SAS/ETS® 14.1 User's Guide

The SASEXCCM Interface Engine

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Chapter 51
The SASEXCCM Interface Engine

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Overview: SASEXCCM Interface Engine

The SASEXCCM interface engine enables SAS users to access the CRSP/Compustat Merged (CCM) Database, which is created from data delivered via Compustat's Xpressfeed product, the CRSP US Stock (STK) Database, and the CRSP US Stock and Indices (IND) Database. The SASEXCCM engine provides a seamless interface for CRSP, Compustat, and SAS data processing.

The SASEXCCM engine uses the LIBNAME statement to specify which database to open and what parts of the database to access.

To specify the database, you supply the combination of a physical path to indicate the location of the data files (CCM, STK, or IND data) and a set identifier (SETID) to identify the database that you want to access from those available at the physical path. The SASEXCCM engine supports data-item-handling access methods for the SETIDs in Table 51.1.

The SASECRSP engine no longer supports COMPUSTAT access. Instead, use the SASEXCCM engine, SETID 250, to read your CRSP/Compustat Merged data.

Table 51.1 CRSP Database SETIDs

SETID	Data Set
10	CRSP Stock, daily data
20	CRSP Stock, monthly data
250	CRSP/Compustat Merged data
400	CRSP Indices data, monthly index groups
420	CRSP Indices data, monthly index series
440	CRSP Indices data, daily index groups
460	CRSP Indices data, daily index series

Getting Started: SASEXCCM Interface Engine

To specify what parts of the database to access, you supply two things: the appropriate keys for companies or securities that you want to access, and the list of data items that you want to retrieve.

When accessing CCM data, you select the companies that you want to access by specifying the GVKEY for each company. A GVKEY is Compustat's unique identifier and primary key. CRSP uses KYGVKEY to refer to GVKEY in the CCM database. Use the GVKEY= option to specify which GVKEY to include. If no GVKEYs are specified, data for all companies are retrieved. You can use the KEEP= KYGVKEY CONM option to obtain a list of all companies (including their name and GVKEY) in the CCM database, as shown in Example 51.5.

For example, the following statements access the CCM database to retrieve annual sales data for IBM (GVKEY=6066) and Microsoft (GVKEY=12141):

```
LIBNAME myLib sasexccm 'physical-name'
   SETID=250
   GVKEY=6066   /* IBM */
   GVKEY=12141  /* MSFT */
```

```
   ITEMLIST='SALE';
data yrlysale;
   set myLib.annitem;
run;
```

When accessing CRSP US Stock (STK) data, you select the securities you want to access by specifying their PERMNOs. A PERMNO is CRSP's unique permanent issue identification number and the primary key for its stock databases. You specify a PERMNO by using the PERMNO= option. If no PERMNOs are specified, data for all securities in the database are retrieved. You can use this feature to obtain a list of all PERMNOs in the STK database.

For example, the following statements access the STK database to retrieve monthly shares data for IBM (PERMNO=12490) and Microsoft (PERMNO=10107):

```
LIBNAME myLib sasexccm 'physical-name'
   SETID=20
   PERMNO=12490   /* IBM */
   PERMNO=10107  /* MSFT */
   ITEMLIST="MSHROUT.*;MSHRFLG.*";
data mshares_all;
   set myLib.mshares;
run;
```

When accessing CRSP US Stock and Indices (IND) data, you select the security and indices data from the CRSP Daily or Monthly Stock and Indices database by specifying their INDNOs. An INDNO is the primary key for CRSP Indices Databases. You specify an INDNO by using the INDNO= option. If no INDNOs are specified, data for all securities in the database are retrieved. You can use this feature to obtain a list of all INDNOs in the IND database.

For example, the following statements access the IND database to retrieve monthly Consumer Price Index data (INDNO=1000709):

```
LIBNAME myLib sasexccm 'physical-name'
   SETID=420
   INDNO=1000709  /* Consumer Price Index */
   ITEMLIST=
    "MREBAL.*;MRBBEGDT.*;MRBENDDT.*;MRUSDCNT.*;MMINID.*;MMAXID.*;MMINSTAT.*";

data mindts_all;
   set myLib.mindhdr;
   set myLib.mrebal;
run;
```

To specify the list of data items that you want to retrieve, use the ITEMLIST= option. This option accepts a string that denotes a list of requested data items and the reporting format (for example, data format, population source, consolidation level, and so on) in standard CRSP notation by using CRSP's unique mnemonic text name *itm_name* and the mnemonic tag *keyset*. For more information about CRSP notation, see the ITEMLIST= option in the section "The LIBNAME *libref* SASEXCCM Statement" on page 3522.

After the LIBNAME is assigned, the database is opened. The selected data are organized into groups such as ANNITEM for annual time series data or LINK for event-based CRSP/Compustat link data. You can also use the SAS DATA step to perform further subsetting and to store the resulting time series in a SAS data set.

The SASEXCCM engine supports Linux X64 (LAX), Solaris X64 (SAX), Solaris SPARC (S64), and Windows. Windows no longer requires you to install the CRSPAccess API, because it is now distributed automatically by your SAS/ETS installation. Your Windows setup does not require any special environment variables.

Syntax: SASEXCCM Interface Engine

The SASEXCCM interface engine uses standard engine syntax. Options that the SASEXCCM engine uses are summarized in Table 51.2. The SETID= and ITEMLIST= options are required.

Table 51.2 Summary of LIBNAME *libref*

Option	Description
SETID=	Specifies which CRSP database at the physical path to open. See Table 51.1 for the complete list of supported SETIDs.
GVKEY=	Specifies a Compustat GVKEY for accessing CCM data. To select more than one GVKEY, use this option multiple times. See Example 51.1 and Example 51.2.
GVIIDKEY=	Specifies a composite GVKEY.IID for accessing security related items by both GVKEY and IID.
PERMNO=	Specifies a CRSP PERMNO for accessing STK data. To select more than one PERMNO, use this option multiple times.
INDNO=	Specifies a CRSP INDNO for accessing IND data. To select more than one INDNO, use this option multiple times.
ITEMLIST=	Specifies the selected data items to be accessed. This option accepts a string in standard CRSP notation.

The LIBNAME *libref* SASEXCCM Statement

LIBNAME *libref* **SASEXCCM** '*physical-name*' **SETID=***crsp_setidnumber options* **;**

The LIBNAME statement assigns a SAS library reference (libref) to the physical path of the directory of CRSP data files where the CRSP database that you want to open is located. The required *physical-name* argument must end in a slash for UNIX environments and a backslash for Windows environments. The required *SETID=crsp_setidnumber* argument specifies the CRSP database that you want to read from. Choose one SETID from these values: 10, 20, 250, 400, 420, 440, and 460. For example, the following statement accesses the CCM database and retrieves the annual sales data for IBM (GVKEY=6066):

```
LIBNAME myLib SASEXCCM 'physical-name' SETID=250 GVKEY=6066 ITEMLIST='SALE';
```

You can specify the following *options*:

GVKEY=*crsp_gvkey*
selects the companies or issues whose data you want to retrieve. Specify the GVKEY (Compustat's permanent SPC identifier) for the *crsp_gvkey*. There is no limit to the number of GVKEY= options that you can specify. If no GVKEY= options are specified, all GVKEYs in the database are selected.

For example, the following statement accesses the CCM database to retrieve annual sales data for IBM (GVKEY=6066) and Microsoft (GVKEY=12141):

```
LIBNAME myLib sasexccm 'physical-name'
   SETID=250
   GVKEY=6066   /* IBM */
   GVKEY=12141  /* MSFT */
   ITEMLIST='SALE';
```

GVIIDKEY='*crsp_gviidkey*'
selects the companies and issues whose data you want to retrieve. Specify both the GVKEY and the IID (Compustat's permanent issue identifier) by concatenating the two with a '.' and enclosing them in double quotation marks. There is no limit to the number of GVIIDKEY= options that you can specify. The following members use GVIIDKEY access: IDXCST_HIS, MTHSEC, SECHIST, SECURITY, SEC_MDIVFN, SEC_MSPTFN, SEC_MTHSPT, SEC_SPIND, SEC_TS_ITM, and SPIDX_CST.

For example, the following statements access the CCM database to retrieve the security member that gives security header information for Microsoft issue ID=01, IBM issue ID=01, and some other companies' issues shown in the GVIIDKEY= options:

```
LIBNAME crsp sasexccm 'physical-name'
   SETID=250
   GVIIDKEY="12141.01" /* MSFT issue id 01 */
   GVIIDKEY="6066.01"  /* IBM issue id 01 */
   GVIIDKEY="6008.01"  /* INTC issue id 01 */
   GVIIDKEY="12142.01" /* ORCL issue id 01 */
   GVIIDKEY="62634.01" /* YHOO issue id 01 */
   GVIIDKEY="5047.01"  /* GE issue id 01 */
   GVIIDKEY="7866.01"  /* NYT issue id 01 */
   GVIIDKEY="7866.02"  /* NYTAB issue id 02 */
   ITEMLIST="DLDTEI;DLRSNI;DSCI;EPF;EXCHG;IID;IID_SEQ_NUM;ISIN;SBEGDT;SENDDT;SCUSIP;
            !SEDOL;SSECSTAT;TIC;TPCI";
 data headersecurity;
    set crsp.security;
 run;
```

PERMNO=*crsp_permno*
selects the companies or issues whose data you want to retrieve. Specify a CRSP company issue's PERMNO for the *crsp_permno*. There is no limit to the number of PERMNO= options that you can specify. If no PERMNO= options are specified, all PERMNOs in the database are selected.

For example, the following statements access the STK database to retrieve monthly shares data for IBM (PERMNO=12490) and Microsoft (PERMNO=10107):

```
LIBNAME myLib sasexccm 'physical-name'
   SETID=20
   PERMNO=12490   /* IBM */
   PERMNO=10107  /* MSFT */
   ITEMLIST="MSHROUT.*;MSHRFLG.*";
data mshares_all;
   set myLib.mshares;
run;
```

INDNO=*crsp_indno*

selects the time series or the group data from the index whose data you want to retrieve. Specify a CRSP Index's INDNO for the *crsp_indno*. There is no limit to the number of INDNO= options that you can specify. If no INDNO= options are specified, all INDNOs in the database are selected.

For example, the following statements access the IND database to retrieve monthly consumer price index data (INDNO=1000709):

```
LIBNAME myLib sasexccm 'physical-name'
   SETID=420
   INDNO=1000709  /* Consumer Price Index */
   ITEMLIST=
    "MREBAL.*;MRBBEGDT.*;MRBENDDT.*;MRUSDCNT.*;MMINID.*;MMAXID.*;MMINSTAT.*";

data mindts_all;
   set myLib.mindhdr;
   set myLib.mrebal;
run;
```

ITEMLIST="*crsp_itemlist***"**

specifies the items and groups of interest for selection based on keysets, which define the reporting format that you want. Specify a string in CRSP standard notation for *crsp_itemlist*. For an overview of items, groups, and reporting formats, see the section "Data Reference: Introduction" on page 3527. Reference sections that are based on CRSP documentation follow the overview. For more information, see the *CRSPAccess User Guide for the CRSP/Compustat Merged Database*, the *CRSP US Stock and Indices Database*, and the *CRSP US Treasury Database*.

The CRSP standard notation has the form

```
[global_section:]list_section
```

The *list_section* consists of a semicolon-delimited string of list elements in the form

```
list_element[;list_element]
```

Each *list_element* can be an item or group name. You can also specify a particular keyset for the item or group by appending a period and its keyset number. For example, "sale.2" selects the sales item for keyset 2, which contains the industrial format, consolidated information, and standardized summary data from the latest annual filing.

The optional *global_section* holds flags that modify all elements in the list section. The following flags are recognized:

f adds applicable and populated footnote items for every item selected. For example, "f:sale;at;ceq" selects sales, total assets, and common equity items with default keysets and available footnotes for the selected items.

d adds applicable and populated data code items for every item selected. For example, "d:sale;at;ceq" selects sales, total assets, and common equity items with default keysets and available data codes for the selected items.

k.list applies the list of keysets to all items in the list that do not have a specified keyset. The list can be either `*` to select all available keysets or `#-#,#...` to select keysets by their number. For example, "k.1:sale;at;ceq" selects the default keyset, keyset 1, for all items.

The following LIBNAME statement shows how to access the CCM database to retrieve the annual sales data and quarterly total assets data for IBM (GVKEY=6066) and Microsoft (GVKEY=12141):

```
LIBNAME myLib sasexccm 'physical-name'
   SETID=250
   GVKEY=6066   /* IBM */
   GVKEY=12141  /* MSFT */
   ITEMLIST='f:sale;actq';
```

After the libref is assigned, you can access any of the available groups (members) within the opened database:

STK daily See the section "Daily STK Data Groups" on page 3532 for more information about groups in the Daily Stock Database, SETID 10.

STK mthly See the section "Monthly STK Data Groups" on page 3533 for more information about groups in the Monthly Stock Database, SETID 20.

CCM See the section "CCM Data Groups" on page 3530 for more information about groups in the CRSP/Compustat Merged Databases, SETID 250.

IND mthly grp See the section "Monthly IND Group Data Group Names" on page 3534 for more information about groups in the Monthly Indices Group Data Database, SETID 400.

IND mthly ts See the section "Monthly IND Time Series Data Group Names" on page 3535 for more information about groups in the Monthly Indices Time Series Database, SETID 420.

IND daily grp See the section "Daily IND Group Data Group Names" on page 3534 for more information about groups in the Daily Indices Group Data Database, SETID 440.

IND daily ts See the section "Daily IND Time Series Data Group Names" on page 3536 for more information about groups in the Daily Indices Time Series Database, SETID 460.

Details: SASEXCCM Interface Engine

SAS Output Data Set

You can use the SAS DATA step to write the selected CRSP or Compustat data to a SAS data set. This enables you to easily analyze the data by using SAS software. If you specify the name of the output data set in the DATA statement, the engine supervisor creates a SAS data set that has the specified name in either the SAS Work library or, if specified, the User library.

The contents of the SAS data set include the DATE of each observation, the series name of each series read from the CRSPAccess database, event variables, and the label or description of each series, event, or array.

You can use the PRINT and CONTENTS procedures to print your output data set and its contents. Alternatively, you can view your SAS output observations by opening the desired output data set in a SAS Explorer window. You can also use the SQL procedure with your SASEXCCM *libref* to create a custom view of your data.

Missing Values

In general, CRSP missing values are represented as '.' in the SAS data set. When accessing the CCM database, the SASEXCCM engine interprets missing values according to the conditions and codes defined by Compustat and represents them as SAS missing codes, as shown in Table 51.3.

Table 51.3 Mapping of Compustat and SAS Missing Codes

Missing Value	Missing Code	Condition
0.0001	.	No data for data item
0.0002	.S	Data are available only on a semi-annual basis
0.0003	.A	Data are available only on an annual basis
0.0004	.C	Combined into other item
0.0007	.N	Data are not meaningful
0.0008	.I	Reported as insignificant

Missing value codes conform with Compustat's Strategic Insight and binary conventions for missing values. For more information about how CRSP handles Compustat missing codes, see the section "Notes on Missing Values" in the second chapter of the *CRSP/Compustat Merged Database Guide*.

Data Reference: Introduction

Data reference details are presented for items, keysets, and groups available from four CRSPAccess databases in this order: CCM database, STK databases, and IND databases. In addition to summary tables, sample SAS statements show how to generate a customized list of item names available from each group for a particular database.

CCM Data Items

The CRSP/Compustat Merged (CCM) database is organized by company and security according to Compustat's Permanent SPC Identifier (GVKEY) and Compustat's Permanent Issue Identifier (IID). An identifying relationship exists between IID and GVKEY. The two identifiers must be accessed as a pair to properly identify a Compustat security. One GVKEY can have multiple IIDs. The SASEXCCM interface engine provides the GVIIDKEY= option to provide access to Compustat securities through the composite key designated by "GVKEY.IID".

CCM data are broken down into items, and items can be further qualified by a set of secondary keys. CRSP calls these known collections of keys and values a *keyset*, and it assigns a numeric code and mnemonic tag to each unique collection. Each keyset represents different output series. Items are also organized into groups for selection and presentation. A group can include other groups, or a group can include items. Items can belong to more than one group. Sometimes groups are also called members.

For example, the Compustat data item SALE has secondary keys for industry format, data format, population source, and consolidation level. A different value of company sales can be available for any combination of these keys, such as a combination that represents the originally reported sales or the final restated sales from a later filing. The SALE data item is a part of the ANNITEM (Annual Time Series Items, including footnotes and data codes) group.

The CCM database contains data items provided by Compustat in addition to structures and supplementary data items provided by CRSP. All data items include a mnemonic and a field name. This section provides a summary of Compustat data items whose mnemonic differs in the CCM database, and a summary of the supplementary data items provided by CRSP. For more information about the Compustat data items, refer to your Compustat data documentation or see **`www.compustatresources.com/support/index.html`**. For more information about the supplementary CRSP data items, see your CCM Database Guide.

Table 51.4 Items with Different CRSP and Compustat Names

Compustat Mnemonic	CRSP itm_name	Description	Definition
BETA	XPFBETA	Data item	Xpressfeed beta
DVPSXM	XDVPXSM	Data item	Index monthly dividend
PRC	XPFPRC	Data item	Participation rights certificates
PRCCM	XPRCCM	Data item	Index price close monthly
PRCHM	XPRCHM	Data item	Index price high monthly
PRCLM	XPRCLM	Data item	Index price low monthly
PRC_DC	XPFPRC_DC	Data code	Participation rights certificates data code
PRC_FN	XPFPRC_FN	Footnote	Participation rights certificates footnote
RET	XPFRET	Data item	Total real estate property
RET_DC	XPFRET_DC	Data code	Total real estate property data code
RET_FN	XPFRET_FN	Footnote	Total real estate property footnote
YEAR	YEARQ	Data item	Year quarterly

Supplemental CRSP data items are organized into groups. For a list of the supplemental data groups, see the section "CCM Data Groups" on page 3530.

CCM Keysets

Compustat items can be qualified by a set of secondary keys. This collection of secondary keys and values creates a keyset that assigns a numeric code and mnemonic tag to each unique collection. Each keyset represents different output series. For example, one keyset might represent originally reported sales, and another might represent the final restated sales from a later filing. Full details about keysets can be found in the *CRSP/Compustat Merged Database Guide*. For your convenience, Table 51.5 summarizes the keysets.

Table 51.5 Summary of CCM Keysets

Keyset	Tag	Keyset Description
0		Indices
1	STD	Industrial format, consolidated information, standardized presentation
2	SUMM	Industrial format, standardized summary data (StdSumData) from the latest annual filing
3	PRES	Industrial format, StdSumData collected prior to company amendment
4	FS	Financial services format, consolidated information, standardized presentation
5	PFO	Industrial format, pro forma reporting, standardized presentation
6	PFAS	Pre-FASB reporting
7	SFAS	Industrial format, pre-FASB reporting, standardized presentation
8	PRE	Industrial format, StdSumData collected from the latest annual filing
10	PDIV	Industrial format, pre-divestiture reporting, standardized presentation
11	DOM	Domestic
12	SUPF	Industrial format, pre-FASB reporting, StdSumData from the latest annual filing
14	STD1	Industrial format, consolidated information, standardized presentation, rank 1
15	FSFO	Financial services format, pro forma reporting, standardized presentation
16	FS1	Financial services format, consolidated information, standardized presentation, rank 1
17	FS2	Financial services format, consolidated information, standardized presentation, rank 2
18	SUFS	Industrial format, pro forma reporting, StdSumData from the latest annual filing
19	PDI1	Industrial format, pre-divestiture reporting, standardized presentation, rank 1
20	PFA1	Industrial format, pre-FASB reporting, standardized presentation, rank 1
21	SUPD	Industrial format, pre-divestiture reporting, StdSumData from the latest annual filing
22	FS3	Financial services format, consolidated information, standardized presentation, rank 3
23	PDI2	Industrial format, consolidated information, standardized presentation, rank 2
24	CONS	Consolidated information
25	STD2	Industrial format, consolidated information, standardized presentation, rank 2
26	STD3	Industrial format, consolidated information, standardized presentation, rank 3
27	STD4	Industrial format, consolidated information, standardized presentation, rank 4
28	STD5	Industrial format, consolidated information, standardized presentation, rank 5
29	PFA2	Industrial format, pre-FASB reporting, standardized presentation, rank 2
30	PFA3	Industrial format, pre-FASB reporting, standardized presentation, rank 3
31	CUSD	Calendar-based reporting in US dollars
32	FUSD	Fiscal-based reporting in US dollars
33	CCAD	Calendar-based reporting in Canadian dollars
34	FCAD	Fiscal-based reporting in Canadian dollars
35	PFA4	Industrial format, pre-FASB reporting, standardized presentation, rank 4
36	PFO2	Industrial format, pro forma reporting, standardized presentation, rank 2
37	PFO1	Industrial format, pro forma reporting, standardized presentation, rank 1
38	PRE1	Industrial format, standardized data collected before company amendment, rank 1
39	FFO1	Financial services format, pro forma reporting, standardized presentation, rank 1
40	FS4	Financial services format, consolidated information, standardized presentation, rank 4
41	GICS	Industry code type Global Industry Classification Standard
43	FORD	Pro forma reporting
44	BSTD	Bank format, consolidated information, standardized presentation
45	BSUMM	Bank format, consolidated information, StdSumData from the latest annual filing
46	BPFO	Bank format, pro forma reporting, standard presentation
47	BASTD	Bank format, consolidated information, average standardized presentation
48	BASUMM	Bank format, average standardized summary presentation from the latest annual filing
49	BAPFO	Bank format, pro forma reporting, average standardized presentation

CCM Data Groups

CCM items are organized into groups for ease of selection and presentation. Each group is given a group name. These names are unique and do not overlap with item names. A group can be made up of either items or other groups. Items can belong to more than one group. Table 51.6 provides a summary of some groups. See your *CCM Database Guide* for more information about CCM data groups.

Table 51.6 Selected Xpressfeed Primary and CRSP Supplemental Groups

Item Name	Description
MASTER	CCM company ID and range data
COMPANY	CCM company header information
IDX_INDEX	CCM idx_index header information
SPIND	Standard & Poor's (S&P) index header (pre-GICS)
COMPHIST	CCM company header history
CSTHIST	CST header history
LINK	Link history
LINKUSED	CCM company CRSP link used data
LINKRNG	CCM company CRSP link range data
ADJFACT	CCM company adjustment factor history
HGIC	CCM company GICS code history
OFFTITL	CCM company officer title data
CCM_FILEDATE	CCM company filing date data
CCM_IPCD	CCM industry presentation code data
SECURITY	CCM security header information
SECHIST	CCM security header history
SEC_MTHSPT	CCM security monthly split events
SEC_MSPT_FN	CCM security monthly split event footnotes
SEC_MDIV_FN	CCM security monthly dividend event footnotes
SEC_SPIND	CCM security S&P information events
IDXCST_HIS	CCM security historical index constituents
SPIDX_CST	CCM security S&P index constituent events
CCM_SEGCUR	CCM operating segment currency rate data
CCM_SEGSRC	CCM operating segment source data
CCM_SEGPROD	CCM operating segment product data
CCM_SEGCUST	CCM operating segment customer data
CCM_SEGDTL	CCM operating segment detail data
CCM_SEGITM	CCM operating segment item data
CCM_SEGNAICS	CCM operating segment NAICS data
CCM_SEGGEO	CCM operating segment geographic data

Daily STK Data Items

You can generate a customized list of item names available in the daily stock database (SETID=10) by running the following sample statements for each group name in Table 51.8:

```
libname dstock sasexccm
   "\\bb04smb01\thirdparty\lnx\crspdata\DIZ201006\"
   setid=10 permno=12490
   itemlist="group_name.*";

proc contents data=dstock.group_name; run;
```

The following statements generate an item list of all the item names available in the group named STKHDR_ID:

```
libname crsp sasexccm
   "\\bb04smb01\thirdparty\lnx\crspdata\DIZ201006\"
   setid=10 permno=12490
   itemlist="STKHDR_ID.*";

proc contents data=crsp.stkhdr_id; run;
```

The item names in group STKHDR_ID are listed in Table 51.7.

Table 51.7 US Daily Stock Items in Group STKHDR_ID

Item Name	Description
BEGDT	Begdt
COMPNO	COMPNO
CUSIP	CUSIP
ENDDT	Enddt
HCOMNAM	Latest company name
HDLSTCD	DEL
HEXCD	EX
HPRIMEXCH	Ex1
HSECSTAT	Sst
HSHRCD	SH
HSICCD	SIC
HSNAICS	Naics
HSUBEXCH	Ex2
HTICK	Htick
HTRDSTAT	Tst
HTSYMBOL	Symbol
ISSUNO	Issuno
KYPERMNO	PERMNO
PERMCO	PERMCO
PERMNO	PERMNO

Daily STK Data Groups

Daily stock groups are shown in Table 51.8.

Table 51.8 US Daily Stock Group Names

Group Name	Description
STKHDR_ID	Stock header (summary)
STKHDR_ALL	All stock headers
STKHDR_RNG	Stock header plus ranges
LSTKHDR_RNG	Stock header plus calendar index ranges
NAMES_SHORT	Name history (short list)
NAMES	Name history
NAMES_ALL	All names
DISTS	Distribution events
ADJDISTS	Daily adjusted distribution events
SHARES	Shares outstanding observations
RSHARES	Raw shares outstanding observations
ADJSHARES	Daily adjusted shares outstanding observations
DELIST	Delisting history
ADJDELIST	Adjusted delisting events
NASDIN	NASDAQ information history
DLY_DATA	Daily price summary time series
DLY_ADJDATA	Daily adjusted price summary time series
DSTK_TS	Daily time series
DLY_WGT	Daily price, shares, and returns
DLY_ADJ_WGT	Daily adjusted price, shares, and returns
DLY_LVL	Daily index level
DLY_RET	Daily returns
PORTF	Portfolio data
GROUP	Group membership data
DLY_TS_NAT	Daily time series (native only)
DSTK_VOLUME	Volume
DSTK_CAP	Capitalization

Monthly STK Data Items

You can generate a customized list of item names available in the monthly stock database by running the following sample statements for each group name in Table 51.9:

```
libname crsp sasexccm
   "\\tappan\crsp1\data201008_little\MIZ201006\"
   setid=20 permno=12490
   itemlist="group_name.*";

proc contents data=crsp.group_name; run;
```

Monthly STK Data Groups

Monthly stock groups are shown in Table 51.9.

Table 51.9 US Monthly Stock Group Names

Group Name	Description
MSTKHDR_ID	Stock header (summary)
MSTKHDR_RNG	Stock header plus ranges
LMSTKHDR_RNG	Stock header plus calendar index ranges
MNAMES_SHORT	Name history (short list)
MNAMES	Name history
MNAMES_ALL	All MNAMES (monthly name histories)
MDISTS	Distribution events
MADJDISTS	Monthly adjusted distribution events
MSHARES	Shares outstanding observations
RMSHARES	Raw shares outstanding observations
MADJSHARES	Monthly adjusted shares outstanding observations
MDELIST	Delisting history
MADJDELIST	Adjusted delisting events
MNASDIN	NASDAQ information history
MTH_DATA	Monthly price summary time series
MTH_ADJDATA	Monthly adjusted price summary time series
MTH_TS	Monthly time series
MTH_WGT	Monthly price, shares, and returns
MTH_ADJ_WGT	Monthly adjusted price, shares, and returns
MTH_LVL	Monthly index level
MTH_RET	Monthly returns
MPORTF	Portfolio data
MGROUP	Group membership data
MTH_TS_NAT	Monthly time series (native only)
MSTK_VOLUME	Volume
MSTK_CAP	Capitalization

IND Group Data Item Names

You can generate a customized list of available indices group data item names by running the following sample statements for each daily or monthly group name from Table 51.10 or Table 51.11 and substituting the corresponding SETID, data path, and actual daily (or monthly) group name for the **group_name**:

```
libname crsp sasexccm
   "\\bb04smb01\thirdparty\lnx\crspdata\DIZ201006\"
   setid=440
   indno=1000040
   itemlist="group_name.*";

proc contents data=crsp.group_name; run;
```

Monthly IND Group Data Group Names

The monthly group indices data consist of the groups listed in Table 51.10.

Table 51.10 US IND Monthly Group Data Group Names

Group Name	Description
MINDHDRG	Monthly index group header
MINDSUMMG	Monthly index group summary
MLISTG	Monthly index group list history
MREBALG	Monthly index group rebalancing history
MREBALG_ALL	Monthly index group rebalancing
MTHGIND_LVL	Monthly index group levels
MTHGIND_RET	Monthly index group returns
MTHGIND_TS	Monthly index group series
MTHGIND_VAL	Monthly index group values

Daily IND Group Data Group Names

The daily group indices data consist of the groups listed in Table 51.11.

Table 51.11 US IND Daily Group Data Group Names

Group Name	Description
INDHDRG	Index group header
INDSUMMG	Index group summary
LISTG	Index group list history
REBALG	Index group rebalancing history
REBALG_ALL	Index group rebalancing
DLYGIND_LVL	Index group levels
DLYGIND_RET	Index group returns
DLYGIND_TS	Index group series
DLYGIND_VAL	Index group values

IND Time Series Data Item Names

You can generate a customized list of available item names by running the following sample statements for each daily or monthly time series group name from Table 51.12 or Table 51.13 and substituting the corresponding SETID, data path, and actual daily (or monthly) time series group name for the **group_name**:

```
libname daycrsp sasexccm
   "\\bb04smb01\thirdparty\lnx\crspdata\DIZ201006\"
   setid=460
   indno=1000040
   itemlist="group_name.*";

proc contents data=daycrsp.group_name; run;
```

Monthly IND Time Series Data Group Names

The monthly indices data consist of the groups listed in Table 51.12.

Table 51.12 US IND Monthly Series Data Group Names

Group Name	Description
MINDHDR	Monthly index header
MINDSUMM	Monthly index summary
MLIST	Monthly index list history
MREBAL	Monthly index rebalancing history
MREBAL_ALL	Monthly index rebalancing
MTHIND_LVL	Monthly index levels
MTHIND_RET	Monthly index returns
MTHIND_TS	Monthly index series
MTHIND_VAL	Monthly index values

Daily IND Time Series Data Group Names

The daily indices data consist of the groups listed in Table 51.13.

Table 51.13 US IND Daily Time Series Data Group Names

Group Name	Description
INDHDR	Index header
INDSUMM	Index summary
LIST	Index list history
REBAL	Index rebalancing history
REBAL_ALL	Index rebalancing
DLYIND_LVL	Index levels
DLYIND_RET	Index returns
DLYIND_TS	Index series
DLYIND_VAL	Index values

Examples: SASEXCCM Interface Engine

Example 51.1: Retrieving SALE Data for One GVKEY

This simple example shows how to retrieve SALE data for one particular GVKEY=6066 (IBM). Because the ITEMLIST= option does not specify a keyset, the default (standard) keyset, KEYSET_TAG=STD, is selected. For brevity, a subset of the data that contains the most recent figures is specified by the WHERE statement.

```
title 'Retrieve SALE data for IBM';
libname _all_ clear;

libname crsp sasexccm "\\bb04smb01\thirdparty\lnx\crspdata\cmz201201\"
   setid=250
   gvkey=6066
   itemlist="sale";

data recentsales;
    set crsp.annitem;
    where datadate >= '1jan2000'd;

proc print data=recentsales;
run;
```

Output 51.1.1 SALE Data for GVKEY=6066

Retrieve SALE data for IBM

Obs	KYGVKEY	KEYSET_TAG	DATADATE	SALE
1	6066	STD	20001229	88396.0000
2	6066	STD	20011231	85866.0000
3	6066	STD	20021231	81186.0000
4	6066	STD	20031231	89131.0000
5	6066	STD	20041231	96293.0000
6	6066	STD	20051230	91134.0000
7	6066	STD	20061229	91424.0000
8	6066	STD	20071231	98786.0000
9	6066	STD	20081231	103630.0000
10	6066	STD	20091231	95758.0000
11	6066	STD	20101231	99871.0000

Example 51.2: Retrieving SALE Data for Multiple Companies

This example shows how to retrieve several data items for several GVKEYs. Note how the item **offtitl** is not an annual item and is stored in its own member. The default (standard) keyset is used for all items. For brevity, a subset of the data that contains the most recent figures is specified by the WHERE statement.

```
title 'Retrieve Sales, Revenue, Liabilities, and Officer data for IBM and MSFT';
libname _all_ clear;

libname crsp sasexccm "\\bb04smb01\thirdparty\lnx\crspdata\cmz201201\"
   setid=250
   gvkey=6066
   gvkey=12141
   itemlist="sale;revt;lct;offtitl";

data recentannitems;
    set crsp.annitem;
    where datadate >= '1jan2000'd;

proc print data=recentannitems;
proc print data=crsp.offtitl;
run;
```

Output 51.2.1 Data Items for IBM and Microsoft

Retrieve Sales, Revenue, Liabilities, and Officer data for IBM and MSFT

Obs	KYGVKEY	KEYSET_TAG	DATADATE	SALE	REVT	LCT
1	6066	STD	20001229	88396.0000	88396.0000	36406.0000
2	6066	STD	20011231	85866.0000	85866.0000	35119.0000
3	6066	STD	20021231	81186.0000	81186.0000	34550.0000
4	6066	STD	20031231	89131.0000	89131.0000	37900.0000
5	6066	STD	20041231	96293.0000	96293.0000	39798.0000
6	6066	STD	20051230	91134.0000	91134.0000	35152.0000
7	6066	STD	20061229	91424.0000	91424.0000	40091.0000
8	6066	STD	20071231	98786.0000	98786.0000	44310.0000
9	6066	STD	20081231	103630.0000	103630.0000	42435.0000
10	6066	STD	20091231	95758.0000	95758.0000	36002.0000
11	6066	STD	20101231	99871.0000	99871.0000	40562.0000
12	12141	STD	20000630	22956.0000	22956.0000	9755.0000
13	12141	STD	20010629	25296.0000	25296.0000	11132.0000
14	12141	STD	20020628	28365.0000	28365.0000	12744.0000
15	12141	STD	20030630	32187.0000	32187.0000	13974.0000
16	12141	STD	20040630	36835.0000	36835.0000	14969.0000
17	12141	STD	20050630	39788.0000	39788.0000	16877.0000
18	12141	STD	20060630	44282.0000	44282.0000	22442.0000
19	12141	STD	20070629	51122.0000	51122.0000	23754.0000
20	12141	STD	20080630	60420.0000	60420.0000	29886.0000
21	12141	STD	20090630	58437.0000	58437.0000	27034.0000
22	12141	STD	20100630	62484.0000	62484.0000	26147.0000
23	12141	STD	20110630	69943.0000	69943.0000	28774.0000

Output 51.2.1 *continued*

Retrieve Sales, Revenue, Liabilities, and Officer data for IBM and MSFT

Obs	KYGVKEY	OFID	OFCD	OFNM
1	6066	1911113	CE	Ms. Virginia M. Rometty
2	6066	1911113	DI	Ms. Virginia M. Rometty
3	6066	1911113	PR	Ms. Virginia M. Rometty
4	6066	1911114	CB	Mr. Samuel J. Palmisano
5	6066	1911114	DI	Mr. Samuel J. Palmisano
6	6066	1911115	CF	Mr. Mark Loughridge
7	6066	1911116	TO	Mr. Rodney C. Adkins
8	12141	1873964	CE	Mr. Steven A. Ballmer
9	12141	1873964	DI	Mr. Steven A. Ballmer
10	12141	1873965	CB	Mr. William Henry Gates III
11	12141	1873965	DI	Mr. William Henry Gates III
12	12141	1873966	CO	Mr. Brain Kevin Turner
13	12141	1873967	CF	Mr. Peter S. Klein

Example 51.3: Retrieving Data from Different Keysets

This example shows how to retrieve several data items from different keysets. You request data about research and development (R&D) expenses (XRD) and net income (NI) over all available keysets by using the **itm_name.*** syntax in the ITEMLIST= option. Note that data are not available for all items in all keysets. For brevity, a subset of the data that contains the most recent figures is specified by the WHERE statement.

```
title 'Retrieve R&D Expenses and Net Income for IBM';
libname _all_ clear;

libname crsp sasexccm "\\bb04smb01\thirdparty\lnx\crspdata\cmz201201\"
   setid=250
   gvkey=6066
   itemlist="xrd.*;ni.*";

data recent;
    set crsp.annitem;
    where datadate >= '1jan2001'd;

proc print data=recent;
run;
```

Output 51.3.1 R&D Expenses and Net Income for GVKEY=6066

Retrieve R&D Expenses and Net Income for IBM

Obs	KYGVKEY	KEYSET_TAG	DATADATE	XRD	NI
1	6066	STD	20011231	4620.0000	7723.0000
2	6066	STD	20021231	4754.0000	3579.0000
3	6066	STD	20031231	5077.0000	7583.0000
4	6066	STD	20041231	5167.0000	8430.0000
5	6066	STD	20051230	5379.0000	7934.0000
6	6066	STD	20061229	5682.0000	9492.0000
7	6066	STD	20071231	5754.0000	10418.0000
8	6066	STD	20081231	6015.0000	12334.0000
9	6066	STD	20091231	5523.0000	13425.0000
10	6066	STD	20101231	5720.0000	14833.0000
11	6066	SUMM	20011231	.	6484.0000
12	6066	SUMM	20021231	.	2376.0000
13	6066	SUMM	20031231	.	6558.0000
14	6066	SUMM	20041231	.	7479.0000
15	6066	SUMM	20051230	.	7934.0000
16	6066	SUMM	20061229	.	9492.0000
17	6066	SUMM	20071231	.	10418.0000
18	6066	SUMM	20081231	.	12334.0000
19	6066	SUMM	20091231	.	13425.0000
20	6066	SUMM	20101231	.	14833.0000

Example 51.4: Retrieving Items by Using Global Options

This example shows how to retrieve data on total assets (ATQ) and after tax gain or loss (GLAQ) by using the global option for turning on footnote items, which uses the following syntax:

```
ITEMLIST="f:itm_name1;itm_name2;....itm_nameN"
```

The default (standard) keyset is used for all items. For brevity, a subset of the data that contains the most recent figures is specified by the WHERE statement.

```
title 'Retrieve data for IBM with Footnotes';
libname _all_ clear;

libname crsp sasexccm "\\bb04smb01\thirdparty\lnx\crspdata\cmz201201\"
  setid=250
  gvkey=6066
  itemlist="f:atq;glaq";

data recent;
    set crsp.qtritem;
    where datadate >= '1jan2004'd;

proc print data=recent;
run;
```

Output 51.4.1 Data Items with Footnotes

Retrieve data for IBM with Footnotes

Obs	KYGVKEY	KEYSET_TAG	DATADATE	ATQ	ATQ_FN1	GLAQ	GLAQ_FN
1	6066	STD	20040331	101825.0000	JR	.	
2	6066	STD	20040630	99582.0000	JR	.	
3	6066	STD	20040930	100676.0000	JR	.	
4	6066	STD	20041231	109183.0000	JR	.	
5	6066	STD	20050331	104899.0000		.	
6	6066	STD	20050630	103388.0000		732.5550	NC
7	6066	STD	20050930	101009.0000		0.0000	NC
8	6066	STD	20051230	105748.0000		0.0000	NC
9	6066	STD	20060331	102468.0000		.	
10	6066	STD	20060630	103377.0000		.	
11	6066	STD	20060929	104155.0000		.	
12	6066	STD	20061229	103234.0000		29.2500	NR
13	6066	STD	20070330	101619.0000		.	
14	6066	STD	20070629	102548.0000		81.0000	
15	6066	STD	20070928	108609.0000		0.0000	
16	6066	STD	20071231	120431.0000		0.0000	
17	6066	STD	20080331	121823.0000		.	
18	6066	STD	20080630	120928.0000		.	
19	6066	STD	20080930	115910.0000		.	
20	6066	STD	20081231	109524.0000		.	
21	6066	STD	20090331	101944.0000		193.7000	NR
22	6066	STD	20090630	103655.0000		0.0000	NR
23	6066	STD	20090930	103675.0000		0.0000	NR
24	6066	STD	20091231	109022.0000		0.0000	NR
25	6066	STD	20100331	105208.0000		390.3600	NC
26	6066	STD	20100630	103420.0000		0.0000	NR
27	6066	STD	20100930	107174.0000		0.0000	NR
28	6066	STD	20101231	113452.0000		0.0000	NR
29	6066	STD	20110331	112960.0000		.	
30	6066	STD	20110630	113474.0000		.	
31	6066	STD	20110930	110158.0000		.	

Example 51.5: Retrieving All GVKEYs and Company Names

This example shows how to retrieve the GVKEY and name for every company in the CCM database.

```
title 'Retrieve All GVKEYs and Company Names';
libname _all_ clear;

libname crsp sasexccm "\\bb04smb01\thirdparty\lnx\crspdata\cmz201201\"
  setid=250
  itemlist="company";

proc contents data=crsp.company;
proc print data=crsp.company(keep=kygvkey conm obs=20);
run;
```

For brevity, only the first 20 observations are shown, and only KYGVKEY and CONM are kept in Output 51.5.1.

Output 51.5.1 First 20 GVKEYS and Company Names

Retrieve All GVKEYs and Company Names

The CONTENTS Procedure

Data Set Name	CRSP.COMPANY	**Observations**	.
Member Type	DATA	**Variables**	38
Engine	CRSPCCM	**Indexes**	0
Created	03/02/2015 16:30:33	**Observation Length**	3232
Last Modified	03/02/2015 16:30:33	**Deleted Observations**	0
Protection		**Compressed**	NO
Data Set Type		**Sorted**	NO
Label			
Data Representation	Default		
Encoding	Default		

Output 51.5.1 *continued*

Alphabetic List of Variables and Attributes

#	Variable	Type	Len	Format	Informat	Label
33	ADD1	Char	68	65.	65.	ADD1
34	ADD2	Char	68	65.	65.	ADD2
35	ADD3	Char	68	65.	65.	ADD3
36	ADD4	Char	68	65.	65.	ADD4
37	ADDZIP	Char	24	24.	24.	ADDZIP
38	BUSDESC	Char	2000	2000.	2000.	BUSDESC
2	CIK	Char	12	10.	10.	CIK
20	CITY	Char	104	104.	104.	CITY
5	CONM	Char	256	255.	255.	CONM
29	CONML	Char	104	100.	100.	CONML
7	COSTAT	Char	4	1.	1.	COSTAT
19	COUNTY	Char	104	100.	100.	COUNTY
9	DLDTE	Num	8	8.	8.	DLDTE
10	DLRSN	Char	12	8.	8.	DLRSN
3	EIN	Char	12	10.	10.	EIN
32	FAX	Char	24	18.	18.	FAX
15	FIC	Char	16	3.	3.	FIC
6	FYRC	Num	8	2.	2.	FYRC
24	GGROUP	Char	12	4.	4.	GGROUP
25	GIND	Char	12	6.	6.	GIND
23	GSECTOR	Char	12	2.	2.	GSECTOR
26	GSUBIND	Char	12	8.	8.	GSUBIND
14	IDBFLAG	Char	12	1.	1.	IDBFLAG
17	INCORP	Char	12	8.	8.	INCORP
8	IPODATE	Num	8	8.	8.	IPODATE
1	KYGVKEY	Num	8	6.	6.	GVKEY
16	LOC	Char	4	3.	3.	LOC
22	NAICS	Char	8	6.	6.	NAICS
31	PHONE	Char	24	18.	18.	PHONE
12	PRICAN	Char	12	8.	8.	PRICAN
13	PRIROW	Char	12	8.	8.	PRIROW
11	PRIUSA	Char	12	8.	8.	PRIUSA
21	SIC	Num	8	4.	4.	SIC
27	SPCINDCD	Num	8	4.	4.	SPCINDCD
28	SPCSECCD	Num	8	4.	4.	SPCSECCD
18	STATE	Char	12	8.	8.	STATE
4	STKO	Num	8	1.	1.	STKO
30	WEBURL	Char	68	60.	60.	WEBURL

Output 51.5.1 *continued*

Retrieve All GVKEYs and Company Names

Obs	KYGVKEY	CONM
1	1000	A & E PLASTIK PAK INC
2	1001	A & M FOOD SERVICES INC
3	1002	AAI CORP
4	1003	A.A. IMPORTING CO INC
5	1004	AAR CORP
6	1005	A.B.A. INDUSTRIES INC
7	1006	ABC INDS INC
8	1007	ABKCO INDUSTRIES INC
9	1008	ABM COMPUTER SYSTEMS INC
10	1009	ABS INDUSTRIES INC
11	1010	ACF INDUSTRIES HOLDING CORP
12	1011	ACS ENTERPRISES INC
13	1012	ACS INDUSTRIES INC
14	1013	ADC TELECOMMUNICATIONS INC
15	1014	ADDSCO INDUSTRIES INC
16	1015	ADI ELECTRONICS INC
17	1016	AEC INC
18	1017	AEL INDUSTRIES -CL A
19	1018	AES TECHNOLOGY SYSTEMS INC
20	1019	AFA PROTECTIVE SYSTEMS INC

Example 51.6: Retrieving Stock Time Series by PERMNO

This example shows how to retrieve the MPRC, MASK, and MBID time series by using PERMNO key access in the STK database. For brevity, the WHERE= option in the DATA step selects a range of MCALDT for 25 observations.

```
title 'Retrieve IBM Monthly PRC, ASK, and BID by PERMNO Access';
libname _all_ clear;

libname crsp sasexccm
   "\\tappan\crsp1\data201008_little\MIZ201006\"
   setid=20
   permno=12490
   itemlist="MPRC;MASK;MBID";

data mstkts_all( where=( mcaldt >= '30jun2008'd) ) ;
   set crsp.mstk_ts;
run;
proc contents data=mstkts_all;
run;
proc print data=mstkts_all;
run;
```

Output 51.6.1 IBM's Monthly PRC, ASK, and BID by PERMNO

Retrieve IBM Monthly PRC, ASK, and BID by PERMNO Access

The CONTENTS Procedure

Data Set Name	WORK.MSTKTS_ALL	**Observations**	25
Member Type	DATA	**Variables**	5
Engine	V9	**Indexes**	0
Created	03/02/2015 16:30:37	**Observation Length**	40
Last Modified	03/02/2015 16:30:37	**Deleted Observations**	0
Protection		**Compressed**	NO
Data Set Type		**Sorted**	NO
Label			
Data Representation	WINDOWS_32		
Encoding	wlatin1 Western (Windows)		

Engine/Host Dependent Information

Data Set Page Size	65536
Number of Data Set Pages	1
First Data Page	1
Max Obs per Page	1632
Obs in First Data Page	25
Number of Data Set Repairs	0
ExtendObsCounter	YES
Filename	C:\Users\saskff\AppData\Local\Temp\SAS Temporary Files_TD7388_D79286_\mstkts_all.sas7bdat
Release Created	9.0401M3
Host Created	W32_7PRO

Alphabetic List of Variables and Attributes

#	Variable	Type	Len	Format	Informat	Label
1	KYPERMNO	Num	8	6.	6.	PERMNO
4	MASK	Num	8	12.5	12.5	Ask
5	MBID	Num	8	12.5	12.5	Bid
2	MCALDT	Num	8	YYMMDDN8.	YYMMDD8.	Caldt
3	MPRC	Num	8	12.5	12.5	Prc

Output 51.6.1 *continued*

Retrieve IBM Monthly PRC, ASK, and BID by PERMNO Access

Obs	KYPERMNO	MCALDT	MPRC	MASK	MBID
1	12490	20080630	118.53000	118.63000	118.28000
2	12490	20080731	127.98000	127.93000	127.99000
3	12490	20080829	121.73000	121.77000	121.74000
4	12490	20080930	116.96000	116.19000	116.09000
5	12490	20081031	92.97000	93.54000	92.92000
6	12490	20081128	81.60000	81.72000	81.60000
7	12490	20081231	84.16000	84.22000	84.09000
8	12490	20090130	91.65000	91.73000	91.71000
9	12490	20090227	92.03000	92.18000	92.16000
10	12490	20090331	96.89000	97.10000	97.10000
11	12490	20090430	103.21000	103.39000	103.31000
12	12490	20090529	106.28000	106.38000	106.40000
13	12490	20090630	104.42000	104.38000	104.34000
14	12490	20090731	117.93000	118.01000	117.93000
15	12490	20090831	118.05000	118.06000	118.04000
16	12490	20090930	119.61000	119.56000	119.56000
17	12490	20091030	120.61000	120.63000	120.62000
18	12490	20091130	126.35000	126.43000	126.42000
19	12490	20091231	130.89999	130.89000	130.84000
20	12490	20100129	122.39000	122.32000	122.30000
21	12490	20100226	127.16000	127.22000	127.21000
22	12490	20100331	128.25000	128.30000	128.25999
23	12490	20100430	129.00000	128.89000	128.86000
24	12490	20100528	125.26000	125.17000	125.08000
25	12490	20100630	123.48000	123.41000	123.38000

Example 51.7: Retrieving Stock and Indices Monthly Time Series by INDNO

This example shows how to retrieve monthly time series by using INDNO key access in the IND database. For brevity, the WHERE= option in the DATA step selects a recent range of MCALDT.

```
title 'Retrieve Several Monthly Time Series by INDNO Access';
libname _all_ clear;

libname crsp sasexccm
   "\\tappan\crsp1\data201008_little\MIZ201006\"
   setid=420
   indno=1000040 indno=1000060 indno=1000080
   itemlist="MAIND;MARET;MIIND";

data mindts_all ( where=( mcaldt >= '30jun2009'd) );
   set crsp.mthind_ts;
run;

proc print data=mindts_all; run;
```

Output 51.7.1 Monthly Time Series by INDNO

Retrieve Several Monthly Time Series by INDNO Access

Obs	KYINDNO	MCALDT	MAIND	MARET	MIIND
1	1000040	20090630	806.96	-0.015017	333.67
2	1000040	20090731	873.04	0.081896	334.25
3	1000040	20090831	902.23	0.033436	335.08
4	1000040	20090930	938.68	0.040394	335.72
5	1000040	20091030	912.56	-0.027819	336.24
6	1000040	20091130	964.47	0.056883	337.16
7	1000040	20091231	982.11	0.018287	337.88
8	1000040	20100129	949.37	-0.033339	338.31
9	1000040	20100226	978.72	0.030920	339.13
10	1000040	20100331	1037.53	0.060087	339.79
11	1000040	20100430	1054.85	0.016696	340.25
12	1000040	20100528	968.99	-0.081403	341.07
13	1000040	20100630	920.85	-0.049681	341.73
14	1000060	20090630	1258.17	0.034083	180.28
15	1000060	20090731	1356.35	0.078031	180.36
16	1000060	20090831	1378.50	0.016334	180.59
17	1000060	20090930	1454.80	0.055349	180.68
18	1000060	20091030	1401.98	-0.036304	180.75
19	1000060	20091130	1468.60	0.047513	181.08
20	1000060	20091231	1555.54	0.059201	181.19
21	1000060	20100129	1470.06	-0.054949	181.25
22	1000060	20100226	1530.69	0.041239	181.49
23	1000060	20100331	1641.63	0.072481	181.61
24	1000060	20100430	1686.83	0.027533	181.69
25	1000060	20100528	1544.38	-0.084447	181.93
26	1000060	20100630	1440.70	-0.067137	182.02
27	1000080	20090630	823.64	-0.004569	305.33
28	1000080	20090731	890.39	0.081042	305.78
29	1000080	20090831	916.85	0.029715	306.46
30	1000080	20090930	956.86	0.043638	306.94
31	1000080	20091030	928.44	-0.029699	307.34
32	1000080	20091130	979.35	0.054839	308.12
33	1000080	20091231	1006.14	0.027352	308.68
34	1000080	20100129	967.73	-0.038177	309.01
35	1000080	20100226	999.85	0.033197	309.68
36	1000080	20100331	1062.61	0.062762	310.20
37	1000080	20100430	1082.91	0.019104	310.55
38	1000080	20100528	994.02	-0.082082	311.22
39	1000080	20100630	940.73	-0.053606	311.73

Example 51.8: Retrieving Stock and Indices Daily Time Series by INDNO

This example shows how to retrieve daily time series by using INDNO key access of the IND database. For brevity, the WHERE= option in the DATA step selects a recent range of CALDT.

```
title 'Retrieve Several Daily Time Series by INDNO Access';
libname _all_ clear;

libname crsp sasexccm
   "\\bb04smb01\thirdparty\lnx\crspdata\DIZ201006\"
   setid=460
   indno=1000040 indno=1000060 indno=1000080
   itemlist="TOTCNT;TOTVAL;TRET";

data dindts_all ( where=( caldt >= '15jun2010'd) );
   set crsp.dlyind_ts;
run;

proc print data=dindts_all; run;
```

Output 51.8.1 Daily Time Series by INDNO

Retrieve Several Daily Time Series by INDNO Access

Obs	KYINDNO	CALDT	TOTCNT	TOTVAL	TRET
1	1000040	20100615	2668	11859837753.20	0.023096
2	1000040	20100616	2669	11841138158.33	-0.001545
3	1000040	20100617	2670	11852139584.84	0.000916
4	1000040	20100618	2671	11873916422.35	0.001838
5	1000040	20100621	2672	11839008747.57	-0.003009
6	1000040	20100622	2672	11627382000.00	-0.017709
7	1000040	20100623	2672	11594378306.30	-0.002811
8	1000040	20100624	2673	11402808548.54	-0.016525
9	1000040	20100625	2675	11479692502.15	0.006645
10	1000040	20100628	2674	11414419071.77	-0.003311
11	1000040	20100629	2674	11051115070.31	-0.031777
12	1000040	20100630	2674	10987117493.51	-0.008165
13	1000060	20100615	2740	3408075602.72	0.027565
14	1000060	20100616	2741	3408111567.48	-0.000031
15	1000060	20100617	2741	3410846831.87	0.000734
16	1000060	20100618	2741	3414496996.34	0.001222
17	1000060	20100621	2738	3383308305.95	-0.009517
18	1000060	20100622	2741	3343876276.79	-0.011656
19	1000060	20100623	2741	3331677101.72	-0.003784
20	1000060	20100624	2741	3277142757.63	-0.016425
21	1000060	20100625	2740	3289059489.28	0.003588
22	1000060	20100628	2739	3281646245.81	-0.002116
23	1000060	20100629	2741	3156605732.63	-0.038661
24	1000060	20100630	2741	3117034325.97	-0.012478
25	1000080	20100615	5408	15267913355.93	0.024090
26	1000080	20100616	5410	15249249725.81	-0.001207
27	1000080	20100617	5411	15262986416.71	0.000875
28	1000080	20100618	5412	15288413418.68	0.001701
29	1000080	20100621	5410	15222317053.52	-0.004462
30	1000080	20100622	5413	14971258276.79	-0.016364
31	1000080	20100623	5413	14926055408.02	-0.003029
32	1000080	20100624	5414	14679951306.17	-0.016503
33	1000080	20100625	5415	14768751991.42	0.005962
34	1000080	20100628	5413	14696065317.58	-0.003044
35	1000080	20100629	5415	14207720802.94	-0.033314
36	1000080	20100630	5415	14104151819.47	-0.009123

Example 51.9: Retrieving Information for Availability of Group INDNOs

This example shows how to retrieve header information about group data and how to obtain a list of all the available INDNO keys in the IND database. The INDNO= option is intentionally omitted so that a default list is generated of all INDNOs in the database that are available for SETID 440.

```
title 'Retrieve Header Information for a Complete INDNO list';
libname _all_ clear;

libname crsp sasexccm
   "\\bb04smb01\thirdparty\lnx\crspdata\DIZ201006\"
   setid=440
   itemlist="INDNOG.*;INDCOG.*;INDNAMEG.*;GROUPNAMEG.*";

data dgindts_all;
   set crsp.indhdrg;
run;

proc print data=dgindts_all(keep=kyindno indnameg); run;
```

Output 51.9.1 Daily Group Indices Header by INDNO

Retrieve Header Information for a Complete INDNO list

Obs	KYINDNO	INDNAMEG
1	1000012	CRSP NYSE Market Capitalization Deciles
2	1000032	CRSP Amex Market Capitalization Deciles
3	1000052	CRSP NYSE/Amex Market Capitalization Deciles
4	1000072	CRSP Nasdaq Market Capitalization Deciles
5	1000092	CRSP NYSE/Amex/Nasdaq Market Capitalization Deciles
6	1000112	CRSP NYSE/Amex Beta Deciles
7	1000132	CRSP NYSE/Amex Standard Deviation Deciles
8	1000152	CRSP Nasdaq Beta Deciles
9	1000172	CRSP Nasdaq Standard Deviation Deciles

Example 51.10: Retrieving Daily Group Time Series by the INDNO= Option

This example shows how to retrieve daily group time series by using the INDNO keys in the IND database that were found in Example 51.9.

```
title 'Retrieve Daily Group Time Series by INDNO';
libname _all_ clear;

libname crsp sasexccm
   "\\bb04smb01\thirdparty\lnx\crspdata\DIZ201006\"
   setid=440
   indno=1000012 indno=1000032
   itemlist="AINDG.*;ARETG.*;USDCNTG.*;USDVALG.*";

 data dgindts_all ( where=( caldt >= '29jun2010'd) );
    set crsp.dlygind_ts;
 run;

 proc print data=dgindts_all; run;
```

Output 51.10.1 Daily Group Indices Time Series by INDNO

Retrieve Daily Group Time Series by INDNO

Obs	KYINDNO	KEYSET_TAG	CALDT	AINDG	ARETG	USDCNTG	USDVALG
1	1000012	1	20100629	7830.32	-0.027881	212	18621519.46
2	1000012	1	20100630	7818.16	-0.001553	212	18102340.54
3	1000012	2	20100629	2152.53	-0.029494	218	41076860.87
4	1000012	2	20100630	2138.40	-0.006568	218	39865355.36
5	1000012	3	20100629	2062.74	-0.030899	221	68226374.39
6	1000012	3	20100630	2050.86	-0.005761	221	66118281.02
7	1000012	4	20100629	1889.98	-0.034272	220	109562324.72
8	1000012	4	20100630	1876.58	-0.007090	220	105767265.49
9	1000012	5	20100629	2452.63	-0.037792	219	176873704.06
10	1000012	5	20100630	2426.61	-0.010609	219	170189222.39
11	1000012	6	20100629	2352.25	-0.036727	218	273518451.00
12	1000012	6	20100630	2326.55	-0.010923	218	263473022.01
13	1000012	7	20100629	1744.62	-0.036671	221	441993909.25
14	1000012	7	20100630	1728.12	-0.009454	221	425785496.41
15	1000012	8	20100629	1837.74	-0.034768	217	728682180.02
16	1000012	8	20100630	1823.06	-0.007989	217	703347314.23
17	1000012	9	20100629	1539.83	-0.037301	217	1551328686.76
18	1000012	9	20100630	1528.09	-0.007619	217	1493462838.15
19	1000012	10	20100629	687.77	-0.029865	219	7887915836.89
20	1000012	10	20100630	682.07	-0.008285	219	7652344301.36
21	1000032	1	20100629	50180.52	-0.028314	46	421298.09
22	1000032	1	20100630	49647.30	-0.010626	46	409369.47
23	1000032	2	20100629	9074.88	-0.018115	53	1027381.77
24	1000032	2	20100630	8999.49	-0.008307	53	1008770.94
25	1000032	3	20100629	7605.46	-0.021016	49	1357042.08
26	1000032	3	20100630	7647.77	0.005564	49	1328521.95
27	1000032	4	20100629	4864.93	-0.019350	49	1882198.23
28	1000032	4	20100630	4862.58	-0.000483	49	1845777.95
29	1000032	5	20100629	3830.96	-0.019162	52	2935672.46
30	1000032	5	20100630	3836.25	0.001382	52	2879419.36
31	1000032	6	20100629	1985.95	-0.023069	49	3471137.55
32	1000032	6	20100630	1994.63	0.004371	49	3391061.96
33	1000032	7	20100629	1737.15	-0.026127	50	5429238.78
34	1000032	7	20100630	1723.08	-0.008097	50	5287388.16
35	1000032	8	20100629	985.90	-0.043221	49	8751647.84
36	1000032	8	20100630	982.62	-0.003332	49	8373396.28
37	1000032	9	20100629	2012.69	-0.035989	47	13946079.35
38	1000032	9	20100630	2008.03	-0.002314	47	13444178.17
39	1000032	10	20100629	580.82	-0.034960	48	77397528.18
40	1000032	10	20100630	574.67	-0.010592	48	74691749.11

Example 51.11: Retrieving Monthly Group Time Series by the INDNO= Option

This example shows how to retrieve monthly group time series by using the INDNO= option.

```
title 'Retrieve Monthly Group Time Series by INDNO';
libname _all_ clear;

libname crsp sasexccm
   "\\tappan\crsp1\data201008_little\MIZ201006\"
   setid=400
   indno=1000357
   itemlist="MTRETG.*;MUSDCNTG.*;MUSDVALG.*";

 data mgindts_all ( where=( mcaldt >= '01apr2010'd) );
    set crsp.mthgind_ts;
 run;

 proc contents data=mgindts_all; run;
 proc print data=mgindts_all; run;
```

Output 51.11.1 Monthly Group Indices Time Series by INDNO

Retrieve Monthly Group Time Series by INDNO

The CONTENTS Procedure

Data Set Name	WORK.MGINDTS_ALL	**Observations**	51
Member Type	DATA	**Variables**	6
Engine	V9	**Indexes**	0
Created	03/02/2015 16:30:56	**Observation Length**	64
Last Modified	03/02/2015 16:30:56	**Deleted Observations**	0
Protection		**Compressed**	NO
Data Set Type		**Sorted**	NO
Label			
Data Representation	WINDOWS_32		
Encoding	wlatin1 Western (Windows)		

Engine/Host Dependent Information

Data Set Page Size	65536
Number of Data Set Pages	1
First Data Page	1
Max Obs per Page	1021
Obs in First Data Page	51
Number of Data Set Repairs	0
ExtendObsCounter	YES
Filename	C:\Users\saskff\AppData\Local\Temp\SAS Temporary Files_TD7388_D79286_\mgindts_all.sas7bdat
Release Created	9.0401M3
Host Created	W32_7PRO

Alphabetic List of Variables and Attributes

#	Variable	Type	Len	Format	Informat	Label
2	KEYSET_TAG	Char	24	6.	6.	KEYSET
1	KYINDNO	Num	8	7.	7.	Indno
3	MCALDT	Num	8	YYMMDDN8.	YYMMDD8.	Caldt
4	MTRETG	Num	8	11.6	11.6	Tret
5	MUSDCNTG	Num	8	8.	8.	Usdcnt
6	MUSDVALG	Num	8	15.2	15.2	Usdval

Output 51.11.1 *continued*

Retrieve Monthly Group Time Series by INDNO

Obs	KYINDNO	KEYSET_TAG	MCALDT	MTRETG	MUSDCNTG	MUSDVALG
1	1000357	1	20100430	0.008174	175	8536273485.00
2	1000357	1	20100528	-0.080409	175	8591982134.00
3	1000357	1	20100630	-0.049665	175	7875937725.00
4	1000357	2	20100430	0.027565	185	1788689604.00
5	1000357	2	20100528	-0.075078	185	1840767431.00
6	1000357	2	20100630	-0.050972	185	1704852934.00
7	1000357	3	20100430	0.040804	190	932695901.00
8	1000357	3	20100528	-0.069991	188	969616974.00
9	1000357	3	20100630	-0.060083	187	895650676.00
10	1000357	4	20100430	0.037353	184	564387964.00
11	1000357	4	20100528	-0.079216	183	582823225.00
12	1000357	4	20100630	-0.070191	183	537053252.00
13	1000357	5	20100430	0.042394	227	478255773.00
14	1000357	5	20100528	-0.081422	228	500248663.00
15	1000357	5	20100630	-0.057584	227	457590748.00
16	1000357	6	20100430	0.057838	222	322738641.00
17	1000357	6	20100528	-0.078382	222	343700243.00
18	1000357	6	20100630	-0.081953	222	317307907.00
19	1000357	7	20100430	0.050365	292	287694406.00
20	1000357	7	20100528	-0.066656	291	301676691.00
21	1000357	7	20100630	-0.071452	292	283193837.00
22	1000357	8	20100430	0.065176	358	220136974.00
23	1000357	8	20100528	-0.075101	355	233544237.00
24	1000357	8	20100630	-0.071157	354	215763356.00
25	1000357	9	20100430	0.069557	514	180205516.00
26	1000357	9	20100528	-0.083660	514	193398849.00
27	1000357	9	20100630	-0.078070	520	180564497.00
28	1000357	10	20100430	0.096078	1374	134793898.00
29	1000357	10	20100528	-0.087666	1371	149100089.00
30	1000357	10	20100630	-0.079349	1368	137743847.00
31	1000357	11	20100430	0.011533	360	10324963089.00
32	1000357	11	20100528	-0.079468	360	10432749564.00
33	1000357	11	20100630	-0.049897	360	9580790659.00
34	1000357	12	20100430	0.040203	601	1975339638.00
35	1000357	12	20100528	-0.075396	599	2052688862.00
36	1000357	12	20100630	-0.062350	597	1890294676.00
37	1000357	13	20100430	0.057194	872	830570020.00
38	1000357	13	20100528	-0.073486	868	878921171.00
39	1000357	13	20100630	-0.075456	868	816265100.00
40	1000357	14	20100430	0.080906	1888	314999414.00
41	1000357	14	20100528	-0.085404	1885	342498939.00
42	1000357	14	20100630	-0.078624	1888	318308344.00
43	1000357	15	20100430	0.016137	961	12300302728.00
44	1000357	15	20100528	-0.078799	959	12485438427.00
45	1000357	15	20100630	-0.051949	957	11471085335.00
46	1000357	16	20100430	0.063714	2760	1145569435.00
47	1000357	16	20100528	-0.076828	2753	1221420110.00

Output 51.11.1 *continued*

Retrieve Monthly Group Time Series by INDNO

Obs	KYINDNO	KEYSET_TAG	MCALDT	MTRETG	MUSDCNTG	MUSDVALG
48	1000357	16	20100630	-0.076345	2756	1134573445.00
49	1000357	17	20100430	0.020191	3721	13445872162.00
50	1000357	17	20100528	-0.078623	3712	13706858536.00
51	1000357	17	20100630	-0.054145	3713	12605658779.00

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