the number of distinct values of step in the index
call grib_index_get_size(idx,'step',stepSize)
! allocate the array to contain the list of distinct steps
allocate(step(stepSize))
! get the list of distinct steps from the index
call grib_index_get(idx,'step',step)
write(*,'(a,i3)') 'stepSize=',stepSize

count=0
do l=1,stepSize ! loop on step
  ! select step=step(l)
  call grib_index_select(idx,'step',step(l))

  do j=1,numberSize ! loop on number
    ! select number=number(j)
    call grib_index_select(idx,'number',number(j))

    do k=1,levelSize ! loop on level
      ! select level=level(k)
      call grib_index_select(idx,'level',level(k))

      do i=1,shortNameSize ! loop on shortName
        ! select shortName=shortName(i)
        call grib_index_select(idx,'shortName',shortName(i))

        call grib_new_from_index(idx,igrib, iret)
        do while (iret /= GRIB_END_OF_INDEX)
          count=count+1
          call grib_get(igrib,'shortName',oshortName)
          call grib_get(igrib,'number',onumber)
          call grib_get(igrib,'level',olevel)
          call grib_get(igrib,'step',ostep)
          write(*,'(A,A,A,i3,A,i4,A,i3)') 'shortName=',trim
(oshortName),&
              ' number=',onumber,&
              ' level=' ,olevel, &
              ' step=' ,ostep

          call grib_release(igrib)
          call grib_new_from_index(idx,igrib, iret)
        end do
        call grib_release(igrib)

      end do ! loop on step
    end do ! loop on level
  end do ! loop on number
end do ! loop on shortName
write(*,'(i4,a)') count,' messages selected'

! save the index to a file for later reuse
call grib_index_write(idx,index_file)

call grib_index_release(idx)

end program index

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