Standard DataFeed User Guide: Daily Prices V2.6.1

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Notice

Any SQL code provided in this document is intended for illustrative purposes only. The functions and queries herein are provided in SQL formatted for MSSQL. It may to be necessary adjust the query language to suit a different SQL DBMS. Sample queries should be viewed as possible examples of data calculations and are subject to change. The queries provided should be used as a guide to understand how the underlying data items can be used but are not guaranteed to represent the same methodology as the FactSet Workstation or other industry calculations. Queries cannot be guaranteed to be written for performance and/or efficiency.

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Updates

Effective Date	Version	Change Type	Description	Affected Files
16-OCT-2020	2.6.1	Documentation Update	Schedule section updated to reflect regional rollover times found on OA 13968	
13-AUG-2020	2.6.0	Minor Enhancement	Alignment of Market holidays and Backfill behavior across regions	fp_basic prices_am.txt
06-APR-2020	2.5.1	Documentation Update	Global Client Support section has been updated	
18-OCT-2019	2.5.0	New File	Addition of Entity Level Market Value add-on package	ent_entity_mkt_val.txt
09-AUG-2019	2.4.0	File retirement	The metadata bundles are retired and metadata for the fp_v2 schema will be available through Reference Hub package	fp_metadata.zip
12-JUL-2019	2.3.0	New Package	Addition of Daily Prices V2 Total Returns package	fp_total_returns_v2_[reg].zip
27-SEP-2018	2.2.1	Documentation Update	Adding Market holidays and Backfill behavior in Methodology section	
30-AUG-2018	2.2.0	New File	A new file, fp_sec_entity_hist.txt, will be added to the Prices Hub package to incorporate current and historical fsym_id to factset_entity_id mappings with start and end dates. The new fp_sec_entity_hist.txt file will replace the fp_sec_entity.txt file in the near future. Please begin transitioning to the new fp_sec_entity_hist.txt file as soon as possible.	fp_sec_entity_hist.txt fp_sec_entity.txt
14-DEC-2017	2.1.0	Minor Enhancement	Addition of LEGACY_CURRENCY field	fp_sec_coverage.txt
17-AUG-2017	2.0.0	Version Release	Prices V2 Feed released. These packages support intraday updates and the new FactSet Permanent Security Identifier scheme	

Overview

This document provides a technical description of the FactSet Daily Prices DataFeed product.

Packages

This package currently covers prices, volume, and shares outstanding on a five day week basis for a global equity universe of Common Stock, ADR, and GDR, Preferred, Closed-ended Fund, Exchange Traded Fund, Unit, Open-ended Fund, Exchange Traded Fund UVI, Exchange Traded Fund NAV, Preferred Equity, Non-Voting Depositary Receipt/Certificate, Alien/Foreign, Structured Product, and Temporary Instruments. Also included are cash and special dividends per share and split adjustments.

Note: Security coverage may be limited as not every security that has prices on FactSet will be available in the feed. Typically, common stocks actively trading in their home markets that also have other financial data tied to them are generally included.

+ Daily Prices V2

- Universe of 180,000+ international securities including inactive companies
- Available in three separate regional packages (based on the region in which the primary security trades)
  - Americas (95,000+ securities)
  - Europe/Africa (48,000+ securities)
  - Asia/Pacific (39,000+ securities)
- Daily unadjusted price and corporate actions data back to 1984 for U.S. and Canada; data back to 1985 for Europe/Africa and Asia/Pacific.
- Open, High, Low and Closing Price; Volume. Open prices for U.S. securities are available from October 1999
- Cash and Special Dividends per Share, Split Adjustments
- Shares Outstanding (from November 1984)

+ Daily Prices V2- Total Returns

- Universe of 115,000+ international securities
- Available in three separate regional packages (based on the region in which the primary security trades)
  - Americas (53,000+ securities)
  - Europe/Africa (34,000+ securities)
  - Asia/Pacific (28,000+ securities)
- Daily returns back to 1984 for U.S. and Canada; data back to 1985 for Europe/Africa and Asia/Pacific.

All Daily Prices DataFeed clients will also receive the Reference Hub and Symbology Equity packages, which contain basic security and entity data, as well as mapping files that are shared across all content sets and historical foreign exchange rates.

Add-On Products

+ Entity Level Market Value

    - Global universe of Entity Level Market Value for 50,000+ entities
    - Daily history beginning from 2015-12-31
    - Four different calculations of Entity Level Market Value provided: including all share types, excluding non-traded shares, excluding treasury shares, and excluding both non-traded and treasury shares

Bundles

All of FactSet's standard data feeds are delivered via FTP to the client's */datafeeds* directory. Data files for the sample packages are located in the *data feeds/samples/prices* directory. The Prices Package is broken down into different bundles and are delivered to subdirectories within the */datafeeds* directory. Mapping files used in conjunction with FactSet Standard DataFeed – Daily Prices V2 can be found in the FactSet Standard DataFeed – Reference Hub V2 package. The table below includes the list of packages and corresponding directories and bundle names.

Full refresh and incremental updates are delivered in separate bundles or ZIP files. A full refresh bundle contains files that are expected to be used to replace all the data in the corresponding tables. An update bundle contains a delete and an update file for each file included in the full refresh. The ZIP bundle name of the full refresh bundle includes the word "full", while the ZIP bundle name for the incremental refresh does not.

Table 1: Standard DataFeed Daily Prices V2– Package, Directory, Bundle Prefix

Package	Directory	Zip Bundle Prefix
Daily Prices V2 Hub	/prices/fp_hub_v2	fp_hub_v2
Daily Prices V2 - Americas	/prices/fp_basic_am_v2	fp_basic_prices_am_v2
Daily Prices V2 - Americas	/prices/fp_basic_am_v2	fp_basic_div_am_v2
Daily Prices V2 - Americas	/prices/fp_basic_am_v2	fp_basic_shares_am_v2
Daily Prices V2 - Americas	/prices/fp_basic_am_v2	fp_basic_splits_am_v2
Daily Prices V2 - Americas	/prices/fp_basic_am_v2	fp_prices_last_exch_am_v2
Daily Prices V2 – Europe/Africa	/prices/fp_basic_eu_v2	fp_basic_prices_eu_v2
Daily Prices V2 – Europe/Africa	/prices/fp_basic_eu_v2	fp_basic_div_eu_v2
Daily Prices V2 – Europe/Africa	/prices/fp_basic_eu_v2	fp_basic_shares_eu_v2
Daily Prices V2 – Europe/Africa	/prices/fp_basic_eu_v2	fp_basic_splits_eu_v2
Daily Prices V2 – Asia/Pacific	/prices/fp_basic_ap_v2	fp_basic_prices_ap_v2
Daily Prices V2 – Asia/Pacific	/prices/fp_basic_ap_v2	fp_basic_div_ap_v2
Daily Prices V2 – Asia/Pacific	/prices/fp_basic_ap_v2	fp_basic_shares_ap_v2
Daily Prices V2 – Asia/Pacific	/prices/fp_basic_ap_v2	fp_basic_splits_ap_v2
Daily Prices V2 – Total Returns - Americas	/prices/fp_total_returns_am	fp_total_returns_am_v2
Daily Prices V2 – Total Returns - Europe/Africa	/prices/fp_total_returns_eu	fp_total_returns_eu_v2
Daily Prices V2 – Total Returns - Asia/Pacific	/prices/fp_total_returns_ap	fp_total_returns_ap_v2
Data Management Solutions – Entity Level Market Value – Global	/entity/ent_entity_mkt_val	ent_entity_mkt_val_1

Files

Each bundle contains a set of text files. The table below includes the list of files available in the FactSet Prices full refresh bundle, and the corresponding table each file is loaded into.

The incremental files are not included in the table, but as mentioned above, an update bundle includes a delete and an update file for each file included in the full refresh. The incremental filenames will begin with the same filenames in the full bundle, and then will have either "_update" or "_delete" appended to the filename.

Table 2: Standard DataFeed Daily Prices V2- Bundles and Files

Zip Bundle Prefix	Text File Name	Table Name
fp_hub_v2	fp_sec_coverage.txt	FP_SEC_COVERAGE
fp_hub_v2	fp_sec_entity.txt	FP_SEC_ENTITY
fp_hub_v2	fp_sec_entity_hist.txt	FP_SEC_ENTITY_HIST
ref_hub_v2	fp_div_ngflag_map.txt	FP_DIV_NGFLAG_MAP
ref_hub_v2	fp_sec_type_map.txt	FP_SEC_TYPE_MAP
ref_hub_v2	fp_div_tax_marker_map.txt	FP_DIV_TAX_MARKER_MAP
ref_hub_v2	fp_div_type_map.txt	FP_DIV_TYPE_MAP
fp_basic_prices_am_v2	fp_basic_prices_am_*.txt	FP_BASIC_PRICES
fp_basic_div_am_v2	fp_basic_dividends_am.txt	FP_BASIC_DIVIDENDS
fp_basic_shares_am_v2	fp_basic_shares_hist_am.txt	FP_BASIC_SHARES_HIST
fp_basic_shares_am_v2	fp_basic_shares_current_am.txt	FP_BASIC_SHARES_CURRENT
fp_basic_splits_am_v2	fp_basic_splits_am.txt	FP_BASIC_SPLITS
fp_prices_last_exch_am_v2	fp_prices_last_exch_am.txt	FP_PRICES_LAST_EXCH
fp_basic_prices_eu_v2	fp_basic_prices_eu_*.txt	FP_BASIC_PRICES
fp_basic_div_eu_v2	fp_basic_dividends_eu.txt	FP_BASIC_DIVIDENDS
fp_basic_shares_eu_v2	fp_basic_shares_hist_eu.txt	FP_BASIC_SHARES_HIST
fp_basic_shares_eu_v2	fp_basic_shares_current_eu.txt	FP_BASIC_SHARES_CURRENT
fp_basic_splits_eu_v2	fp_basic_splits_eu.txt	FP_BASIC_SPLITS
fp_basic_prices_ap_v2	fp_basic_prices_ap_*.txt	FP_BASIC_PRICES
fp_basic_div_ap_v2	fp_basic_dividends_ap.txt	FP_BASIC_DIVIDENDS
fp_basic_shares_ap_v2	fp_basic_shares_hist_ap.txt	FP_BASIC_SHARES_HIST
fp_basic_shares_ap_v2	fp_basic_shares_current_ap.txt	FP_BASIC_SHARES_CURRENT
fp_basic_splits_ap_v2	fp_basic_splits_ap.txt	FP_BASIC_SPLITS
fp_total_returns_am_v2	fp_total_returns_cagr_am_*.txt	FP_TOTAL_RETURNS_CAGR
fp_total_returns_am_v2	fp_total_returns_daily_am_*.txt	FP_TOTAL_RETURNS_DAILY
fp_total_returns_eu_v2	fp_total_returns_cagr_eu_*.txt	FP_TOTAL_RETURNS_CAGR
fp_total_returns_eu_v2	fp_total_returns_daily_eu_*.txt	FP_TOTAL_RETURNS_DAILY
fp_total_returns_ap_v2	fp_total_returns_cagr_ap_*.txt	FP_TOTAL_RETURNS_CAGR
fp_total_returns_ap_v2	fp_total_returns_daily_eu_*.txt	FP_TOTAL_RETURNS_DAILY

*See Split Files Methodology

Tables

Each file included in the feed is loaded into a table using the schema details provided. The table below shows an example of the tables included in the FactSet Daily Prices V2 package, along with the corresponding schemas that are included in all of the FactSet Daily Prices V2 DataFeed packages.

The Prices product includes data tables covering daily pricing data (open, high, low, close, and volume), irregular daily data (dividends per share, splits, and shares outstanding), and descriptive data including a mapping from the securities to the FactSet Entity ID (FACTSET_ENTITY_ID).

Table 3: Standard DataFeed Daily Prices V2 – Tables

Table Name	Table Description
FP_BASIC_PRICES	This table contains the prices for a security on a particular date.
FP_PRICES_LAST_EXCH	This table contains the latest pricing data for a security after the exchange close.
FP_BASIC_SPLITS	This table contains split factors for a security on a particular date.
FP_BASIC_DIVIDENDS	This table contains detailed dividends data for a security on a particular date.
FP_BASIC_SHARES_HIST	This table contains shares outstanding for a security on a particular date.
FP_BASIC_SHARES_CURRENT	This table contains the latest shares outstanding available for a security.
FP_SEC_COVERAGE	This table contains instrument level information for securities covered by FactSet Global Prices.
FP_SEC_ENTITY	This table contains FSYM_IDs linked to their FACTSET_ENTITY_ID for securities covered by FactSet Global Prices.
FP_SEC_ENTITY_HIST	This table contains historical and current FactSet Permanent Identifier (FSYM_ID) to FactSet Entity Identifier (FACTSET_ENTITY_ID) mappings, with dates, for those entities included in the Daily Prices universe. These mappings are provided for equity securities at the security FSYM_ID level.
FP_TOTAL_RETURNS_CAGR	This table contains price and annualized compound total returns, with dividends reinvested on the ex-date. Returns greater than one year are calculated over a one-year period and annualized over 365.25 days. Returns as of the last trading date are included.
FP_TOTAL_RETURNS_DAILY	This table contains historical daily price returns with dividends reinvested on the ex-date.

Schema Feed

The Schema Feed provides files and documents relevant to the Standard DataFeed – Prices packages. The Standard DataFeed schema files are located in the */datafeeds/documents/docs_fp* directory and the Sample DataFeed schema files are located in the /datafeeds/documents/docs_s_fp directory. The */docs_fp* and */docs_s_fp* folders contains a schema zip bundle that contains the latest schema file, table generations statements, and update file.

Table 4: Standard DataFeed Daily Prices V2 -Documents

Directory	Zip Bundle
/datafeeds/documents/docs_fp	fp_v2_schema_#.zip

Table 5: Sample DataFeed Daily Prices V2 – Documents

Directory	Zip Bundle
/datafeeds/documents/docs_s_fp	s_fp_v2_schema_#.zip

Sample

Bundles

FactSet's Sample DataFeeds use the same full refresh and incremental update methodology used by the Standard DataFeeds.

All of FactSet's Sample DataFeeds are delivered via FTP to the client's */datafeeds/samples* directory. Packages are broken down into different bundles and are delivered to subdirectories within the */datafeeds/samples/prices* directory.

The Sample DataFeed bundle names are similar to the Standard DataFeed bundles names, but have "_sample" appended to them. The table below includes the list of packages and the corresponding directories and bundle names.

Table 6: Sample DataFeed Daily Prices V2 - Package, Directory, Bundle Prefix

Package	Directory	Bundle Prefix
Sample DataFeed - Daily Prices V2 Hub	/datafeeds/samples/prices/fp_hub_v2	fp_hub_v2_sample
Sample DataFeed - Daily Prices V2	/datafeeds/ samples/prices/fp_basic_v2	fp_basic_prices_v2_sample
Sample DataFeed - Daily Prices V2	/datafeeds/ samples/prices/fp_basic_v2	fp_prices_last_exch_v2_sample
Sample DataFeed - Daily Prices V2	/datafeeds/ samples/prices/fp_basic_v2	fp_basic_div_v2_sample
Sample DataFeed - Daily Prices V2	/datafeeds/ samples/prices/fp_basic_v2	fp_basic_shares_v2_sample
Sample DataFeed - Daily Prices V2	/datafeeds/ samples/prices/fp_basic_v2	fp_basic_splits_v2_sample
Sample DataFeed - Daily Prices V2	/datafeeds/ samples/prices/fp_basic_v2	fp_total_returns_v2_sample

Files

Each bundle contains a set of text files. The following table includes a sampling of the list of files available in the zip bundles for Sample DataFeed Daily Prices V2 packages and the corresponding table in which to load each file. The table names are the same as the Standard DataFeed table names.

Sample files do not have separate region files and have _sample appended to the file names, i.e. fp_basic_prices_sample.txt. Sample files will be loaded into the S_FP_V2 database schema.

The table below shows an example of the files that are included in the *Sample DataFeed Daily Prices V2 and Hub* packages.

The incremental files are not included in the table, but an update bundle contains a delete and an update file for each file included in the full refresh. The incremental filenames will begin with the same filenames in the full bundle, and then will have either "_update" or "_delete" appended to it.

Table 7: Sample DataFeed Daily Prices - Bundles and Files

Zip Bundle Prefix	Text File Name	Table Name
fp_hub_v2_sample	fp_sec_coverage_sample.txt	FP_SEC_COVERAGE
fp_hub_v2_sample	fp_sec_entity_sample.txt	FP_SEC_ENTITY
fp_hub_v2_sample	fp_sec_entity_hist_sample.txt	FP_SEC_ENTITY_HIST
fp_basic_prices_v2_sample	fp_basic_prices_sample.txt	FP_BASIC_PRICES
fp_prices_last_exch_v2_sample	fp_prices_last_exch_sample.txt	FP_PRICES_LAST_EXCH
fp_basic_div_v2_sample	fp_basic_dividends_sample.txt	FP_BASIC_DIVIDENDS
fp_basic_shares_v2_sample	fp_basic_shares_hist_sample.txt	FP_BASIC_SHARES_HIST
fp_basic_shares_v2_sample	fp_basic_shares_current_sample.txt	FP_BASIC_SHARES_CURRENT
fp_basic_splits_v2_sample	fp_basic_splits_sample.txt	FP_BASIC_SPLITS
fp_total_returns_v2_sample	fp_total_returns_cagr_sample.txt	FP_TOTAL_RETURNS_CAGR
fp_total_returns_v2_sample	fp_total_returns_daily_sample.txt	FP_TOTAL_RETURNS_DAILY

Universe

The FactSet Sample DataFeed – Daily Prices V2 universe includes the securities for a pre-defined list of entities. The list of entities can be found in the *FactSet Standard DataFeed User Guide: General*.

Schedule

The Standard DataFeed Daily Prices V2 packages are scheduled to run Monday to Saturday and deliver delta files four times per day. The first delta file for each regional bundle is scheduled to run after the rollover for that region to the next day and only includes the data for the current day. The rollover times for each region can be found on OA 13968. The additional delta files are scheduled to run three times per day after each region's rollover and may contain historical updates. At least one delta file will be posted each day, and the contents may or may not be empty depending on the underlying changes in the database.

A weekly full refresh of all bundles will be made available on Saturdays.

The delivery schedule is an approximation based on current delivery times. This is subject to change.

Methodology

Split Files

The data files in the FP_BASIC_PRICES_[REGION]_V2 zip bundles are split up into multiple files in order to prevent exceeding the size allowed for zipping on non-64 bit systems. These files are split using sequential numbers between _1.txt and _n.txt, where n is any number greater than or equal to 1. The number of files can change daily.

Table 8: Example of file names in the fp_basic_prices_am_v2_full_#.zip bundle

Directory	Zip Bundle Name	Text File Name
FP_BASIC_PRICES_AM_V2	FP_BASIC_PRICES_AM_V2_FULL_#.ZIP	FP_BASIC_PRICES_AM_1.TXT
FP_BASIC_PRICES_AM_V2	FP_BASIC_PRICES_AM_V2_FULL_#.ZIP	FP_BASIC_PRICES_AM_2.TXT
FP_BASIC_PRICES_AM_V2	FP_BASIC_PRICES_AM_V2_FULL_#.ZIP	FP_BASIC_PRICES_AM_3.TXT
FP_BASIC_PRICES_AM_V2	FP_BASIC_PRICES_AM_V2_FULL_#.ZIP	FP_BASIC_PRICES_AM_4.TXT
FP_BASIC_PRICES_AM_V2	FP_BASIC_PRICES_AM_V2_FULL_#.ZIP	FP_BASIC_PRICES_AM_5.TXT
FP_BASIC_PRICES_AM_V2	FP_BASIC_PRICES_AM_V2_FULL_#.ZIP	FP_BASIC_PRICES_AM_6.TXT
FP_BASIC_PRICES_AM_V2	FP_BASIC_PRICES_AM_V2_FULL_#.ZIP	FP_BASIC_PRICES_AM_7.TXT
FP_BASIC_PRICES_AM_V2	FP_BASIC_PRICES_AM_V2_FULL_#.ZIP	FP_BASIC_PRICES_AM_8.TXT
FP_BASIC_PRICES_AM_V2	FP_BASIC_PRICES_AM_V2_FULL_#.ZIP	FP_BASIC_PRICES_AM_9.TXT
FP_BASIC_PRICES_AM_V2	FP_BASIC_PRICES_AM_V2_FULL_#.ZIP	FP_BASIC_PRICES_AM_10.TXT

These files are split using sequential numbers, represented by an asterisk below. Below is the list of full data files that are split with corresponding zip bundles and directory locations.

Table 9: List of full data split files

Directory	Zip Bundle Name	Text File Name
FP_BASIC_PRICES_AM_V2	FP_BASIC_PRICES_AM_V2_FULL_#.ZIP	FP_BASIC_PRICES_AM_*.TXT
FP_BASIC_PRICES_AP_V2	FP_BASIC_PRICES_AP_V2_FULL_#.ZIP	FP_BASIC_PRICES_AP_*.TXT
FP_BASIC_PRICES_EU_V2	FP_BASIC_PRICES_EU_V2_FULL_#.ZIP	FP_BASIC_PRICES_EU_*.TXT

Full files that are marked as a split file will also have their corresponding update and delete files sent in the split format. The delta files will not necessarily correspond to the sequence numbers of the full files. When the size of the update or delete is under the allotted threshold only one file will be produced with a sequence number of 1.

For example, the update and delete files for fp_basic_prices_am.txt is as follows:

FP_BASIC_PRICES_AM_UPDATE_1.TXT
FP_ BASIC_PRICES_AM_DELETE_1.TXT

If the size of the update and/or delete file exceeds the allotted threshold then users should expect that file to be split into multiple files. Therefore, an update file can be split into more than one file while the corresponding delete may not be split further. Users should then not expect the same number of files to be produced for the full, update or delete.

FP_BASIC_PRICES_AM_UPDATE_1.TXT
FP_BASIC_PRICES_AM_UPDATE_2.TXT
FP_BASIC_PRICES_AM_DELETE_1.TXT

Symbology

The Daily Prices V2 packages use FactSet's new Permanent Identifier scheme, published as FSYM_ID. There are three types of FSYM_IDs: security, regional, and listing. These can represent both active and inactive securities across a number of security types. All FactSet Permanent Identifiers consist of six alphanumeric characters followed by a "-S", "-R", or "-L" which denote the identifier type.

Prices data will be published using the regional identifier, ending in "-R". The Symbology packages can be used to find the "-L" or the "-S" level FSYM_ID for a given "-R" FSYM_ID.

Some Standard DataFeed package use FactSet's legacy permanent security identifier scheme. Users trying to connect those packages to the Daily Prices V2 packages should use the sym_v1.sym_legacy_perm_id table to map the identifiers. A query is provided below to demonstrate how to map the identifiers.

```
select
distinct'v1_id'=p.fs_perm_sec_id,'v2_id'=r.fsym_id
from fp_v1.fp_basic p
left join sym_v1.sym_legacy_perm_id m  on p.fs_perm_sec_id=m.fs_perm_sec_id
left join sym_v1.sym_coverage c on c.fsym_id=m.fsym_id
left join fp_v2.fp_sec_coverage r on r.fsym_id=c.fsym_regional_id
```

Daily Last Exchange Prices File

The Daily Last Exchange Prices file provides the latest available price from the exchanges after the market close to provide a price before the prices files are available. The prices in the Last Exchange file are not official close prices and may fluctuate from the close prices that are delivered in the fp_basic_prices_am_v2_#.zip bundle. If you are looking for official close prices, do not use the last exchange prices file and wait for the fp_basic_prices_update files delivered later.

The Last Exchange file provides the latest available exchange prices and volume after the market close for securities on these specific U.S. exchanges.

fref_exchange_code	fref_exchange_desc	fref_exchange_location_code
NAS	Nasdaq	US
BATS	BATS Exchange	US
NYS	New York Stock Exchange	US
OTC	OTC Bulletin Board	US
ASE	NYSE Amex	US
PSE	NYSE Arca	US

File

The Last Exchange Prices file is included in the Standard DataFeed - Daily Prices V2 – Americas package. It only includes securities in the U.S. exchanges specified above. The latest available security prices and daily trading volume are provided in the fp_prices_last_exch_am.txt file in the fp_prices_last_exch_am_v2 zip bundle. The update file contains the current day's prices while the delete file contains the previous day's prices. A weekly full refresh is posted with just the update file on Fridays to clear the table.

Package	Directory	Bundle Prefix
Standard DataFeed Daily Prices V2 - Americas	/datafeeds/prices/fp_basic_prices_am_v2	fp_prices_last_exch_am_v2

The Last Exchange prices are generated around 4:40 pm EST by using the Real Time intraday date rather than the latest close date to provide the most recent prices available. Not all prices are split-adjusted and volume is in units of thousands of shares. Values in the Last Exchange file may be different in the following delta and full files as they could have been updated or corrected after the Last Exchange file was run.

There can be differing methodologies between the prices in the Last Exchange file and the close prices files as the Last Exchange prices come from the exchanges and the close prices are sourced from IDC. Therefore, it is optional to use the Last Exchange file. The Last Exchange prices are loaded into a separate table from the prices files called fp_v2.fp_prices_last_exchange. The fp_prices_last_exchange table contains the same schema as the fp_basic_prices table.

Usage

The Last Exchange file can be used between the time that the fp_v2.fp_prices_last_exch_am.txt file is posted and the fp_v2.fp_basic_prices_am_update_1.txt file is available to get the latest available price for certain securities in the AM universe. The Last Exchange file should only be used within this time window for the current day. When the regular fp_v2.fp_basic_prices update is available, you should use those closing prices for the day.

For example, you would look in the fp_v2.fp_basic_prices table for the current day's pricing data. If not found, then look in the fp_v2. fp_prices_last_exch table for today's price. This would only work for one day.

Daily Last Exchange Prices

This query returns the pricing data for securities in the Last Exchange file for the current date if there is no data available in the regular fp_basic_prices table.

```
select
'fsym_id'=isnull(p.fsym_id,le.fsym_id),
'latest date'=isnull(p.p_date,le.p_date),
'latest price'=isnull(p.p_price,le.p_price),
'latest p_price_open'=isnull(p.p_price_open,le.p_price_open),
'latest p_price_high'=isnull(p.p_price_high,le.p_price_high),
'latest p_price_low'=isnull(p.p_price_low,le.p_price_low),
'latest p_volume'=isnull(p.p_volume,le.p_volume)
from fp_v2.fp_prices_last_exch le
inner join fp_v2.fp_sec_coverage b on b.fsym_id=le.fsym_id
left join fp_v2.fp_basic_prices p on p.fsym_id = le.fsym_id and p.p_date = le.p_date
left join sym_v1.sym_region r on r.fsym_id=le.fsym_id
where r.region='amer'  and le.p_date=convert(date, getdate())
```

Expected Behavior

There are some methodology and timing differences between the Last Exchange file and the delta files that cause different expected behavior.

1. Securities that are in the Last Exchange file today that weren't in the regular prices table yesterday
   - New securities that just started trading will be available earlier, and will show up in the next day's delta. For example:

Last Exchange file: fp_prices_last_exch_am.txt on 2017-08-09

```
"FSYM_ID"|"P_DATE"|CURRENCY"|"P_PRICE"|"P_PRICE_OPEN"|"P_PRICE_HIGH"|"P_PRICE_LOW"|"P_VOLUME"
"GPDMQZ-R"|2017-08-09|"USD"|11.98|12.34|12.362|11.9|99.678
```

Delta file: fp_basic_prices_am_update_#.txt on 2017-08-09

```
"FSYM_ID"|"P_DATE"|CURRENCY"|"P_PRICE"|"P_PRICE_OPEN"|"P_PRICE_HIGH"|"P_PRICE_LOW"|"P_VOLUME"
```

   - There is a different methodology of carry forward behavior in Real Time than in the workstation. The Last Exch file may show a carried forward price for an inactive security longer than in the workstation. For example:

Last Exchange file: fp_prices_last_exch_am.txt on 2017-08-16

```
"FSYM_ID"|"P_DATE"|CURRENCY"|"P_PRICE"|"P_PRICE_OPEN"|"P_PRICE_HIGH"|"P_PRICE_LOW"|"P_VOLUME"
"B0VVQQ-R"|2017-08-16|"USD"|29.21|29.21|29.21|29.21|0
```

Delta file: fp_basic_prices_am_update_#.txt on 2017-08-16

```
"FSYM_ID"|"P_DATE"|CURRENCY"|"P_PRICE"|"P_PRICE_OPEN"|"P_PRICE_HIGH"|"P_PRICE_LOW"|"P_VOLUME"
```

2. Securities that are in the regular prices file from the previous day may not be in the Last Exchange file today
   - If there is zero volume and no Real Time price is available, the security will be excluded from the Last Exchange file because it did not actually price that day. For example, B0VVQQ-R returned null for ^%p_price(now) at the time the Last Exchange file was run:

Last Exchange file: fp_prices_last_exch_am.txt on 2017-08-16

```
"FSYM_ID"|"P_DATE"|CURRENCY"|"P_PRICE"|"P_PRICE_OPEN"|"P_PRICE_HIGH"|"P_PRICE_LOW"|"P_VOLUME"
```

Delta file: fp_basic_prices_am_update_#.txt on 2017-08-16

```
"FSYM_ID"|"P_DATE"|CURRENCY"|"P_PRICE"|"P_PRICE_OPEN"|"P_PRICE_HIGH"|"P_PRICE_LOW"|"P_VOLUME"
"B0VVQQ-R"|2017-08-16|"USD"|29.21|29.21|29.21|29.21|0
```

3. Market Holidays
   - If there is a market holiday, a Last Exchange file will not be published for that day.

Daily Security Prices

Security prices and daily trading volume are provided on a business day frequency in the FP_BASIC_PRICES table with two keys, FSYM_ID and P_DATE. All prices are raw and are not split-adjusted values. Volume is supplied in units of thousands of shares.

P_PRICE

The closing price, P_PRICE, in the feed may not match the FactSet workstation in certain instances. When close prices are not available in the Prices database, the feed displays the low price if available, otherwise the high price if available. In the workstation and ^=P_PRICE formula, logic is applied to return a data point when there is none in the underlying database. The closing price in the workstation will return a value with whatever price value is available for that security on that date. For example, if the close price is not available, the low or high price will be used. If there is no close, low, or high, but there is a bid and ask, the bid will be used as the close and low, and the ask price will be used as the high. If there is no close, low, high, or bid, but there is an ask price, the ask price will be used for all the prices. If there are no prices at all on a given day, then all the prices will display the previous day's values.

Dividends

Dividends per Share are provided on an unadjusted basis keyed by ex-date. Dividends are added to the feed when declared and can display a date in the future. If the dividends are declared in a different currency from the currency in the feed, they will be converted using an exchange rate on the ex-date. As a result, the future dividends that are converted will use the most recent exchange rate until the exchange rate is available for the ex-date. You may see dividends revised in the feed on a daily basis during this period. In the case where a dividend and split occur on the same ex-date, the dividend should be split-adjusted by the price adjustment factor on the ex-date.

FP_BASIC_DIVIDENDS

In the fp_basic_dividends.txt file, special dividends are included in the total dividends field (P_DIVS_PD). Multiple dividends on the same day are displayed as separate records.

Note that the P_DIVS_S_SPINOFF and P_DIVS_S_PD return a Boolean flag. The primary key includes a dividend identifier and dividend amount to differentiate dividends on the same ex-date.

The P_DIVS_PD_ID field is a dividend number assigned for global securities from Exshare. North American securities from IDC will have a dividend number of 0, as dividend values should be unique on the same date.

The P_DIVS_PD_TYPE_CODE field returns the detailed description from IDC/Exshare for dividend type. If the code returns 0, this means that IDC/Exshare had not started covering the dividend type at that time for the security.

The P_DIVS_S_PD flag is a flag for special price implications, which may or may not include special dividends. The flag relates to whether or not adjustments should be made to historical pricing. Not all dividends that are classified as a special dividend should cause historical prices to be adjusted. Criteria to be flagged as a special price implication include:

- *A Spin off dividend*
- *A large extraordinary cash payment meeting all of the following conditions:*
    1. Cash dividend greater than 5% of the security's close price the day prior to the ex-date
    2. Payment of common or preferred equity
    3. One of the following dividend types: 11 (special dividend), 72 (return on capital), 20 (payment from reserves), 71 (payment from share premium account), 9 (anniversary bonus dividend), 10 (bonus dividend other than over-provision or anniversary), 13 (arrears payment), 75 (declared special dividend under merger proposals), or 77 (dividend paid as defense against bid)

*Note: All spinoffs should be considered special dividends. If p_divs_s_spinoff=1, then p_divs_s_pd should also be flagged as 1 as a special dividend.

Shares Outstanding

Shares Outstanding is supplied in units of thousands of shares. Shares may not reflect split/spinoff adjustments for the EU and AP regions until 1 day after the effective date in the feed. The Prices feed may not capture the adjusted shares for the current day due to processing time. Split data is available in the feed on or before the effective date.

FP_BASIC_SHARES_HIST

In the fp_basic_shares_hist.txt file, shares outstanding are provided on an unadjusted basis at an irregular daily frequency, only when the values change. There will not be a new value when there is a split unless the number changes relative to the previous split-adjusted value. This means you should adjust for the split using the cumulative adjustment factor as of the date of the most recent record and then carry the adjusted value forward. You can see this with the value for Aug 1, 2008 in Table 10: Sample Split Factor Adjustments below.

FP_BASIC_SHARES_CURRENT

The fp_basic_shares_current.txt file will contain the latest available shares outstanding for all securities, including securities that have a current share values with no associated date. For example, the shares outstanding can reflect the latest shares outstanding in the fp_basic_shares_hist.txt file or it could be the last shares outstanding available for a security from 10 years ago. If FactSet does not cover shares outstanding for a security type (i.e. mutual funds), it is expected that shares will return 0. This file can be used as a supplement to the existing fp_basic_shares_hist.txt file, which contains the changes in shares outstanding for securities with historical shares data. If a security is available in both the fp_basic_shares_hist.txt and fp_basic_shares_current.txt file, the latest available value from the historical shares file should match the value in the current shares file.

Split Factors

Split factors are provided on an irregular daily basis with two keys, FSYM_ID and P_DATE. Factors are based on ex-date and are not supplied on a cumulative basis. Split factors are added to the feed when announced and may display a date in the future. The split factor represents the inverse of the factor that shares will increase by on the ex-date, so a 2 for 1 split is represented as a 0.5 split factor.

Per share data supplied in the daily prices and dividends tables should be multiplied by the Split Factor to correct history before the ex-date. Shares-based data supplied in the daily prices (e.g., volume) and shares outstanding tables should be divided by the Split Factor to correct history before the ex-date.

Table 10: Sample Split Factor Adjustments

	Adjustment Factor		Price		Volume		Shares Outstanding	
Date	Raw	Cumulative	Unsplit	Split Adjusted	Unsplit	Split Adjusted	Unsplit	Split Adjusted
2010-04-21	NA	1.0	45.00	45.00	24,000	24,000	560,000	560,000
2010-02-27	0.5	1.0	45.00	45.00	24,000	24,000	550,000	550,000
2010-02-26	NA	0.5	90.00	45.00	12,000	24,000		500,000
2009-12-31	NA	0.5	90.00	45.00	12,000	24,000	250,000	500,000
2008-08-01	0.667	0.5	90.00	45.00	12,000	24,000		480,000
2008-07-31	NA	0.33333	135.00	45.00	8,000	24,000	160,000	480,000

Spinoff Factors

An easy approach to adjusting data for splits and spinoffs is to create cumulative adjustment factors. For this example, we define the cumulative factors to work in this way:

> Split Adjusted Price = Unadjusted Price * Cumulative Split Factor
> Spinoff Adjusted Price = Split Adj. Price * Cumulative Spinoff Factor

Therefore, the most recent cumulative split factor needs to be 1.0 and going back in time its value should change on the day before each split factor in the feed (FP_BASIC_SPLITS). Given the definition of the split factor, the cumulative split factor needs to be set to the split factor multiplied by the accumulated split factor on the day before the split. If a dividend falls on the same ex-date as the split, the dividend needs to be split-adjusted by the split factor on the ex-date and not the day before the ex-date.

In the example below taken from Time Warner (TWX/QCS6P8-R), there is a split factor of 3.0 for a reverse split (1 for 3) that takes place on 30-Mar-2009 and two spinoff distributions that take place on March 30 and December 10. Therefore, the cumulative split factor turns to 3.0 on March 29.

FactSet calculates a special dividend to account for spinoffs and supplies it on the dividend feed. It is the difference between the spinoff adjusted price and the unadjusted price:

> Spinoff Adjusted Price = Unadjusted Price – Special Dividend

Calculating the factor to adjust prices for spinoffs requires data from several tables:

P_PRICE	Unadjusted Price (Table: FP_BASIC_PRICES)
P_SPLIT_FACTOR	Raw Split Factor (Table: FP_BASIC_SPLITS)
P_DIVS_PD	Special Dividend (Table: FP_BASIC_DIVIDENDS where P_DIVS_S_PD=1)

If we define the spinoff factor as the ratio of the spinoff-adjusted to the unadjusted price:

> Spinoff Factor = Spin-off Adjusted Price (d-1) / Unadjusted Price (d-1)

You can then calculate the spinoff factor from the special dividend and previous day's unadjusted price:

> Spinoff Factor = (Unadjusted Price - Special Dividend)/Unadjusted Price

The cumulative spinoff factor then works backward from 1.0 in the same way as the split factor. The fully adjusted price (splits and spinoffs) is then calculated from the unadjusted price and both factors:

> Adjusted Price = Unadj. Price * Cum. Split Factor * Cum. Spinoff Factor

After creating the functions found in Appendix A, the query below can be used to reproduce the relevant factors mentioned in the example. Sample queries should be viewed as possible examples of data calculations in the feed and are subject to change. The queries provided should be used as a guide to understand how the underlying data items can be used but are not guaranteed to represent the same methodology as the FactSet Workstation or other industry calculations. Additionally, queries cannot be guaranteed to be written for performance or efficiency.

Table 10: Query to replicate Spinoff Factor Calculations

```
select     p.fsym_id,    p.p_date,
    'spinoff adj price' =          convert(numeric(20,3),fp_v2.fp_spinoffadjprice(p.fsym_id,p.p_date)),
    'spinoff adj percent change' = convert(numeric(20,3),(fp_v2.fp_spinoffadjprice(p.fsym_id,p.p_date)-
fp_v2.fp_spinoffadjprice(p.fsym_id,fp_v2.fp_prevpricedate(p.fsym_id,
p.p_date)))/fp_v2.fp_spinoffadjprice(p.fsym_id,fp_v2.fp_prevpricedate(p.fsym_id, p.p_date))*100),
    'unadj price' = p.p_price,
    'dividend' = convert(numeric(20,3),d.p_divs_pd),
    'flag' = d.p_divs_s_spinoff,
    'special dividend' = convert(numeric(20,3),d.p_divs_pd)
    from fp_v2.fp_basic_prices p
left join fp_v2.fp_basic_dividends d on d.fsym_id = p.fsym_id and d.p_divs_exdate = p.p_date
where     p.fsym_id = 'qcs6p8-r' and (p.p_date between '3/26/2009' and '3/31/2009'  or p.p_date between
'12/9/2009' and '12/11/2009')
order by p.p_date
```

Daily Total Return

FactSet's methodology on total return calculations can be found on Online Assistant page 8748. Total return can be calculated on a daily basis as the sum of the return (percent change) of the split and spinoff-adjusted price and the return of dividends (adjusted for both spinoffs and special dividends) from the end date's split-adjusted price.

Calculation for Price Returns – Dividends reinvested:

=100*((Split and Spinoff Adjusted Price on End Date / Split and Spinoff Adjusted Price on Start Date)*((1+(Dividend Amount as of D1/Split and Spinoff Adjusted Price on D1))*(1+(Dividend Amount as of D2/ Split and Spinoff Adjusted Price on D2))*...*(1+(Dividend Amount as of Dn/Split and Spinoff Adjusted Price on Dn))))-1)

where:

- D1 = First ex-dividend date
- D2 = Second ex-dividend date
- Dn = N ex-dividend date

Weekend Dividends

Prices are provided based on a 5-day calendar. Total returns, over a weekend, are calculated using the last available close price. For example, if a security has an ex-dividend date that's a Saturday or Sunday, Friday's close price (assuming Friday is not a market holiday) will be used for both the start and previous prices in the calculating the return.

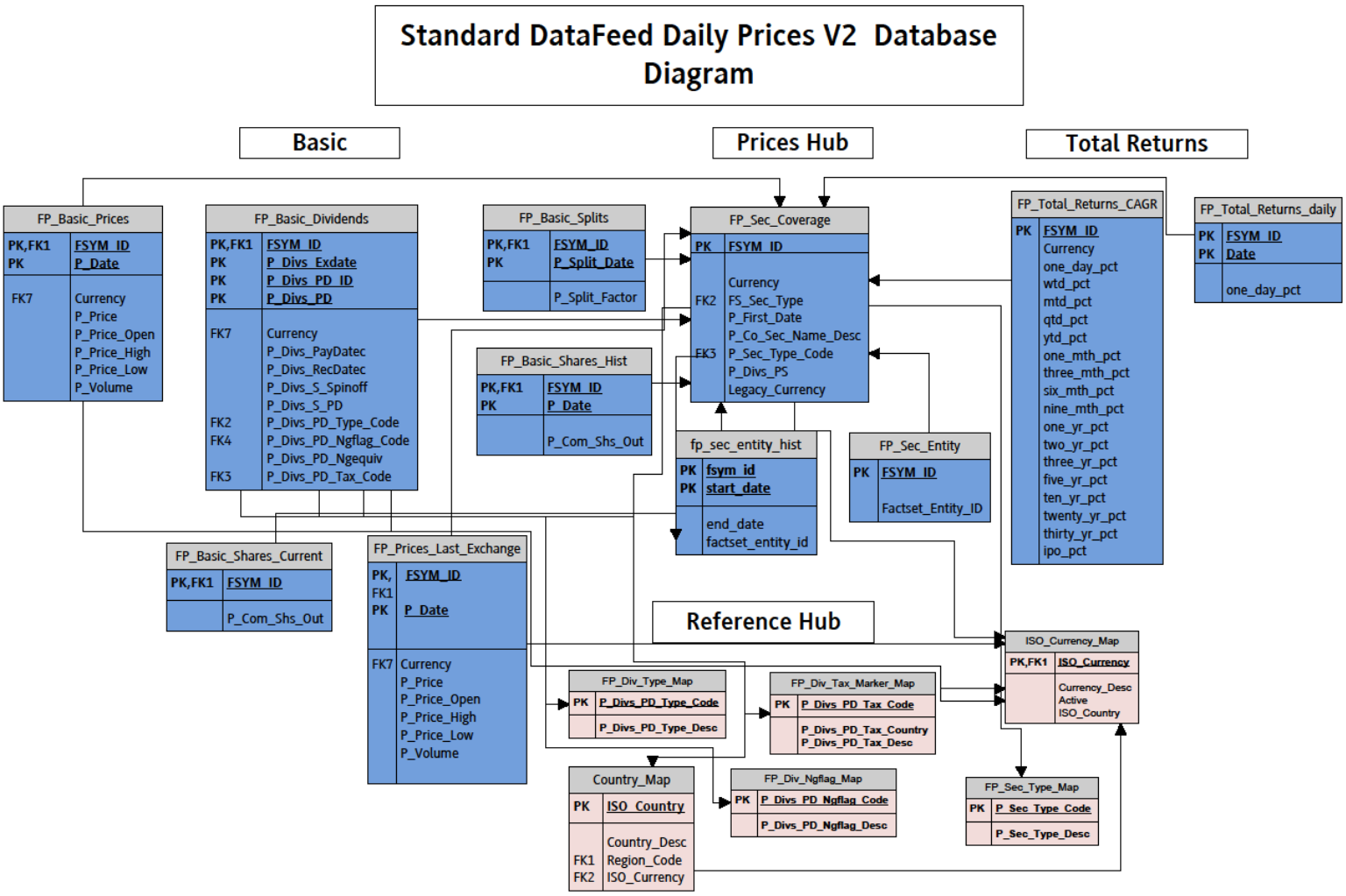
Market Holidays and Backfill behavior

For market holidays, prices will be backfilled using the prices from the last trade date once trading resumes. For non-trading periods, prices will not populate during the period the security is not trading. The last traded price will be backfilled on the date the security resumes trading. Additional details are available in the Prices V2 Content Methodology document.

Entity Level Market Value

Entity Level Market Value is derived as a summation of individual market values of all related common shares, preferred equity shares, and non-traded or treasury shares (if specified). Full data methodology for the Entity Level Market Value table can be found on OA 16867.

Database Diagram



Data Dictionary

This section provides details about the tables included in the Standard DataFeed – Daily Prices V2 packages. The mapping tables specific to the Standard DataFeed – Daily Prices V2 are found in the Standard DataFeed – Reference Hub V2.

Daily Prices V2 Hub

fp_sec_coverage

This table contains descriptive data related to the Company View.

Primary Key – FSYM_ID

Field Name	Type	Nullable	Example	Description
FSYM_ID	Char(8)	No	FBJRR9-R	Unique FactSet-generated unique identifier representing a regional level instrument
CURRENCY	Char(3)	Yes	KRW	Code representing the currency in which the security or listing trades
P_FIRST_DATE	Date	Yes	2000-09-14	First date for which there is a price record
P_CO_SEC_NAME_DESC	Varchar(100)	Yes	GMR MATERIALS CO L KRW500	Name of the Company or Security
P_SEC_TYPE_CODE	Varchar(5)	Yes	10	Code representing the detailed security type
P_DIVS_PS	Double	Yes	0	Current indicated annual dividend
LEGACY_CURRENCY	Char(3)	Yes	NULL	Code representing the legacy currency for the security

fp_sec_entity

This table contains mappings from FSYM_IDs to FACTSET_ENTITY_IDs for those securities in the Prices universe.

Primary Key – FSYM_ID, FACTSET_ENTITY_ID

Field Name	Type	Nullable	Example	Description
FSYM_ID	Char(8)	No	FBJRR9-S	Unique FactSet-generated unique identifier assigned to a security
FACTSET_ENTITY_ID	Char(8)	No	000KYD-E	Unique FactSet generated identifier assigned to the issuer of the security

fp_sec_entity_hist This table contains historical and current FactSet Permanent Identifier (FSYM_ID) to FactSet Entity Identifier (FACTSET_ENTITY_ID) mappings, with dates, for those entities included in the Daily Prices universe. These mappings are provided for equity securities at the security FSYM_ID level.				
Primary Key – FSYM_ID, START_DATE				
Field Name	**Type**	**Nullable**	**Example**	**Description**
fsym_id	CHAR(8)	No	FBJRR9-S	Unique FactSet-generated unique identifier assigned to a security
start_date	DATE	No	2005-01-28	Date the identifier was first associated with the fsym_id
end_date	DATE	Yes	2013-01-17	Date the identifier was last associated with the fsym_id
factset_entity_id	CHAR(8)	No	000KYD-E	Unique FactSet-generated identifier representing an entity

Daily Prices V2

fp_basic_prices This table contains the prices for a security on a particular date.				
Primary Key – FSYM_ID, P_DATE				
Field Name	**Type**	**Nullable**	**Example**	**Description**
FSYM_ID	Char(8)	No	FBJRR9-R	Unique FactSet-generated unique identifier representing a regional level instrument
P_DATE	Date	No	2010-09-29	Date on which the security priced
CURRENCY	Char(3)	Yes	KRW	Code representing the currency in which the security or listing trades
P_PRICE	Double	Yes	145	Closing Price
P_PRICE_OPEN	Double	Yes	150	Opening Price
P_PRICE_HIGH	Double	Yes	150	High Price
P_PRICE_LOW	Double	Yes	145	Low Price
P_VOLUME	Double	Yes	207.965	Volume

fp_prices_last_exch This table contains the latest pricing data for a security after the exchange close.				
Primary Key – FSYM_ID, P_DATE				
Field Name	**Type**	**Nullable**	**Example**	**Description**
FSYM_ID	Char(8)	No	B049B5-R	Unique FactSet-generated unique identifier representing a regional level instrument
P_DATE	Date	No	2018-09-26	Date on which the security priced
CURRENCY	Char(3)	Yes	USD	Code representing the currency in which the security or listing trades
P_PRICE	Double	Yes	13.6	Latest available price after exchange close

P_PRICE_OPEN	Double	Yes	13.54	Latest available opening price after exchange close
P_PRICE_HIGH	Double	Yes	13.6	Latest available high price after exchange close
P_PRICE_LOW	Double	Yes	13.54	Latest available low price after exchange close
P_VOLUME	Double	Yes	2.1	Latest available volume after exchange close

fp_basic_dividends

This table contains detailed dividends data for a security on a particular date.

Primary Key – FSYM_ID, P_DIVS_EXDATE, P_DIVS_PD_ID, P_DIVS_PD

Field Name	Type	Nullable	Example	Description
FSYM_ID	Char(8)	No	B15YGP-R	Unique FactSet-generated unique identifier representing a regional level instrument
P_DIVS_EXDATE	Date	No	2000-09-11	Ex-Date of the dividend
P_DIVS_PD_ID	Varchar(6)	No	3	Unique identifier representing the dividend number for a global security from Exshare
P_DIVS_PD	Double	No	0.609796107	Dividends Per Share - Paid
CURRENCY	Char(3)	No	EUR	Code representing the currency in which the security or listing trades.
P_DIVS_PAYDATEC	Date	Yes	2000-09-11	Dividends Per Share - Pay Date
P_DIVS_RECDATEC	Date	Yes	NULL	Dividends Per Share - Record Date
P_DIVS_S_SPINOFF	Boolean	No	0	Special Dividends Per Share - Spinoff Flag
P_DIVS_S_PD	Boolean	No	0	Flag indicating whether special price implications exist, which may or may not include special dividends. The flag relates to whether an adjustment should be made to historical pricing.
P_DIVS_PD_TYPE_CODE	Varchar(4)	Yes	5	Code representing the dividend type
P_DIVS_PD_NGFLAG_CODE	Char(1)	Yes	G	Code representing the net (N) or gross (G) marker
P_DIVS_PD_NGEQUIV	Double	Yes	0.228673533	Net/Gross equivalent
P_DIVS_PD_TAX_CODE	Varchar(6)	Yes	FA	Code representing the tax marker

fp_basic_shares_hist This table contains shares outstanding for a security on a particular date.				
Primary Key – FSYM_ID, P_DATE				
Field Name	**Type**	**Nullable**	**Example**	**Description**
FSYM_ID	Char(8)	No	B15YGP-R	Unique FactSet-generated unique identifier representing a regional level instrument
SHARES_OUT_DATE	Date	No	2005-05-20	Date on which the security priced
P_COM_SHS_OUT	Double	No	4200	Number of shares outstanding

fp_basic_shares_current This table contains the latest available shares outstanding for a security.				
Primary Key – FSYM_ID				
Field Name	**Type**	**Nullable**	**Example**	**Description**
FSYM_ID	Char(8)	No	B15YGP-R	Unique FactSet-generated unique identifier representing a regional level instrument
P_COM_SHS_OUT	Double	Yes	4200	Number of shares outstanding

fp_basic_splits This table contains split factors for a security on a particular date.				
PRIMARY KEY – FSYM_ID,P_SPLIT_DATE				
Field Name	**Type**	**Nullable**	**Example**	**Description**
FSYM_ID	Char(8)	No	B15YGP-R	Unique FactSet-generated unique identifier representing a regional level instrument
P_SPLIT_DATE	Date	No	2003-03-05	Ex-date of the split
P_SPLIT_FACTOR	Double	No	0.25	Split Factor

Daily Prices V2 Total Returns

fp_total_returns_cagr

This table contains annualized compound total returns, with dividends reinvested on the exdate. Returns greater than one year are calculated over a one- year period and annualized over 365.25 dates. Returns as of the last trading date are included.

Primary Key – FSYM_ID

Field Name	Type	Nullable	Example	Description
fsym_id	CHAR(8)	No	B00CQC-R	Unique FactSet-generated identifier representing a regional level instrument
p_date	DATE	No	2010-09-29	Date on which the security priced
currency	CHAR(3)	No	USD	Code representing the currency in which the security or listing trades
one_day_pct	DOUBLE	Yes	5.56	Returns the price performance of the security since the previous trade date
wtd_pct	DOUBLE	Yes	5.56	Returns the price performance of the security since the last trade date of the previous week (usually Friday)
mtd_pct	DOUBLE	Yes	5.56	Returns the price performance of the security since the last trade date of the previous month
qtd_pct	DOUBLE	Yes	5.56	Returns the price performance of the security since the last trade date of the previous calendar quarter
ytd_pct	DOUBLE	Yes	5.56	Returns the price performance of the security since the last trade date of the previous calendar year
one_mth_pct	DOUBLE	Yes	5.56	Returns the price performance of the over a trailing one month period based on p_date
three_mth_pct	DOUBLE	Yes	5.56	Returns the price performance of the security over a trailing three month period based on p_date
six_mth_pct	DOUBLE	Yes	5.56	Returns the price performance of the security over a trailing six month period based on p_date
nine_mth_pct	DOUBLE	Yes	5.56	Returns the price performance of the security over a trailing nine month period based on p_date
one_yr_pct	DOUBLE	Yes	5.56	Returns the price performance of the security over a trailing 1 yr period based on p_date

two_yr_pct	DOUBLE	Yes	5.56	Returns the annualized compound total return trailing 2 yr period based on p_date
three_yr_pct	DOUBLE	Yes	5.56	Returns the annualized compound total return over a trailing 3 yr period based on p_date
five_yr_pct	DOUBLE	Yes	5.56	Returns the annualized compound total return over a trailing 5 yr period based on p_date
ten_yr_pct	DOUBLE	Yes	5.56	Returns the annualized compound total return over a trailing 10 yr period based on p_date
twenty_yr_pct	DOUBLE	Yes	5.56	Returns the annualized compound total return over a trailing 20 yr period based on p_date
thirty_yr_pct	DOUBLE	Yes	5.56	Returns the annualized compound total return over a trailing 30 yr period based on p_date
ipo_pct	DOUBLE	Yes	5.56	Returns the annualized compound total return since the IPO Date.

fp_total_returns_daily

This table contains daily price returns with dividends reinvested on the ex-date

Primary Key – FSYM_ID, P_DATE

Field Name	Type	Nullable	Example	Description
fsym_id	CHAR(8)	No	B00CQC-R	Unique FactSet-generated identifier representing a regional level instrument
p_date	DATE	No	2010-09-29	Date on which the security priced
currency	CHAR(3)	No	USD	Code representing the currency in which the security or listing trades
one_day_pct	DOUBLE	Yes	5.56	Returns the price performance of the security since the previous trade date

Add-On: Entity Level Market Value

ent_v1.ent_entity_mkt_val This table provides a time series of company market values at the FactSet Entity ID (-E) Level.				
Primary Key – factset_entity_id, mv_date				
Field Name	**Type**	**Nullable**	**Example**	**Description**
factset_entity_id	char(8)	No	000KYG-E	Unique FactSet-generated identifier representing an entity
mv_date	date	No	2019-01-01	Date of the Entity Level Market Value observation
currency	char(3)	No	USD	Code representing the currency in which the security or listing trades
ent_mv	double	Yes	1000000	Entity Level Market Value including all share types
ent_mv_ex_non_traded	double	Yes	1000000	Entity Level Market Value excluding non-traded shares
ent_mv_ex_treasury	double	Yes	1000000	Entity Level Market Value excluding treasury shares
ent_mv_ex_nontraded_treasury	double	Yes	1000000	Entity Level Market Value excluding non-traded shares and treasury shares

Appendix A: Queries

The functions and queries are provided in SQL formatted for MSSQL. It may be necessary to adjust the query language to suit a different SQL DBMS. Sample queries should be viewed as possible examples of data calculations in the feed and are subject to change. The queries provided should be used as a guide to understand how the underlying data items can be used but are not guaranteed to represent the same methodology as the FactSet Workstation or other industry calculations. Additionally, queries cannot be guaranteed to be written for performance or efficiency.

Market Value

This query returns the market value for a security based on the most recent shares outstanding available for each price date. This example returns the market value for IBM for all dates.

```
declare @id char(8)
set @id='sjy281-r'
select
b.fsym_id,
b.p_co_sec_name_desc,
p.p_date,
p.p_price,
ms.p_com_shs_out,
ms.shares_hist_date as 'shares out date',
p.p_price*ms.p_com_shs_out as 'market value'
from
fp_v2.fp_sec_coverage b
left join fp_v2.fp_basic_prices p on p.fsym_id = b.fsym_id
left join (
             select sf.fsym_id,mp.price_date,sf.p_com_shs_out,sf.p_date as
shares_hist_date
             from  fp_v2.fp_basic_shares_hist sf
             join (select p2.fsym_id,p2.p_date as price_date,max(s.p_date) as
max_shares_hist_date
                    from fp_v2.fp_basic_prices p2
                    join fp_v2.fp_basic_shares_hist s on s.p_date <= p2.p_date and
p2.fsym_id=s.fsym_id
                    where
                    s.fsym_id = @id
                    group by p2.fsym_id,p2.p_date) mp on mp.fsym_id=sf.fsym_id and
mp.max_shares_hist_date=sf.p_date) ms on ms.fsym_id = p.fsym_id  and
ms.price_date=p.p_date
where
b.fsym_id =@id
order by p.p_date desc
```

Sample Result:

fsym_id	p_co_sec_name_desc	p_date	p_price	p_com_shs_out	Shares Out Date	Market Value
SJY281-R	INTERNATIONAL BUSINESS MACHS COM	8/2/2017	144.45	931940	6/30/2017	134618733
SJY281-R	INTERNATIONAL BUSINESS MACHS COM	8/1/2017	145.3	931940	6/30/2017	135410882
SJY281-R	INTERNATIONAL BUSINESS MACHS COM	7/31/2017	144.67	931940	6/30/2017	134823759.8
SJY281-R	INTERNATIONAL BUSINESS MACHS COM	7/28/2017	144.29	931940	6/30/2017	134469622.6
SJY281-R	INTERNATIONAL BUSINESS MACHS COM	7/27/2017	145.07	931940	6/30/2017	135196535.8
SJY281-R	INTERNATIONAL BUSINESS MACHS COM	7/26/2017	145.36	931940	6/30/2017	135466798.4
SJY281-R	INTERNATIONAL BUSINESS MACHS COM	7/25/2017	146.19	931940	6/30/2017	136240308.6
SJY281-R	INTERNATIONAL BUSINESS MACHS COM	7/24/2017	145.99	931940	6/30/2017	136053920.6
SJY281-R	INTERNATIONAL BUSINESS MACHS COM	7/21/2017	147.08	931940	6/30/2017	137069735.2

Total Return

This section provides a sample query showing how to return the total return of a given security using a defined start date and end date.

```
declare
@start_date date  = '2018-06-26',
@end_date date = '2019-06-25',
@fsym_id char(8) = 'mh33d6-r';

select
       fsym_id,
       @start_date as start_date,
       @end_date as end_date,
       round((exp(sum(log(1+(one_day_pct/100))))-1)*100,2) as total_return

from
    fp_v2.fp_total_returns_daily
where
    p_date between dateadd(dd,1,@start_date) and @end_date
    and fsym_id=@fsym_id
group by
    fsym_id
```

Factors to Calculate Adjusted Prices

This section provides sample queries that show how to return various components of total return calculations.

Cumulative Split Factor for Prices

This function will return the cumulative split factor given the FSYM_ID for a security and as of the date requested for use in adjusting prices.

Note that because underlying price data are already adjusted for a split on the day a split occurs, this query uses the following split date logic accordingly to adjust for dates only after the start date input provided.

```
create function [fp_v2].[fp_splitfactor_price](@id char(8), @startdate date) returns
float
begin

declare @splitfactor float

--get the split factor
select @splitfactor = isnull(exp(sum(log(f.p_split_factor))),1)
from fp_v2.fp_basic_splits as f
where f.fsym_id = @id and f.p_split_date > @startdate and f.p_split_date < getdate()

return @splitfactor

end
```

Cumulative Split Factor for Dividends

This function will return the cumulative split factor given the FSYM_ID for a security and as of the date requested for use in adjusting dividends.

Note that unlike the underlying price data, the underlying dividend data are not adjusted for splits on the same day the split occurs. As a result, this dividend adjustment's split date logic must be inclusive of the start date provided to correctly account for situations where a split and dividend occur on the same day.

```
create function [fp_v2].[fp_splitfactor_div](@id char(8), @startdate date) returns
float
begin

declare @splitfactor float

--get the split factor
select @splitfactor = isnull(exp(sum(log(f.p_split_factor))),1)
from fp_v2.fp_basic_splits as f
where f.fsym_id = @id and f.p_split_date >= @startdate and f.p_split_date < getdate()

return @splitfactor

end
```

Cumulative Dividend Factor

This function will return the cumulative dividend factor given the FSYM_ID for a security and as of the date requested.

```
create function [fp_v2].[fp_dividendfactor](@fsym_id char(8), @startdate date, @enddate
date) returns float
begin

declare @dividend_multiple float;

select @dividend_multiple = isnull(exp(sum(log(dividend_multiple))), 1)
from (
select 1 + (split_adjusted_div/split_adjusted_price) as dividend_multiple
from (
select
a.split_adjusted_div,
fp_v2.fp_spinoffadjprice(@fsym_id, price_date) as split_adjusted_price
from (
select
(sum(fbd.p_divs_pd)  * fp_v2.fp_spinofffactor(@fsym_id, fbd.p_divs_exdate) *
fp_v2.fp_splitfactor_div(@fsym_id, fbd.p_divs_exdate)) as split_adjusted_div,
(
select max(p_date)
from fp_v2.fp_basic_prices fbb
where fbb.fsym_id = @fsym_id
and fbb.p_date <= fbd.p_divs_exdate
) as price_date
from fp_v2.fp_basic_dividends fbd
where fbd.fsym_id = @fsym_id
and fbd.p_divs_s_pd=0
and fbd.p_divs_exdate > @startdate
and fbd.p_divs_exdate <= @enddate
group by fbd.p_divs_exdate
) a
) b
) c;
return @dividend_multiple
end
```

Cumulative Spinoff Factor

This function will return the cumulative spinoff factor given the FSYM_ID for a security and as of the date requested.

```
create function [fp_v2].[fp_spinofffactor](@id char(8), @startdate date) returns float
begin

declare @spinoffFactor float

--Calculating the spinoff factor
select @spinoffFactor = ISNULL(EXP(SUM(LOG(spinoffFactor))),1)
from
(
select case when (prev_price- divs) <= 0 THEN 1
else (prev_price- divs)/prev_price end as spinoffFactor
from (select
divs,
fp_v2.fp_prevUnadjPrice(@id, ex_date) as prev_price
from (
select
sum(fbd.p_divs_pd) as divs,fbd.p_divs_exdate as ex_date
from fp_v2.fp_basic_dividends fbd
where fbd.fsym_id = @id
and fbd.p_divs_s_pd=1
and fbd.p_divs_exdate > @startdate
group by fbd.p_divs_exdate ) a ) b ) c;

return @spinofffactor

end
```

Split Adjusted Price

This function will return the split factor adjusted price given the FSYM_ID for a security and as of the date requested.

```
create function [fp_v2].[fp_splitadjprice](@id char(8), @startdate date) returns float
begin

--calculating the split adjusted price
declare @splitfactor float, @splitadjprice float, @spinofffactor float
set @splitfactor = 1.0;

select @splitfactor = fp_v2.fp_splitfactor_price(@id, @startdate)

select @splitadjprice = convert(float,p_price * @splitfactor)
from fp_v2.fp_basic_prices p
where fsym_id = @id and p_date = @startdate

return @splitadjprice

end
```

Split & Spinoff Adjusted Price

This function will return the split and spinoff factor adjusted price given the FSYM_ID for a security and as of the date requested.

```
create function [fp_v2].[fp_spinoffadjprice](@id char(8), @startdate date) returns
float
begin

--calculating the split adjusted price
declare @splitadjprice float, @spinofffactor float

select @splitadjprice = fp_v2.fp_splitadjprice(@id, @startdate)

--calculating the spinoff factor
select @spinofffactor = fp_v2.fp_spinofffactor(@id, @startdate)

return @splitadjprice*@spinofffactor

end
```

Previous Date

This function returns the date of the prior date given the FSYM_ID for a security and the date requested. If the date is the same as or before the first available price date, then it will return NULL.

```
create function [fp_v2].[fp_prevpricedate] (@id char(8), @startdate date) returns date
begin

declare @prevdate date
set @prevdate =(select max(p_date) from fp_v2.fp_basic_prices where fsym_id = @id and
p_date<@startdate)
return (@prevdate)
end
```

Previous Unadjusted Price

This function returns the price for the previous day given the FSYM_ID for a security and the date requested if the date is the same as or before the first available price date, then it will return NULL.

```
create function [fp_v2].[fp_prevunadjprice] (@id char(8), @startdate date) returns
float
begin

declare @prevdate date
set @prevdate = fp_v2.fp_prevpricedate(@id, @startdate)

if @prevdate is null begin return null end

return (select p_price from fp_v2.fp_basic_prices where fsym_id = @id and p_date =
@prevdate)
end
```

Global Client Support

If you have any questions, please submit a request via Issue Tracker under the "Standard DataFeeds (FTP or HTTPs Based)" category. If you do not have a login for Issue Tracker, email feed_support@factset.com.

For general assistance, please contact your local FactSet Consultant or Salesperson or email feed_support@factset.com.