

How to Create a UNIX Space Management Report Using SAS[®]

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Paper: <http://www.mwsug.org/proceedings/2014/DV/MWSUG-2014-DV06.pdf>

Objective

Use Base SAS, SAS/GRAPH and ODS to regularly monitor and promptly respond to space limitations in a UNIX production environment.

Key UNIX Commands

Volume summary: `x df -k .`

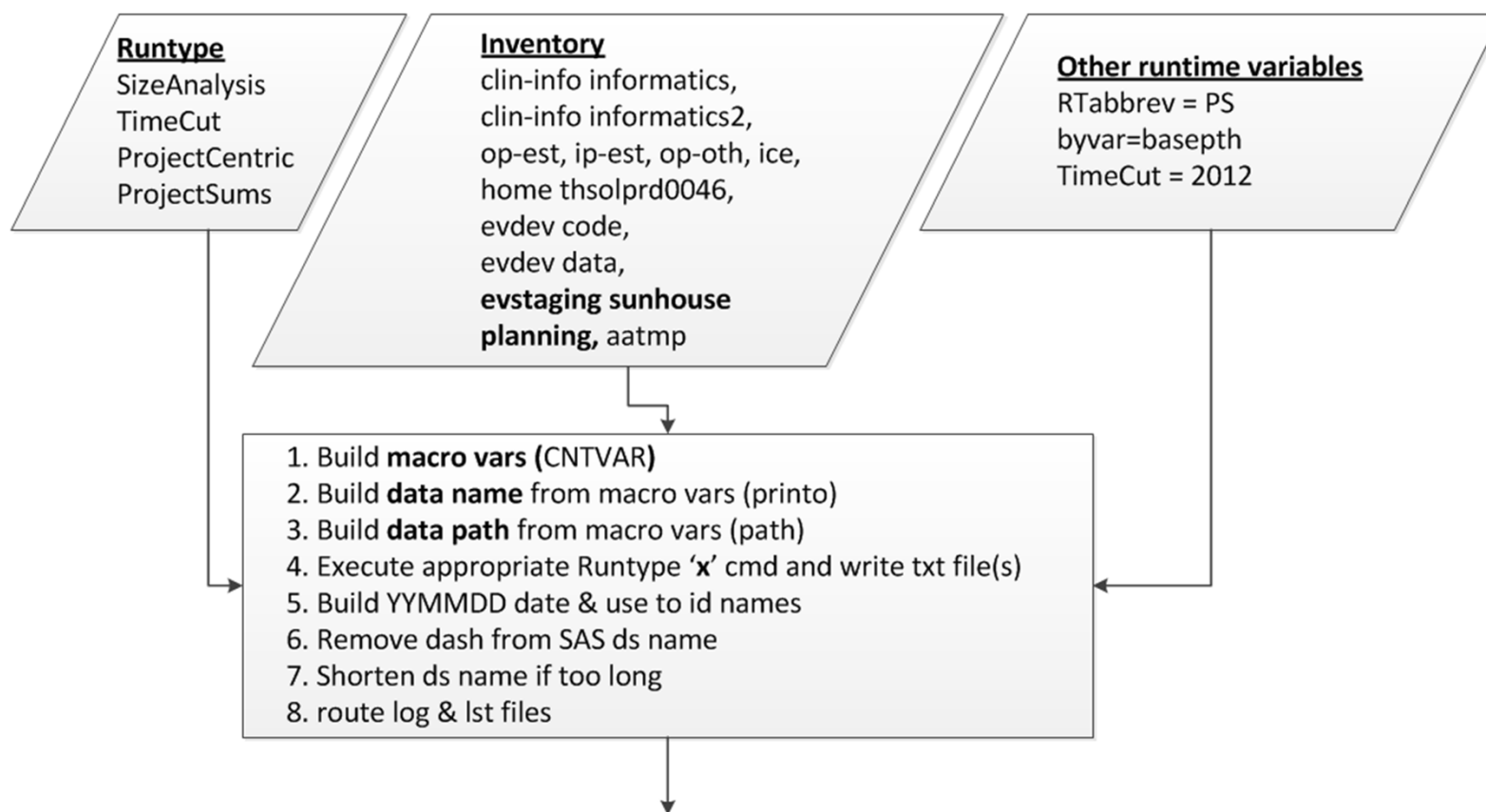
Project summary: `x du -sk * -ls`

Old data sets: `x find <path> -size +000000001c -ls`

Large data sets: `x find <path> -size +100000000c -ls`

Process Flowchart

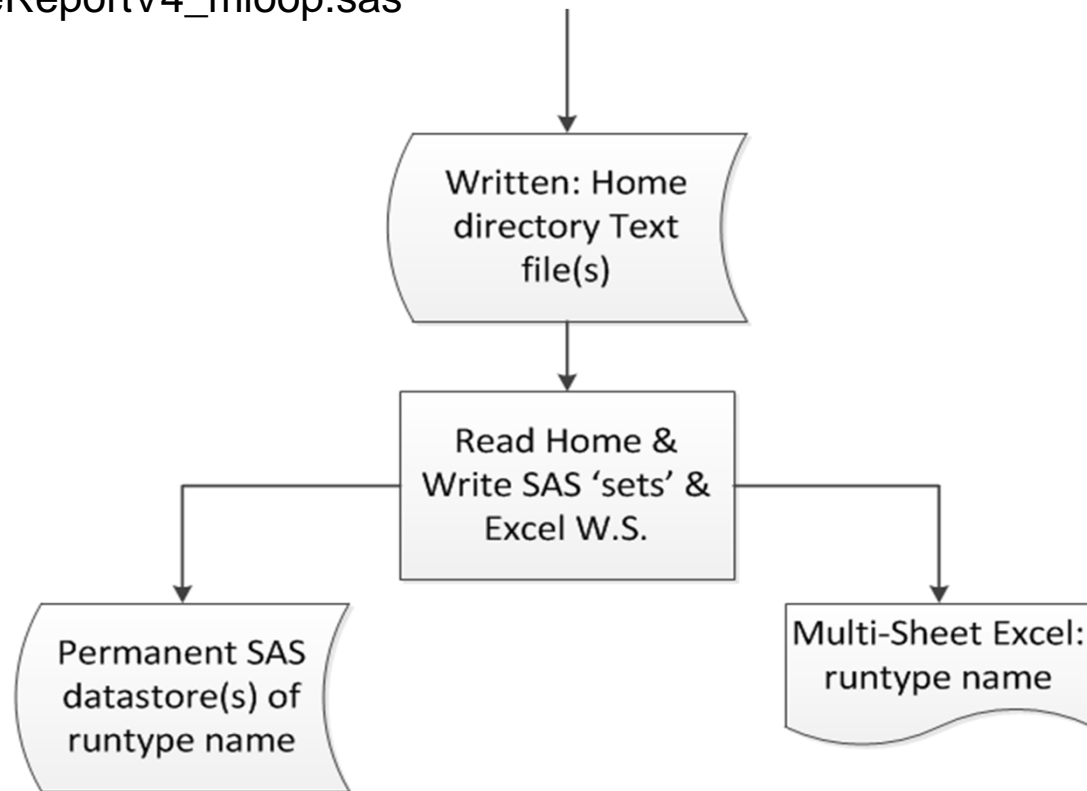
SpaceReportV4_mloop.sas



Full program: http://www.sascommunity.org/wiki/File:SpaceReportV4.2_mloop.sas

Process Flowchart (continued)

SpaceReportV4_mloop.sas



SAS Log

MAJORLOOP INVENTORY clin-info informatics

GLOBAL PRINTO clin-info

GLOBAL RUNTYPE ProjectSums

GLOBAL ONEINV1 clin-info

GLOBAL ONEINV2 informatics

GLOBAL DTE 140724

MLOGIC(PRINTO): %LET (variable name is PRINTO)





















SYMBOLGEN: Macro variable PRINTO resolves to clin-info

SAS Log (continued)

```
MAJORLOOP INVENTORY clin-info informatics
GLOBAL PRINTO clin-info_informatics
GLOBAL RUNTYPE ProjectSums
GLOBAL ONEINV1 clin-info
GLOBAL ONEINV2 informatics
GLOBAL DTE 140724
MPRINT(PRINTTO): PROC PRINTTO LOG=
"/clin-info/informatics/SpaceManagement/ProjectSums/
SpaceReport_clin-info_informatics_ProjectSums140724.log" new;
MPRINT(PRINTTO):
RUN;
```















Output Examples

Intermediate text files written to the home directory with the resolution of the project names

Name
 aatmp_ProjectSums.txt
 clin-info_informatics_ProjectSums.txt
 clin-info_informatics2_ProjectSums.txt
 evdev_code_ProjectSums.txt
 evdev_data_ProjectSums.txt
 evstaging_sunhouse_planning_ProjectSums.txt
 evstaging_sunhouse_ProjectSums.txt
 example.txt
 home_thsolprd0046_ProjectSums.txt
 ice_ProjectSums.txt
 ip-est_ProjectSums.txt
 op-est_ProjectSums.txt
 op-oth_ProjectSums.txt
 ProjectSums_140724.xls
 SpaceReportV3.sas
 SpaceReportV4.sas
 SpaceReportV4_mloop.log
 SpaceReportV4_mloop.sas
 SpaceReportV4b_ProjectSums.txt
 SpaceReportV5.sas

Output Examples

Macro variable 'PRINTTO', with pieces of the names of the final outputs for log and list files. For ProjectSums, the SAS data sets are used as the monthly inputs for graphics.

Name
 ProjectSums_140819.xls
 ps_aatmp140819.sas7bdat
 ps_evdev_code140819.sas7bdat
 ps_evdev_data140819.sas7bdat
 ps_ice140819.sas7bdat
 ps_ip_est140819.sas7bdat
 ps_op_est140819.sas7bdat
 ps_op_oth140819.sas7bdat
 SpaceReport_aatmp_ProjectSums140819.log
 SpaceReport_aatmp_ProjectSums140819.lst
 SpaceReport_evdev_code_ProjectSums140819.log
 SpaceReport_evdev_code_ProjectSums140819.lst
 SpaceReport_evdev_data_ProjectSums140819.log
 SpaceReport_evdev_data_ProjectSums140819.lst

Output Examples

Multiple sheet report in Excel

	A	B	C	D	E	F
	File					
	Size					
1	Kilobytes	FPROJECT				
2	5,338,108	erd_ds				
3	43	erdqa				
4		lost+found				
5	5,582,643	pfdmdl05				
6	47,723,892	pfdmdl06				
7	46,648,077	pfdmdl07				
8	47,309,593	pfdmdl5en				
9	24,546,977	rami15				
10	125	rami15A				
11	63,792,407	rami15en				
12	104,496,167	rami16				
13	65,340,340	rami17				
14	107,982	rami_cah				
15	7,911,568	res_ccs_rtab				
16	418797922					
17	N = 14					

Graphics

- Requires SAS/GRAPH version 9.2 or above
- Uses Output Delivery System (ODS)

Graphics

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Transform data from latest space report program run

- Read in datasets or import text files into SAS
- Convert metrics as needed (i.e. kilobytes to gigabytes)
- Append to data from previous reports for trending

Graphics

Set library, macro parameters, data transformations and ODS statements

```
libname sdata '&path\adhoc\mwsug14';
```

```
%let volume= informatics2;
```

```
%let full_volume= /clin-info/&volume.;
```

```
%let file_date = 140707;
```

```
< Code to transform input data >
```

```
ODS graphics on;
```

```
ODS trace on;
```

```
ODS escapechar="^";
```

```
ODS pdf file="&sdata.\Space Management Report  
    &file_date..pdf";
```

```
Title '';
```

```
Footnote '';
```

Graphics: Bar Chart

Generate bar chart of current space usage by volume using SGPLOT

```
Title "Space Report: Usage by Volume on thsolprd0046 as of  
&rptdte";
```

```
ODS PROCLABEL 'Usage by Volume';
```

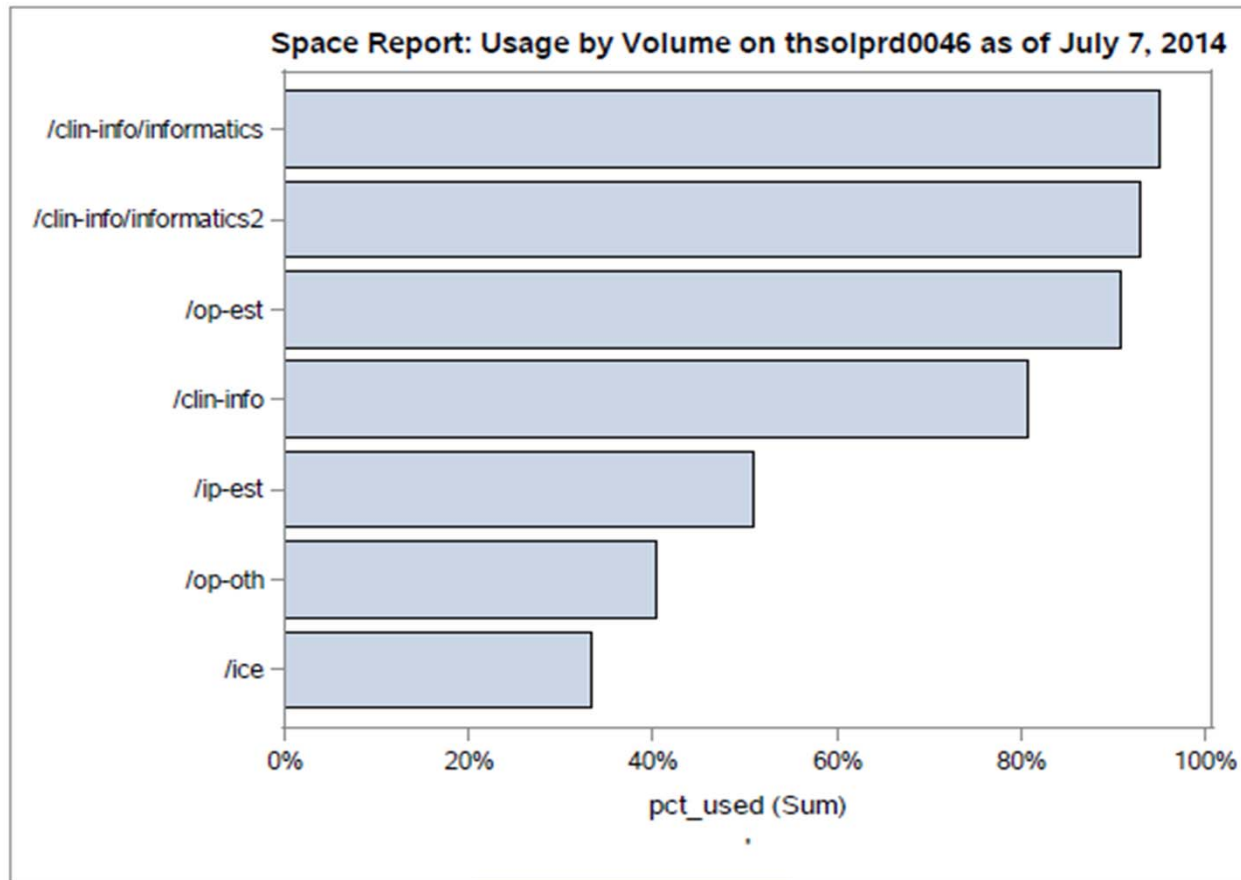
```
PROC SGPLOT Data=work.all_&file_date._used_pct;  
  hbar directorysimple / response=pct_used;  
  yaxis display =(nolabel) discreteorder=rdata;
```

```
Run;
```

```
ODS PDF text=
```

```
"^{style[just=c URL="\"https://truven.com...\""]}]" ;
```

Graphics: Bar Chart



Graphics: Panel Chart

Generate panel plots of space usage by project and month using SGPANEL

```
Title "Space Report: Monthly Usage by Project on &full_volume as of  
      &rptdte";
```

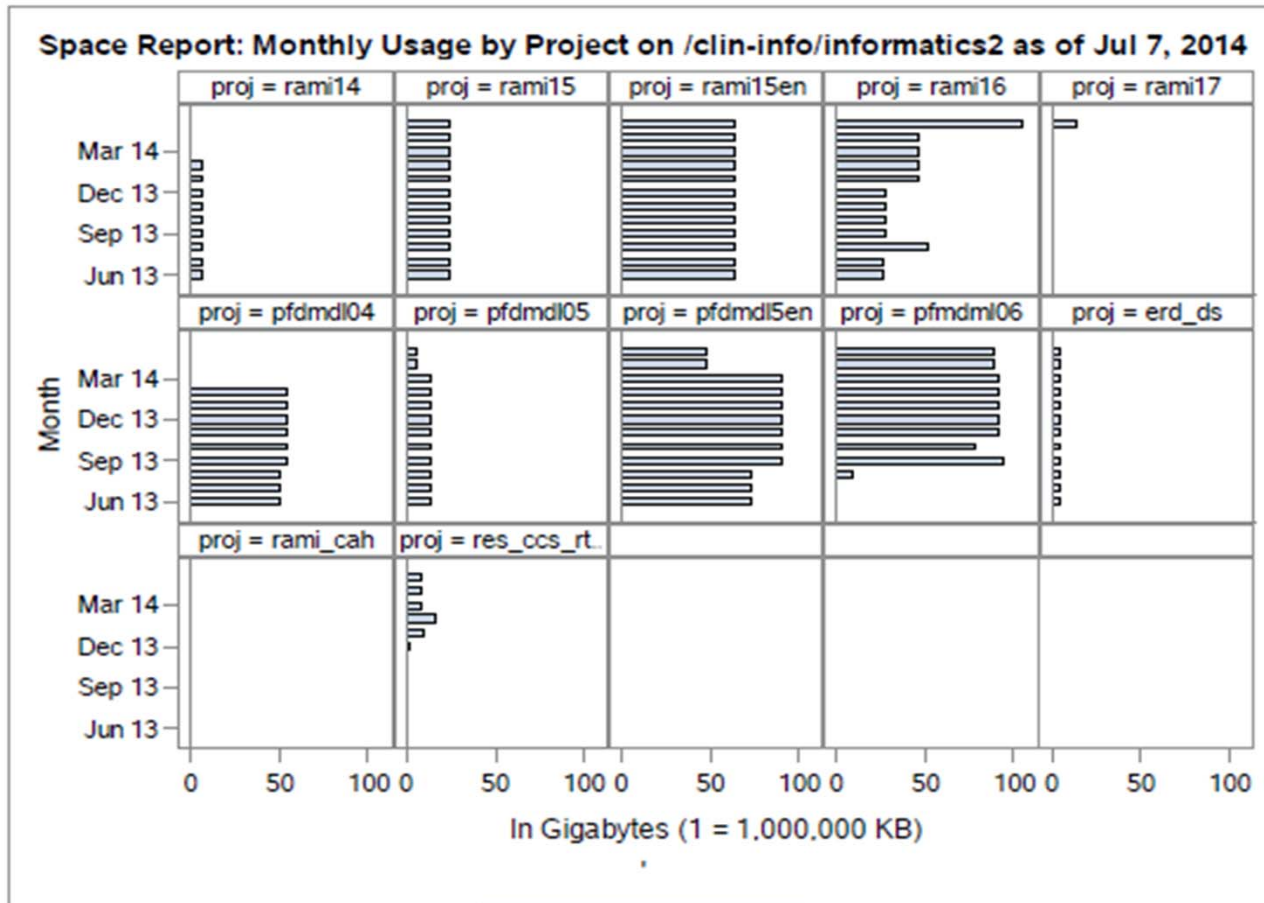
```
ODS PROCLABEL "Monthly Usage by Project on &volume.";
```

```
PROC SGPANEL Data=&volume._combined (where=(proj ne .));  
  panelby proj / rows=3 columns=5;  
  hbar month_n / response=fsize_gb barwidth=.5;  
  colaxis values= (0 to 100 by 25);  
  format proj projdesc. month_n mdesc_tst.;  
  label fsize_gb = 'In Gigabytes  
                (1 = 1,000,000 KB)'  
        month_n = 'Month';
```

```
Run;
```

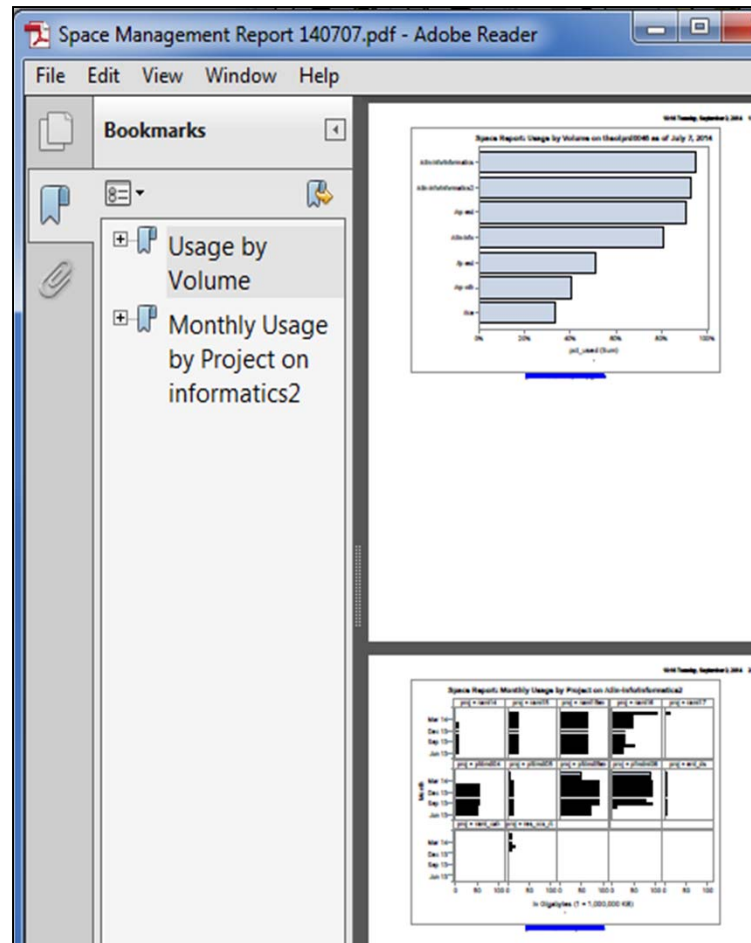
```
ODS PDF text= "^{style[just=c URL=""https://truven.com..""]}]";
```


Graphics: Panel Chart



[Click for details in Projectsums.xls](#)

Graphics: PDF Report



Summary

UNIX server space usage can be measured and graphically displayed with Base SAS, SAS/GRAPH and ODS.

Questions



Contact Information

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