

Ascertaining the distribution of data pages

Below is an example of an IBEBlock which scans a database file and retrieves some useful information about the distribution of database pages. You can also find this block in the \Blocks\Samples\DB Pages Statistics directory.

```
execute ibeblock (DBFileName varchar(1000) comment 'Path to database file')
returns (
    PageType varchar(100) comment 'Page Type',
    PageCount integer comment 'Page Count',
    PagePercent numeric(15,2) comment 'Page %',
    PageMb numeric(15,2) comment 'Size, Mb')
as
begin
    TimeStart = ibec_GetTickCount();
    iPageIndex = 0;
    aPages = ibec_Array(0,0,0,0,0,0,0,0,0,0,0,0);
    aPageTypes = ibec_Array('Unused', 'Database Header', 'Page Inventory
Page', 'Transaction Inventory Page', 'Pointer Page',
                           'Data Page', 'Index Root Page', 'Index Page',
'Blob Data Page', 'Generator Page', 'Write Ahead Log');

    aBitMasks = ibec_Array(1, 2, 4, 8, 16, 32, 64, 128);

    fs = ibec_fs_OpenFile(DBFileName, __fmOpenRead + __fmShareDenyNone);
    if (fs is null) then
        Exit;
    try
        ibec_fs_Seek(fs, 16, __soFromBeginning);

        iPageSize = ibec_fs_ReadWord(fs);
        iPageSizeSub20 = iPageSize - 20;

        ibec_fs_Seek(fs, iPageSize + 20, __soFromBeginning);
        sPIP = ibec_fs_ReadString(fs, iPageSizeSub20);
        NextPIPIIndex = iPageSizeSub20 * 8 - 1;

        ibec_fs_Seek(fs, 0, __soFromBeginning);
        while (not ibec_fs_Eof(fs)) do
            begin
                if (ibec_mod(iPageIndex, 100) = 0) then
                    begin
                        TimeSpent = ibec_Div(ibec_GetTickCount() - TimeStart, 1000);
                        iSpeed = ibec_IIF((iPageIndex = 0) or (TimeSpent = 0), 0,
((iPageSize / 1024) * iPageIndex) / 1024 / TimeSpent);
                        ibec_Progress(iPageIndex || ' : ' || TimeSpent || ' : ' ||
iSpeed || ' Mb/s');
                    end;
                iVal = ibec_fs_ReadByte(fs);
```

```
iPIPBytePos = ibec_mod(ibec_div(iPageIndex, 8), iPageSizeSub20) + 1;
iIPBitMaskIdx = ibec_mod(iPageIndex, 8);
if (iIPBitMaskIdx = 0) then
    iIPByte = ibec_Ord(ibec_Copy(sPIP, iIPBytePos, 1));
iIPBitMask = aBitMasks[iIPBitMaskIdx];
IsUsed = (ibec_and(iIPBitMask, iIPByte) = 0);

if (IsUsed) then
    aPages[iVal] = aPages[iVal] + 1;
else
    aPages[0] = aPages[0] + 1;

if (iPageIndex = NextPIPIndex) then
begin
    ibec_fs_Seek(fs, 19, __soFromCurrent);
    sPIP = ibec_fs_ReadString(fs, iPageSizeSub20);
    NextPIPIndex = NextPIPIndex + iPageSizeSub20 * 8;
end;

iPageIndex = iPageIndex + 1;
ibec_fs_Seek(fs, iPageIndex * iPageSize, __soFromBeginning);
end;

PageType = 'Total Pages';
PageCount = iPageIndex;
PagePercent = 100;
PageMb = (PageCount * (iPageSize / 1024)) / 1024;
suspend;

foreach (aPages as PageCnt key Idx skip nulls) do
begin
    PageType = aPageTypes[Idx];
    PageCount = PageCnt;
    PagePercent = (PageCnt/iPageIndex) * 100;
    PageMb = (PageCount * (iPageSize / 1024)) / 1024;
    suspend;
end
finally
    ibec_fs_CloseFile(fs);
end
end
```

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