



American Business Company.

Data Warehouse Design

American Business Company

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1. Objectives and Benefits

American Business Company's primary objective is to consolidate their reporting information from their diverse databases and sites into a single data warehouse to facilitate reporting and analysis. The benefits that American Business Company expects to realize are:

1. Consolidated reporting information from their various databases.
2. Easier and faster development of reports and analysis through having a single database that can be used as the data source.
3. Better access to historical information, since the existing production application databases only retain 1-2 months of data.

American Business Company will be using the data warehouse primarily for subject-based reporting (mainly coverage and clients), data analysis and possibly data mining. SAS will be the primary client reporting and analysis tool.

Server Environment

American Business Company will be using an HP Proliant DL360 Server with 2 x 3Ghz processors, 4-6GB of RAM and 250-500GB of hard disk space running the Windows Server 2003 operating system. All of this will be installed, configured and added to the network and security domain by American Business Company before Phase 2 begins. Proactive will install and configure SQL server 2005 on this server using American Business Company's previously acquired license.

American Business Company will provide the necessary workspace, equipment and access to Proactive for up to 2 people to simultaneously do development and testing on the server from their Delaware office for the duration of the project.

Additional Requirements and Limitations

New data will be loaded nightly (Monday through Saturday). Only differential data will be added or changed in the data warehouse database, although the full data sets from a source table may need to be loaded into the staging database and retained for 1-2 loading periods in order to accomplish this.

The data staging process will additionally insure that historical data is retained in the data warehouse database even if it is purged from the source database(s).

Any errors or problems detected in the data staging process will result in an alert Email being sent to a pre-defined list of addresses (note: this assumes that either DBMail or SQLmail can be correctly configured on the SQL Server). The project documentation will include a Troubleshooting section that will provide some general guidance understanding these messages and how to investigate or resolve some of the problems that might occur.

2. Data Warehouse Schema and Design

The Data Warehouse database will consist of three (3) independent schemas for the data from the Director, CoverG and Canvas applications. These are documented in the following sections.

Note that the schema diagrams in this section do not list all of the fields in the data warehouse tables. Only the primary key fields, foreign key fields, possible other key fields and the data warehouse tracking fields are included for the sake of brevity and clarity. Section 3 – Data Sourcing exhaustively documents all of the fields in all of the tables in the data warehouse.

Data Warehouse Names and Fields

In order to keep the schemas separate, to prevent table naming conflicts and to make it easier for the data analysts to identify which tables belong to which application or schema, a prefix will be added to the source name to produce the names of the tables in the data warehouse, as indicated below.

Also, extra fields will be created on all tables to facilitate tracking daily changes such as inserts, updates, and deletes made since the last update to the data warehouse, as detailed below.

Additional Data Warehouse Fields

- **DW_LastChangeDate** – A timestamp indicating the date and time the row was changed. The change can be in the form of an insertion, an insertion that reflects an update, or an insertion that reflects a deletion.
- **DW_LastChangeType** – Will indicate what the type of change is; can be in the set of I(nsert), U(pdate), D(elete).
- **DW_IsCurrent** – A bit field indicating whether the record is current.
- **DW_Tablename_Seq_ID** – a sequence to serve as the primary key on warehouse tables.

Staging Names and Additions

- **DW_CRC** – The cyclic redundancy check (CRC) will be used to make comparisons between previous and current records.
- **Tablename_PREV** – Name of the table containing the records that were loaded into the staging area during the previous day's staging.
- **Tablename_CURR** – Name of the table containing the records that were most recently loaded into the staging area.

Practical Considerations

- Table names in the data warehouse will be prefixed with a two-letter code for the application that created the data. Thus **DI_Client** is the Client table from the Director database. The prefixes are as follows:
 - **DI_** for the Director application
 - **CG_** for the CoverG application
 - **CA_** for the Canvas application
- A site code integer field will be added to the primary key of the Director tables to distinguish the location of the incoming data. This will be done to avoid primary key collisions.

Canvas Schema

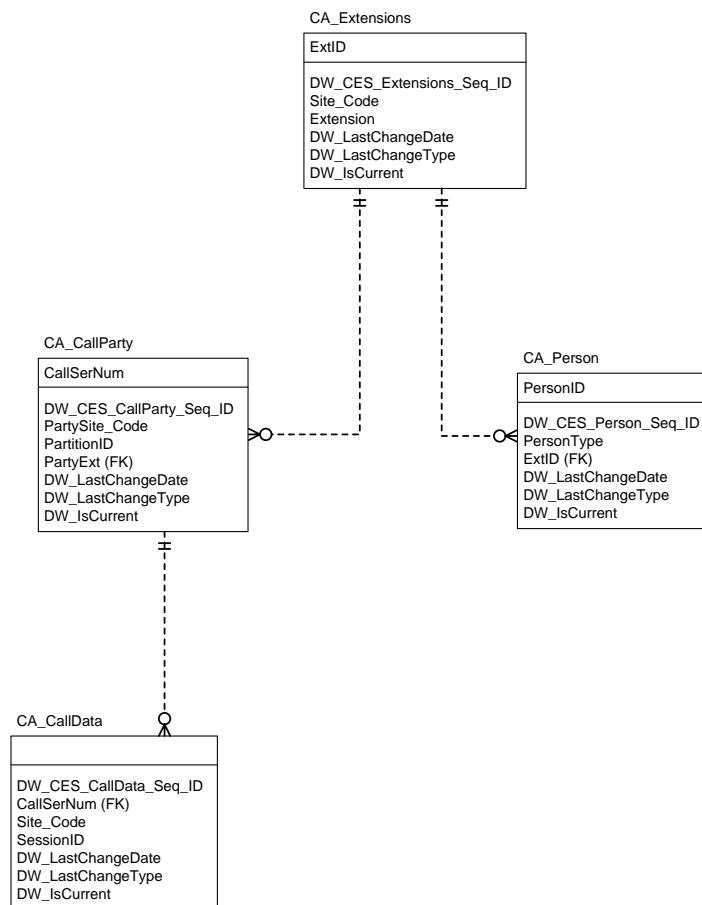


Figure 1 - Canvas Data Warehouse Schema

CoverG Schema

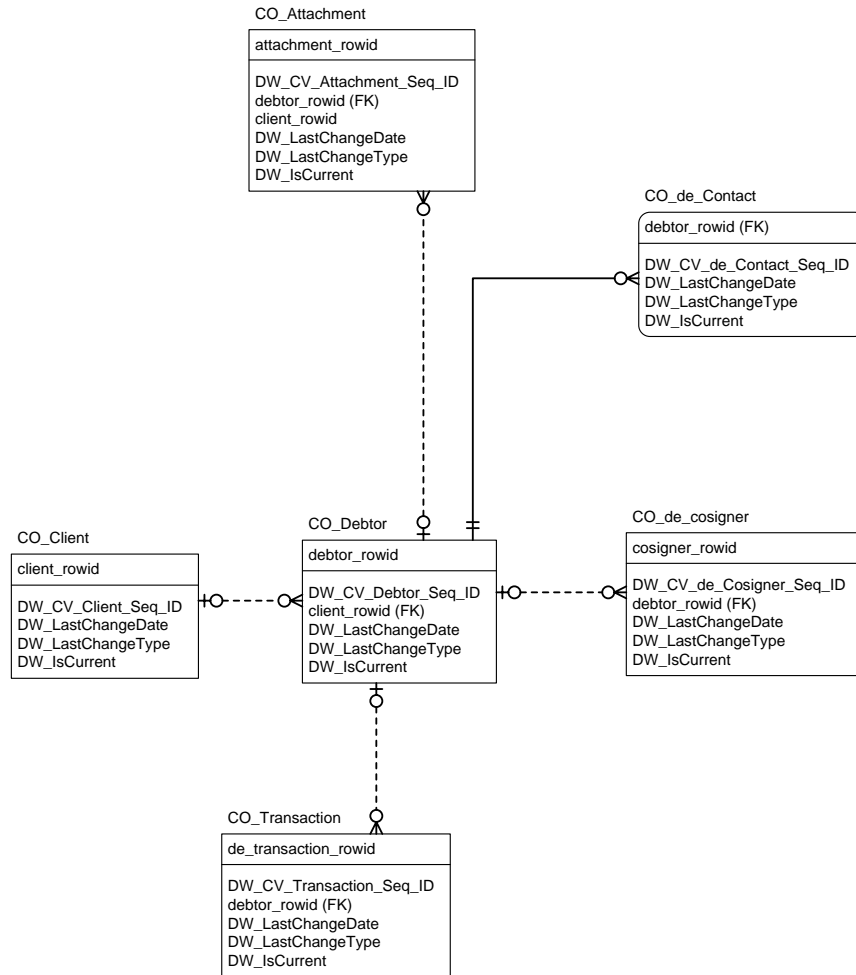


Figure 2 - CoverG Data Warehouse Schema

Director Schema

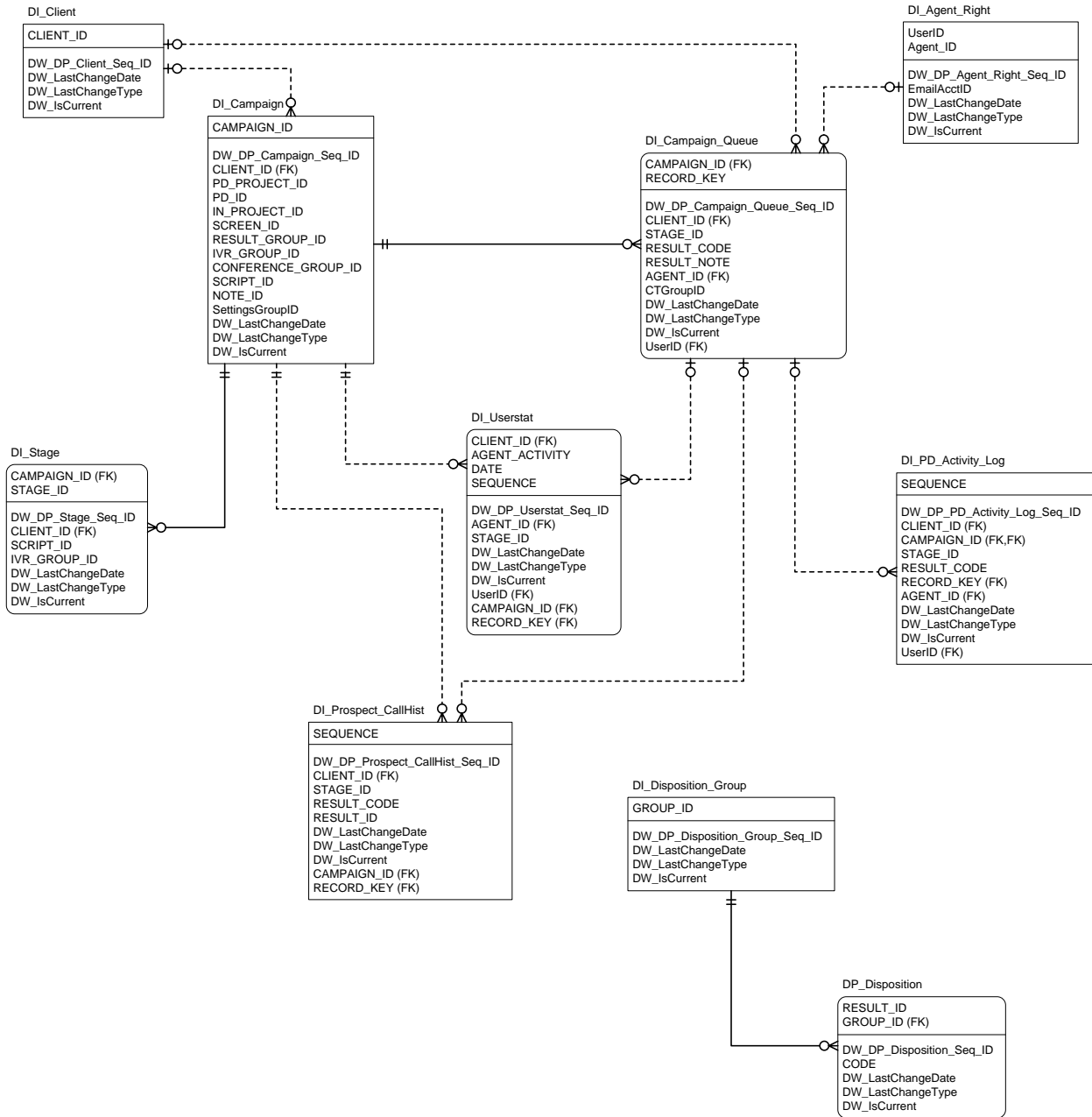


Figure 3 - Director Data Warehouse Schema

3. Data Sourcing and Transformations

Canvas Tables

CA_CanvasData

Destination Column	Datatype	Size	Source Table
CallSerNum	int		CanvasData
Site_Code	int		CanvasData
SessionID	int		CanvasData
CallType	tinyint		CanvasData
ConditionCode	int		CanvasData
MultiWGorParty	bit		CanvasData
NumCanvasData	smallint		CanvasData
CallStartTime	datetime		CanvasData
CallEndTime	datetime		CanvasData
CallStartSec	int		CanvasData
CallDurationSec	int		CanvasData
CallRingDuration	smallint		CanvasData
CallDirection	bit		CanvasData
TollCall	bit		CanvasData
CallingName	nvarchar	32	CanvasData
CallingNumber	nvarchar	32	CanvasData
DNISNumber	nvarchar	16	CanvasData
Trunk	nvarchar	32	CanvasData
TrunkType	tinyint		CanvasData
TrunkInfo	nvarchar	32	CanvasData
TrunkGroup	nvarchar	32	CanvasData
RouteNo	nvarchar	16	CanvasData
OverflowRouteList	nvarchar	40	CanvasData
TenantNo	nvarchar	32	CanvasData
CallUserTag	nvarchar	200	CanvasData
AutoAttendant	nvarchar	32	CanvasData
CallAADuration	int		CanvasData
CallAccount	nvarchar	25	CanvasData
AuthCode	nvarchar	25	CanvasData
DID	nvarchar	16	CanvasData
CallCOCode	nvarchar	16	CanvasData
CountryCode	nvarchar	7	CanvasData
AreaCode	nvarchar	7	CanvasData
ExitState	int		CanvasData
ExitStateDesc	nvarchar	20	CanvasData
Updated	bit		CanvasData
ZoneNum	int		CanvasData

Destination Column	Datatype	Size	Source Table
PlanNum	int		CanvasData
CallCost	decimal	19,4	CanvasData
ActivityID	int		CanvasData
AdvPrsFlg	bit		CanvasData
UserField1	nvarchar	64	CanvasData
UserField2	nvarchar	64	CanvasData
UserField3	nvarchar	64	CanvasData
UserField4	nvarchar	64	CanvasData
UserField5	nvarchar	64	CanvasData
isTAProc	int		CanvasData
CallHoldDuration	int		CanvasData

CA_CanvasData

Destination Column	Datatype	Size	Source Table
CallSerNum	int		CanvasData
PartySite_Code	int		CanvasData
PartitionID	nvarchar	50	CanvasData
PartyIndex	int		CanvasData
PartyExt	nvarchar	32	CanvasData
PartyIPAddress	nvarchar	24	CanvasData
PartyIPPort	int		CanvasData
PartyName	nvarchar	32	CanvasData
PartyType	smallint		CanvasData
PartyInfo	nvarchar	32	CanvasData
XfrTrunk	nvarchar	32	CanvasData
PartyWG	nvarchar	32	CanvasData
PartyCodeType	smallint		CanvasData
PartyWGQueueStartTime	datetime		CanvasData
PartyAnswerTime	datetime		CanvasData
WaitDuration	int		CanvasData
TalkDuration	int		CanvasData
VMStartTime	datetime		CanvasData
VMDuration	int		CanvasData
RecDuration	int		CanvasData
AutoAttendant	nvarchar	32	CanvasData
AADuration	int		CanvasData
HoldDuration	int		CanvasData
RingDuration	int		CanvasData
PartyTenant	nvarchar	32	CanvasData
PartyWrapTime	datetime		CanvasData
PartyWrapDuration	int		CanvasData
NumPacketsSnd	int		CanvasData
NumOctetsSnd	int		CanvasData
NumOctetsRcvd	int		CanvasData
NumPacketsRcvd	int		CanvasData
NumPacketsLost	char	10	CanvasData
PacketTime	int		CanvasData
Jitter	int		CanvasData
Latency	int		CanvasData
NetworkUtil	int		CanvasData
NetMetrics	int		CanvasData
PacketPriority	char	10	CanvasData
ExitCode	int		CanvasData

CA_Extensions

Destination Column	Datatype	Size	Source Table
ExtID	int		Extensions
Extension	nvarchar	32	Extensions
ExtName	nvarchar	50	Extensions
ExtType	smallint		Extensions
ExtInfo	nvarchar	32	Extensions
ExtPhoneID	nvarchar	32	Extensions
ExtLocation	nvarchar	50	Extensions
ExtIPAddress	nvarchar	24	Extensions
ExtPort	nvarchar	10	Extensions
ExtPartitionID	nvarchar	50	Extensions
ExtNodeID	nvarchar	50	Extensions
Site_Code	int		Extensions

CA_Person

Destination Column	Datatype	Size	Source Table
PersonID	int		Person
PersonType	varchar	100	Person
LastName	varchar	200	Person
FirstName	varchar	200	Person
Gender	varchar	100	Person
BirthDate	datetime		Person
Phone_Home1	varchar	200	Person
Phone_Home2	varchar	200	Person
Phone_Work	varchar	200	Person
Extn	varchar	100	Person
Phone_Cell	varchar	200	Person
Fax_Home	varchar	200	Person
Fax_Work	varchar	200	Person
Email_Home	varchar	200	Person
Email_Work	varchar	200	Person
Email_Palm	varchar	200	Person
OrgID	int		Person
ConcurDetect_X	int		Person
preferredChannelID	int		Person
MiddleName	varchar	200	Person
Salutation	varchar	50	Person
ExtID	int		Person

CoverG Tables

CG_Attachment

Destination Column	Datatype	Size	Source Table
attachment_rowid	bigint		Attachment
Delegate_rowid	bigint		Attachment
client_rowid	bigint		Attachment
at_uid	int		Attachment
at_cdate	smalldatetime		Attachment
at_cby	varchar	6	Attachment
at_mdate	smalldatetime		Attachment
at_mby	varchar	6	Attachment
at_created_by	varchar	6	Attachment
at_modified_by	varchar	6	Attachment
at_class	int		Attachment
at_type	int		Attachment
at_description	varchar	162	Attachment
at_detail_1	varchar	62	Attachment
at_detail_2	varchar	62	Attachment
at_detail_3	varchar	62	Attachment
at_detail_4	varchar	62	Attachment
at_detail_5	varchar	62	Attachment
at_detail_6	varchar	62	Attachment
at_detail_7	varchar	62	Attachment
at_detail_8	varchar	62	Attachment
at_detail_9	varchar	62	Attachment
at_detail_10	varchar	62	Attachment
at_detail_11	varchar	62	Attachment
at_detail_12	varchar	62	Attachment
at_detail_13	varchar	62	Attachment
at_detail_14	varchar	62	Attachment
at_detail_15	varchar	62	Attachment
at_detail_16	varchar	62	Attachment
at_file	varchar	262	Attachment
at_value	int		Attachment
at_factor	int		Attachment
at_date_3	smalldatetime		Attachment
at_total_credits	decimal	17,4	Attachment
at_total_debits	decimal	17,4	Attachment
at_total_result	decimal	17,4	Attachment
at_date_1	smalldatetime		Attachment
at_date_2	smalldatetime		Attachment
at_category	int		Attachment
at_category_1	int		Attachment
at_category_2	int		Attachment

CG_Client

Destination Column	Datatype	Size	Source Table
client_rowid	bigint		Client
cl_uid	bigint		Client
cl_cdate	smalldatetime		Client
cl_ctime	datetime		Client
cl_cby	varchar	6	Client
cl_mdate	smalldatetime		Client
cl_mtime	datetime		Client
cl_mby	varchar	6	Client
cl_name	varchar	62	Client
cl_do_business_as	varchar	62	Client
cl_number	bigint		Client
cl_alt_number	varchar	18	Client
cl_ownedby_number	bigint		Client
cl_listed_date	bigint		Client
cl_worked_date	bigint		Client
cl_number_of_accounts	bigint		Client
cl_num_of_closed_accounts	bigint		Client
cl_num_of_active_accounts	bigint		Client
cl_num_of_other_accounts	bigint		Client
cl_fix_fee	decimal	17,4	Client
cl_fee_disbursement	char	3	Client
cl_tax_disbursement	char	2	Client
cl_success_calc	char	3	Client
cl_sales	varchar	6	Client
cl_operator	varchar	6	Client
cl_contact_plan	varchar	6	Client
cl_address	varchar	78	Client
cl_address_1	varchar	126	Client
cl_address_2	varchar	78	Client
cl_street_no	varchar	22	Client
cl_city	varchar	30	Client
cl_state	varchar	30	Client
cl_zip	varchar	22	Client
cl_country	varchar	30	Client
cl_billing_period	char	1	Client
cl_tax_rate	decimal	17	Client
cl_rate_plan	varchar	6	Client
cl_phone	varchar	22	Client
cl_phone_extension	varchar	6	Client
cl_fax	varchar	6	Client
cl_cell	varchar	22	Client
cl_other	varchar	22	Client
cl_email	varchar	78	Client

Destination Column	Datatype	Size	Source Table
cl_contact	varchar	62	Client
cl_listed	decimal	17,4	Client
cl_principal	decimal	17,4	Client
cl_interest	decimal	17,4	Client
cl_fees	decimal	17,4	Client
cl_legal	decimal	17,4	Client
cl_misc	decimal	17,4	Client
cl_other_fee	decimal	17,4	Client
cl_paid	decimal	17,4	Client
cl_owing	decimal	17,4	Client
cl_closed	decimal	17,4	Client
cl_commission_rate	decimal	17,4	Client
cl_tax_exempt	int		Client
cl_flags	char	7	Client
cp_preCoverG_delay	int		Client
cl_class	int		Client
cl_category	int		Client
cl_category_1	int		Client
cl_category_2	int		Client
cl_success_rate	decimal	17,4	Client
cl_success_equation	varchar	126	Client
cl_currency	bigint		Client
cl_statement_currency	bigint		Client
cl_type	int		Client
cl_user_1	varchar	62	Client
cl_user_2	varchar	62	Client
cl_user_3	varchar	62	Client
cl_user_4	varchar	62	Client
cl_fax_extension	varchar	6	Client
cl_cell_extension	varchar	6	Client
cl_other_extension	varchar	6	Client
cl_timezone	int		Client

CG_Contacts

Destination Column	Datatype	Size	Source Table
Delegate_rowid	bigint		Contacts
co_cdate	smalldatetime		Contacts
co_ctime	datetime		Contacts
co_cby	varchar	6	Contacts
co_mdate	smalldatetime		Contacts
co_mtime	datetime		Contacts
co_mby	varchar	6	Contacts
co_completed	char	3	Contacts

Destination Column	Datatype	Size	Source Table
co_class	int		Contacts
co_type	int		Contacts
co_description	varchar	78	Contacts
co_priority	int		Contacts
co_who	varchar	6	Contacts
co_date	smalldatetime		Contacts
co_time	datetime		Contacts
co_done_date	smalldatetime		Contacts
co_done_time	datetime		Contacts
co_originator	varchar	6	Contacts
co_creation_date	smalldatetime		Contacts
co_creation_time	datetime		Contacts
co_amount	decimal	17,4	Contacts
co_who_from	varchar	6	Contacts
co_done_by	varchar	6	Contacts

CG_ Alternates

Destination Column	Datatype	Size	Source Table
cosigner_rowid	bigint		Alternates
Delegate_rowid	bigint		Alternates
cv_cos_uid	bigint		Alternates
cv_cos_cdate	bigint		Alternates
cv_cos_ctime	bigint		Alternates
cv_cos_cby	varchar	6	Alternates
cv_cos_mdate	bigint		Alternates
cv_cos_mtime	bigint		Alternates
cv_cos_mby	varchar	6	Alternates
cv_cos_class	int		Alternates
cv_cos_type	int		Alternates
cv_cos_cinfo_ind	varchar	2	Alternates
cv_cos_percent	decimal	17,4	Alternates
cv_cos_amount	decimal	17,4	Alternates
cv_cos_name	varchar	62	Alternates
cv_cos_entity	int		Alternates
Alternates	varchar	62	Alternates
cv_cos_title	varchar	30	Alternates
cv_cos_phone	varchar	22	Alternates
cv_cos_phone_ext	varchar	6	Alternates
cv_cos_business_phone	varchar	22	Alternates
cv_cos_business_ext	varchar	6	Alternates
cv_cos_other_phone	varchar	22	Alternates
cv_cos_other_ext	varchar	6	Alternates
cv_cos_cell_phone	varchar	22	Alternates
cv_cos_cell_ext	varchar	6	Alternates

Destination Column	Datatype	Size	Source Table
cv_cos_email	varchar	78	Alternates
cv_cos_sin	varchar	38	Alternates
cv_cos_dl	varchar	38	Alternates
cv_cos_dob	smalldatetime		Alternates
cv_cos_address_flags	int		Alternates
cv_cos_address	varchar	80	Alternates
cv_cos_address_1	varchar	126	Alternates
cv_cos_address_2	varchar	62	Alternates
cv_cos_street_number	varchar	22	Alternates
cv_cos_city	varchar	30	Alternates
cv_cos_state	varchar	10	Alternates
cv_cos_zip	varchar	22	Alternates
cv_cos_country	varchar	30	Alternates
cv_cos_cbr_association	varchar	6	Alternates
cv_cos_ecoa	varchar	2	Alternates
cv_cos_category	int		Alternates
cv_cos_category_1	int		Alternates
cv_cos_category_2	int		Alternates
cv_cos_note_1	varchar	62	Alternates
cv_cos_note_2	varchar	62	Alternates
cv_cos_note_3	varchar	62	Alternates
cv_cos_timezone	int		Alternates

CG_Delegate

Destination Column	Datatype	Size	Source Table
Delegate_rowid	bigint		Delegate
client_rowid	bigint		Delegate
cv_uid	bigint		Delegate
cv_cdate	smalldatetime		Delegate
cv_ctime	datetime		Delegate
cv_cby	varchar	8	Delegate
cv_mdate	smalldatetime		Delegate
cv_mtime	datetime		Delegate
cv_mby	varchar	8	Delegate
cv_number	bigint		Delegate
cv_category	int		Delegate
cv_owned_by_Delegate	bigint		Delegate
cv_category_1	int		Delegate
cv_category_2	int		Delegate
cv_cl_account	varchar	38	Delegate
cv_class	varchar	6	Delegate
cv_type	varchar	30	Delegate
cv_status	varchar	8	Delegate
cv_name	varchar	62	Delegate

Destination Column	Datatype	Size	Source Table
cv_entity	int		Delegate
cv_clerk	varchar	6	Delegate
cv_salesman	varchar	6	Delegate
cv_CoverGor	varchar	6	Delegate
cv_modified_by	varchar	6	Delegate
cv_group_flags	int		Delegate
cv_listed_date	smalldatetime		Delegate
cv_close_date	smalldatetime		Delegate
cv_charge_date	smalldatetime		Delegate
cv_delinquency_date	smalldatetime		Delegate
cv_promise_date	smalldatetime		Delegate
cv_last_payment_date	smalldatetime		Delegate
cv_last_worked_date	smalldatetime		Delegate
cv_last_worked_time	datetime		Delegate
cv_edit_date	datetime		Delegate
cv_date1	datetime		Delegate
cv_date2	datetime		Delegate
cv_from_office	bigint		Delegate
cv_to_office	bigint		Delegate
cv_dob	datetime		Delegate
cv_flags	int		Delegate
cv_active	varchar	4	Delegate
cv_group_id	bigint		Delegate
cv_group_member	int		Delegate
cv_contact	varchar	62	Delegate
cv_generation	varchar	30	Delegate
cv_sin	varchar	38	Delegate
cv_dl	varchar	38	Delegate
cv_address	varchar	78	Delegate
cv_address_1	varchar	126	Delegate
cv_address_2	varchar	78	Delegate
cv_street_number	varchar	22	Delegate
cv_city	varchar	30	Delegate
cv_state	varchar	30	Delegate
cv_zip	varchar	22	Delegate
cv_country	varchar	30	Delegate
cv_time_zone	int		Delegate
cv_home_phone	varchar	22	Delegate
cv_home_extension	varchar	6	Delegate
cv_work_phone	varchar	22	Delegate
cv_work_extension	varchar	6	Delegate
cv_cell_phone	varchar	22	Delegate
cv_cell_extension	varchar	6	Delegate
cv_other_phone	varchar	22	Delegate
cv_other_extension	varchar	6	Delegate
cv_email	varchar	78	Delegate
cv_last_action	varchar	6	Delegate

Destination Column	Datatype	Size	Source Table
cv_currency	bigint		Delegate
cv_fix_fee	decimal	17,4	Delegate
cv_principal	decimal	17,4	Delegate
cv_interest	decimal	17,4	Delegate
cv_legal_costs	decimal	17,4	Delegate
cv_original_interest	decimal	17,4	Delegate
cv_interest_rate	decimal	17,4	Delegate
cv_interest_date	bigint		Delegate
cv_accrued_interest	decimal	17,4	Delegate
cv_fees	decimal	17,4	Delegate
cv_legal	decimal	17,4	Delegate
cv_misc	decimal	17,4	Delegate
cv_other	decimal	17,4	Delegate
cv_adjustments	decimal	17,4	Delegate
cv_paid	decimal	17,4	Delegate
cv_owing	decimal	17,4	Delegate
cv_cl_settlement_amt	decimal	17,4	Delegate
cv_30_days	decimal	17,4	Delegate
cv_60_days	decimal	17,4	Delegate
cv_90_days	decimal	17,4	Delegate
cv_over_90	decimal	17,4	Delegate
cv_pre_charge	decimal	17,4	Delegate
cv_commission_rate	decimal	17,4	Delegate
cv_commission_to_date	decimal	17,4	Delegate
cv_rate_index	varchar	6	Delegate
cv_referral_rate	decimal	17,4	Delegate
cv_tax_rate	decimal	17,4	Delegate
cv_tax_exempt	int		Delegate
cv_grace_period	int		Delegate
cv_judgement_date	smalldatetime		Delegate
cv_judgement_principal	decimal	17,4	Delegate
cv_judgement_interest	decimal	17,4	Delegate
cv_judgement_fees	decimal	17,4	Delegate
cv_judgement_legal	decimal	17,4	Delegate
cv_judgement_misc	decimal	17,4	Delegate
cv_judgement_other	decimal	17,4	Delegate
cv_judgement_balance	decimal	17,4	Delegate
cv_judge_princ_paidtodate	decimal	17,4	Delegate
cv_judge_int_paidtodate	decimal	17,4	Delegate
cv_judge_fee_paidtodate	decimal	17,4	Delegate
cv_judge_legal_paidtodate	decimal	17,4	Delegate
cv_judge_misc_paidtodate	decimal	17,4	Delegate
cv_judge_other_paidtodate	decimal	17,4	Delegate
cv_description	varchar	126	Delegate
cv_poe	varchar	62	Delegate
cv_bank	varchar	62	Delegate
cv_account_number	varchar	38	Delegate

Destination Column	Datatype	Size	Source Table
cv_branch	varchar	38	Delegate
cv_transit_number	varchar	62	Delegate
cv_business	varchar	62	Delegate
cv_business_address	varchar	62	Delegate
cv_user_1	varchar	62	Delegate
cv_user_2	varchar	62	Delegate
cv_user_3	varchar	62	Delegate
cv_next_payment_date	smalldatetime		Delegate
cv_late_fee_amount	decimal	17,4	Delegate
cv_total_plan_payments	float	53	Delegate
cv_early_payoff_amount	decimal	17,4	Delegate
cv_early_payoff_discount	decimal	17,4	Delegate
cv_early_payoff_savings	decimal	17,4	Delegate
cv_interest_flags1	int		Delegate
cv_interest_flags2	int		Delegate
cv_interest_flags3	int		Delegate
cv_interest_period	int		Delegate
cv_number_of_periods	int		Delegate
cv_period_days	int		Delegate
cv_principal_paid_to_date	decimal	17,4	Delegate
cv_interest_paid_to_date	decimal	17,4	Delegate
cv_fees_paid_to_date	decimal	17,4	Delegate
cv_legal_paid_to_date	decimal	17,4	Delegate
cv_misc_paid_to_date	decimal	17,4	Delegate
cv_other_paid_to_date	decimal	17,4	Delegate
cv_first_payment_date	smalldatetime		Delegate
cv_payment_amount	decimal	17,4	Delegate
cv_late_fee_flags1	int		Delegate
cv_late_fee_flags2	int		Delegate
cv_late_fee_percent	decimal	17,4	Delegate
cv_summary_flags	int		Delegate
cv_flags_1	int		Delegate
cv_timezone	int		Delegate

CG_Transaction

Destination Column	Datatype	Size	Source Table
cv_transaction_rowid	bigint		transaction
Delegate_rowid	bigint		transaction
tr_uid	bigint		transaction
tr_cdate	smalldatetime		transaction
tr_ctime	datetime		transaction
tr_cby	varchar	6	transaction
tr_mdate	smalldatetime		transaction
tr_mtime	datetime		transaction

Destination Column	Datatype	Size	Source Table
tr_mby	varchar	8	transaction
tr_account	int		transaction
tr_type	varchar	8	transaction
tr_who	varchar	6	transaction
tr_sales	varchar	6	transaction
tr_description	varchar	122	transaction
tr_to_agency	float	53	transaction
tr_to_client	float	53	transaction
tr_commission_rate	decimal	17,4	transaction
tr_commission_rate_1	decimal	17,4	transaction
tr_commission_rate_2	decimal	17,4	transaction
tr_commission_rate_3	decimal	17,4	transaction
tr_commission_amount	decimal	17,4	transaction
tr_comm_princ	decimal	17,4	transaction
tr_comm_interest	decimal	17,4	transaction
tr_comm_fees	decimal	17,4	transaction
tr_comm_legal	decimal	17,4	transaction
tr_comm_misc	decimal	17,4	transaction
tr_comm_other	decimal	17,4	transaction
tr_tax_rate	decimal	17,4	transaction
tr_tax_rate_1	decimal	17,4	transaction
tr_tax_rate_2	decimal	17,4	transaction
tr_tax_rate_3	decimal	17,4	transaction
tr_tax_amount	decimal	17,4	transaction
tr_tax_principal	decimal	17,4	transaction
tr_tax_int	decimal	17,4	transaction
tr_tax_fees	decimal	17,4	transaction
tr_tax_legal	decimal	17,4	transaction
tr_tax_misc	decimal	17,4	transaction
tr_tax_other	decimal	17,4	transaction
tr_principal	decimal	17,4	transaction
tr_interest	decimal	17,4	transaction
tr_fee	decimal	17,4	transaction
tr_legal	decimal	17,4	transaction
tr_misc	decimal	17,4	transaction
tr_other	decimal	17,4	transaction
tr_adjustment	decimal	17,4	transaction
tr_exchange_rate	decimal	17,4	transaction
tr_flags	int		transaction
tr_payment_date	smalldatetime		transaction
tr_posted_date	smalldatetime		transaction
tr_confirmation_date	bigint		transaction
tr_confirmation_number	varchar	62	transaction
tr_deposited_date	smalldatetime		transaction
tr_deposit_to	varchar	6	transaction
tr_withdraw_from	varchar	6	transaction
tr_user_1	varchar	62	transaction

Destination Column	Datatype	Size	Source Table
tr_user_2	varchar	62	transaction
tr_user_3	varchar	62	transaction
tr_user_4	varchar	62	transaction
tr_user_5	varchar	62	transaction
tr_user_6	varchar	62	transaction
tr_user_7	varchar	62	transaction
tr_attachment	varchar	62	transaction
tr_currency	bigint		transaction
tr_to_currency	bigint		transaction
tr_receipt_number	bigint		transaction
tr_invoice_number	bigint		transaction
tr_actual	decimal	17,4	transaction
tr_return	decimal	17,4	transaction
tr_disbursement	decimal	17,4	transaction
tr_category	int		transaction
tr_category_1	int		transaction
tr_category_2	int		transaction
tr_flags_1	int		transaction
tr_agency_exchange_rate	float	53	transaction
tr_agency_acct_currency	bigint		transaction
tr_deowing_pre_payment	decimal	17,4	transaction
tr_deowing_post_payment	decimal	17,4	transaction

Director Tables

DI_OwnerAgent

Destination Column	Datatype	Size	Source Table
SiteCode	Int		(generated)
UserID	int		OwnerAgent
Agent_ID	char	20	OwnerAgent
Allowed_Status	int		OwnerAgent
Active	char	1	OwnerAgent
Add_Date	datetime		OwnerAgent
Supervisor	char	1	OwnerAgent
Transfer	char	1	OwnerAgent
Allow_Callbacks	char	1	OwnerAgent
Answering_Machine_Message	varchar	120	OwnerAgent
First_Name	varchar	30	OwnerAgent
Last_Name	varchar	30	OwnerAgent
Name	varchar	61	OwnerAgent
Has_Skills	char	1	OwnerAgent
Skill_Bits_1	numeric	10,0	OwnerAgent
Add_User	char	20	OwnerAgent
Voicemail_Supervisor	char	1	OwnerAgent
Skill_Bits_2	numeric	10,0	OwnerAgent
Voicemail_Mailbox	varchar	10	OwnerAgent
Voicemail_Password	varchar	20	OwnerAgent
CHANGE_DATE	datetime		OwnerAgent
CHANGE_USER	char	20	OwnerAgent
VOICEMAIL_BUSY_MESSAGE	varchar	120	OwnerAgent
GREETING_MESSAGE	varchar	120	OwnerAgent
VOICEMAIL_OUT_MESSAGE	varchar	120	OwnerAgent
VOICEMAIL_ACTIVE	char	1	OwnerAgent
NAME_ANNOUNCEMENT_MESSAGE	varchar	120	OwnerAgent
UNAVAILABLE_MESSAGE	varchar	120	OwnerAgent
BLOCK_CONTACT_HISTORY	char	1	OwnerAgent
BLOCK_NOTE_HISTORY	char	1	OwnerAgent
DATA_ENTRY	char	1	OwnerAgent
VIRTUAL_EXTENSION	varchar	20	OwnerAgent
VOICEMAIL_SEARCH	int		OwnerAgent
EMAIL	varchar	60	OwnerAgent
PAY_RATE	float	53	OwnerAgent
BLOCK_VIRTUAL_PHONE	char	1	OwnerAgent
BLOCK_INSTANT_CALLBACK	char	1	OwnerAgent
PASSWORD	varchar	30	OwnerAgent
ON_DEMAND_RECORDING	char	1	OwnerAgent
DIGITAL_RECORDING	char	1	OwnerAgent

Destination Column	Datatype	Size	Source Table
VOICEMAIL_FILE_NAME_PLAYBACK	char	1	OwnerAgent
VOICEMAIL_MESSAGE_RETRIEVAL	char	1	OwnerAgent
VOICEMAIL_MULTIPLE_MESSAGES	char	1	OwnerAgent
CALL_FORWARD	char	1	OwnerAgent
CALL_FORWARD_NUMBER	varchar	20	OwnerAgent
EmailAcctID	int		OwnerAgent
Title	varchar	50	OwnerAgent
IsBuiltin	bit		OwnerAgent
AllowQuickDial	bit		OwnerAgent
AllowViewRecordings	bit		OwnerAgent
AllowCallbackSearch	bit		OwnerAgent
AllowSearch	bit		OwnerAgent

DI_CANVASS

Destination Column	Datatype	Size	Source Table
SiteCode	Int		(generated)
CANVASS_ID	int		CANVASS
CLIENT_ID	int		CANVASS
DESCRIPTION	varchar	255	CANVASS
START_DATE	datetime		CANVASS
END_DATE	datetime		CANVASS
IN_OPERATION	char	1	CANVASS
PD_PROJECT_ID	int		CANVASS
ACTIVE	char	1	CANVASS
ADD_DATE	datetime		CANVASS
ADD_USER	char	20	CANVASS
CHANGE_DATE	datetime		CANVASS
CHANGE_USER	char	20	CANVASS
PD_NAME	char	50	CANVASS
PD_ADDRESS	char	255	CANVASS
PD_ID	int		CANVASS
INBOUND	char	1	CANVASS
IN_ACTIVE	char	1	CANVASS
STARTTRUNK	int		CANVASS
ENDTRUNK	int		CANVASS
STARTDATE	datetime		CANVASS
ENDDATE	datetime		CANVASS
STARTTIME	varchar	20	CANVASS
ENDTIME	varchar	20	CANVASS
MAXSIGNAL	char	5	CANVASS
RINGCOUNT	char	5	CANVASS
DIALLENGTH	char	5	CANVASS
PHOFFSET	char	5	CANVASS

Destination Column	Datatype	Size	Source Table
PHLENGTH	char	5	CANVASS
RECOFFSET	char	5	CANVASS
RECLENGTH	char	5	CANVASS
PACINGMULT	char	5	CANVASS
LIVEDROP	char	5	CANVASS
STDELAY	char	5	CANVASS
HEDGE	char	5	CANVASS
INTFLG	char	5	CANVASS
MAXANSR	char	5	CANVASS
ANSRDGL	char	5	CANVASS
PCALL	char	5	CANVASS
AMDETECT	char	1	CANVASS
TRANSFER	char	1	CANVASS
CNOSIG	char	5	CANVASS
LCDLY	char	5	CANVASS
LCDLY1	char	5	CANVASS
CNOSIL	char	5	CANVASS
LOGLTCH	char	5	CANVASS
HIGLTCH	char	5	CANVASS
FAILTIME	char	5	CANVASS
MINRING	char	5	CANVASS
SPDVAL	char	5	CANVASS
NOANSWER	char	5	CANVASS
MAXINTERIN	char	5	CANVASS
OUTBOUND	char	1	CANVASS
PD_TCPPORT	char	10	CANVASS
CONNECTS	int		CANVASS
ABANDONS	int		CANVASS
WAITING	int		CANVASS
OLD_WAIT	int		CANVASS
ROUTETOUT	int		CANVASS
ROUTERETRY	int		CANVASS
DROPS	int		CANVASS
ABANDONMAX	int		CANVASS
ABANDONPERIOD	int		CANVASS
WAITMAX	int		CANVASS
AUDIOALERT	char	1	CANVASS
DBUPINTERVAL	int		CANVASS
TOTALCALLS	int		CANVASS
TALKING	int		CANVASS
AVE_ABANDON	int		CANVASS
AVE_TALK	int		CANVASS
AVE_WAIT	int		CANVASS
IN_PROJECT_ID	int		CANVASS
CALLSWAITMAX	int		CANVASS
SCREEN_ID	int		CANVASS
CAMP_MODE	int		CANVASS

Destination Column	Datatype	Size	Source Table
ScriptURL	varchar	255	CANVASS
RESULT_GROUP_ID	int		CANVASS
IVR_GROUP_ID	int		CANVASS
RECORDKEY_FORMAT	varchar	255	CANVASS
PHONENUM_FORMAT	varchar	255	CANVASS
DISABLE_AGT_PRED	char	1	CANVASS
DISABLE_NOTES	char	1	CANVASS
BROWSER_NOT_TABS	char	1	CANVASS
ALLOW_CONFERENCE	char	1	CANVASS
CONFERENCE_GROUP_ID	int		CANVASS
AUTODIRECTOR	int		CANVASS
DISABLEAGP	int		CANVASS
HANDLEAM	int		CANVASS
HANDLELIVECALL	int		CANVASS
ALLOW_RECORD_ADD	char	1	CANVASS
ALLOW_NO_DATA_LOOKUP	char	1	CANVASS
BLEND_THRESHOLD	int		CANVASS
OUTBOUND_CANVASS_TYPE	int		CANVASS
POP_APP	varchar	255	CANVASS
BLEND_UPDATE	char	1	CANVASS
DNIS_USEASRECORDKEY	char	1	CANVASS
SCRIPT_ID	int		CANVASS
NOTE_ID	int		CANVASS
ROUTINGTYPE	int		CANVASS
START_VIRTUAL_PORT	int		CANVASS
END_VIRTUAL_PORT	int		CANVASS
FULL_TIME_RECORDING	int		CANVASS
DISPOSITIONS_OFF	char	1	CANVASS
ATTENDANT_TYPE	int		CANVASS
ATTENDANT_EXT	varchar	20	CANVASS
TIE_LINE_START	int		CANVASS
TIE_LINE_END	int		CANVASS
TIE_LINE_EXTENSION	varchar	20	CANVASS
INBOUND_BLEND_DIALLENGTH	char	5	CANVASS
INBOUND_BLEND_PHONELENGTH	char	5	CANVASS
INBOUND_BLEND_PHONEOFFSET	char	5	CANVASS
INBOUND_BLEND_RECLENGTH	char	5	CANVASS
INBOUND_BLEND_RECOFFSET	char	5	CANVASS
INBOUND_BLEND_IVR_GROUP_ID	int		CANVASS
INBOUND_BLEND_SCRIPT_ID	int		CANVASS
INBOUND_BLEND_ScriptURL	varchar	255	CANVASS
DEFAULT_IVR_SCHED_ID	int		CANVASS
DEFAULT_AGENT_SCHED_ID	int		CANVASS
DEFAULT_IVR_SET_STATUS	int		CANVASS
USE_DEFINED_TRUNKS	char	1	CANVASS
DROP_RATE_THRESHOLD	varchar	10	CANVASS
DROP_IVR_GROUP_ID	int		CANVASS

Destination Column	Datatype	Size	Source Table
OUTBOUND_ANI	varchar	20	CANVASS
HANDLEDROPCALL	int		CANVASS
DROP_REROUTE_ATTEMPTS	int		CANVASS
INBOUND_AFTERTHOURS_IVR_GROUP_ID	int		CANVASS
DROP_CONNECT_SAMPLE	int		CANVASS
DROP_TALK_SAMPLE	int		CANVASS
DROP_DROP_SAMPLE	int		CANVASS
DROP_MAX_CONNECT_RATE	int		CANVASS
DROP_MIN_CONNECT_RATE	int		CANVASS
DROP_MAX_TALK_TIME	int		CANVASS
DROP_MAX_WRAP_TIME	int		CANVASS
DROP_DISPOSITION_ID	int		CANVASS
CTGroupID	int		CANVASS
OB_CONNECT	float	53	CANVASS
OB_AMACHINE	float	53	CANVASS
OB_NANSWER	float	53	CANVASS
OB_BUSY	float	53	CANVASS
OB_OPINTERCEPT	float	53	CANVASS
OB_AGENTS	float	53	CANVASS
Locked	bit		CANVASS
LockedBy	varchar	30	CANVASS
LockedDate	datetime		CANVASS
PDMRequest	int		CANVASS
PDMStatus	int		CANVASS
SettingsGroupID	int		CANVASS
OutboundANIName	varchar	60	CANVASS
SvcLevelTarget	int		CANVASS
AutomaticAdjustLines	bit		CANVASS
AutomaticAgentLines	int		CANVASS
AutomaticMaxLines	int		CANVASS
AttemptsOn	bit		CANVASS
AttemptsOperator	int		CANVASS
AttemptsValue	int		CANVASS
Sort	int		CANVASS
CompletePass	bit		CANVASS
RemoveCANVASS	bit		CANVASS
NotifyAgents	bit		CANVASS

DI_CANVASS_Queue

Destination Column	Datatype	Size	Source Table
SiteCode	Int		(generated)
CANVASS_ID	int		CanvassPipeline
RECORD_KEY	varchar	30	CanvassPipeline
CLIENT_ID	int		CanvassPipeline

Destination Column	Datatype	Size	Source Table
PHONE_NUMBER	char	30	CanvassPipeline
STAGE_ID	int		CanvassPipeline
GROUP_KEY	int		CanvassPipeline
START_DATE	datetime		CanvassPipeline
END_DATE	datetime		CanvassPipeline
PD_START_DATE	datetime		CanvassPipeline
PD_LAST_DATE	datetime		CanvassPipeline
COMPLETED_STATUS	char	1	CanvassPipeline
EXCEPTION_STATUS	char	1	CanvassPipeline
PREFERRED_CALL_START_TIME	datetime		CanvassPipeline
PREFERRED_CALL_END_TIME	datetime		CanvassPipeline
IN_PD_QUEUE	char	1	CanvassPipeline
ACTIVE	char	1	CanvassPipeline
NUM_CALLS	int		CanvassPipeline
LAST_CALL_TIME	datetime		CanvassPipeline
BEST_CALL_DAY_CODE	int		CanvassPipeline
BEST_CALL_TIME_START	int		CanvassPipeline
BEST_CALL_TIME_END	int		CanvassPipeline
CALLER_ID	varchar	31	CanvassPipeline
ADD_DATE	datetime		CanvassPipeline
ADD_USER	char	30	CanvassPipeline
CHANGE_DATE	datetime		CanvassPipeline
CHANGE_USER	char	30	CanvassPipeline
RESULT_CODE	char	10	CanvassPipeline
RESULT_NOTE	varchar	255	CanvassPipeline
RESULT_USER	varchar	30	CanvassPipeline
RESULT_DATE	datetime		CanvassPipeline
RESULT_TIME	datetime		CanvassPipeline
CONTACT_NAME	varchar	60	CanvassPipeline
TIMEZONE	int		CanvassPipeline
AGENT_ID	char	20	CanvassPipeline
PHONE1	char	20	CanvassPipeline
PHONE2	char	20	CanvassPipeline
PHONE3	char	20	CanvassPipeline
PHONE4	char	20	CanvassPipeline
PHONE_FAX	char	20	CanvassPipeline
PREFERRED_PHONE	int		CanvassPipeline
EMAIL	varchar	255	CanvassPipeline
POSTAL_CODE	char	10	CanvassPipeline
TRANSFER	char	1	CanvassPipeline
QUERY_FIELD1	varchar	30	CanvassPipeline
QUERY_FIELD2	varchar	30	CanvassPipeline
QUERY_FIELD3	varchar	30	CanvassPipeline
QUERY_FIELD4	varchar	30	CanvassPipeline
QUERY_FIELD5	varchar	30	CanvassPipeline
QUERY_FIELD6	varchar	30	CanvassPipeline
QUERY_FIELD7	varchar	30	CanvassPipeline

Destination Column	Datatype	Size	Source Table
QUERY_FIELD8	varchar	30	CanvassPipeline
QUERY_FIELD9	varchar	30	CanvassPipeline
QUERY_FIELD10	varchar	30	CanvassPipeline
QUERY_FIELD11	varchar	30	CanvassPipeline
QUERY_FIELD12	varchar	30	CanvassPipeline
QUERY_FIELD13	varchar	30	CanvassPipeline
QUERY_FIELD14	varchar	30	CanvassPipeline
QUERY_FIELD15	varchar	30	CanvassPipeline
QUERY_FIELD16	varchar	30	CanvassPipeline
QUERY_FIELD17	varchar	30	CanvassPipeline
QUERY_FIELD18	varchar	30	CanvassPipeline
QUERY_FIELD19	varchar	30	CanvassPipeline
QUERY_FIELD20	varchar	30	CanvassPipeline
RANDOMIZE	float	53	CanvassPipeline
ATTEMPTS	int		CanvassPipeline
NO_ANSWER_ATTEMPTS	int		CanvassPipeline
DROP_ATTEMPTS	int		CanvassPipeline
ANSWERING_MACHINE_ATTEMPTS	int		CanvassPipeline
OP_INTERCEPT_ATTEMPTS	int		CanvassPipeline
BUSY_ATTEMPTS	int		CanvassPipeline
CTGroupID	int		CanvassPipeline

DI_Client

Destination Column	Datatype	Size	Source Table
SiteCode	Int		(generated)
CLIENT_ID	int		Client
NAME	char	60	Client
START_DATE	datetime		Client
END_DATE	datetime		Client
IMPORT_ORDER_KEY	int		Client
SCREEN_DISPLAY_NAME	varchar	60	Client
POLLING_FILE_LOCATION	varchar	255	Client
RESULTS_FILE_LOCATION	varchar	255	Client
ACTIVE	int		Client
ADD_DATE	datetime		Client
ADD_USER	varchar	20	Client
CHANGE_DATE	datetime		Client
CHANGE_USER	varchar	20	Client

DI_Direction

Destination Column	Datatype	Size	Source Table
SiteCode	Int		(generated)
RESULT_ID	int		Direction
GROUP_ID	int		Direction
CODE	varchar	10	Direction
DESCRIPTION	varchar	100	Direction
Type_Direction	varchar	20	Direction
Callback	char	1	Direction
Supervisor	char	1	Direction
Add_Date	datetime		Direction
Add_User	varchar	30	Direction
Change_Date	datetime		Direction
Change_User	varchar	30	Direction
ACTIVE	char	1	Direction
LIST_ORDER	int		Direction
COMPLETED_STATUS	char	1	Direction
EXCEPTION_STATUS	char	1	Direction
REQUIRES_ENTRY	char	1	Direction
PROMPT	varchar	60	Direction
REQUIRES_NUMERIC	char	1	Direction
MOVE_TO_CANVASS_ID	int		Direction
MOVE_TO_STAGE_ID	int		Direction
DAYS_TO_WAIT	int		Direction
AUTO_CALLBACK	char	1	Direction
TRANSFER	char	1	Direction
SALE_FLAG	char	1	Direction
DISTRIBUTION_FLAG	char	1	Direction
CONTACT	char	1	Direction
SALE_COUNT	int		Direction
CONNECT	char	1	Direction

DI_Direction_Group

Destination Column	Datatype	Size	Source Table
SiteCode	Int		(generated)
GROUP_ID	int		GroupDirection
NAME	varchar	30	GroupDirection
ACTIVE	char	1	GroupDirection
ADD_DATE	datetime		GroupDirection
ADD_USER	varchar	30	GroupDirection
CHANGE_DATE	datetime		GroupDirection
CHANGE_USER	varchar	30	GroupDirection

DI_PD_Activity_Log

Destination Column	Datatype	Size	Source Table
SiteCode	Int		(generated)
SEQUENCE	int		PostAudit
CLIENT_ID	int		PostAudit
CALL_DATE_TIME	datetime		PostAudit
CANVASS_ID	int		PostAudit
STAGE_ID	int		PostAudit
RESULT_CODE	varchar	10	PostAudit
RESULT_NOTE	varchar	30	PostAudit
RESULT_USER	varchar	20	PostAudit
CALL_DISPOSITION	int		PostAudit
CALL_STATUS	int		PostAudit
RECORD_KEY	varchar	30	PostAudit
PHONE_NUMBER	char	10	PostAudit
AGENT_ID	char	20	PostAudit
AGENT_DISPOSITION	int		PostAudit
ADD_DATE	datetime		PostAudit
ADD_USER	char	20	PostAudit
CHANGE_DATE	datetime		PostAudit
CHANGE_USER	char	20	PostAudit
AGENT_LINE	int		PostAudit
TELCG_LINE	int		PostAudit
PD_NAME	varchar	20	PostAudit
CAUSE_VALUE	int		PostAudit
EXTRA_INFO	varchar	50	PostAudit

DI_PollingHistory

Destination Column	Datatype	Size	Source Table
SiteCode	Int		(generated)
SEQUENCE	int		PollingHistory
RECORD_KEY	varchar	30	PollingHistory
CLIENT_ID	int		PollingHistory
ADD_DATE	datetime		PollingHistory
CHANGE_DATE	datetime		PollingHistory
CALL_STATUS	numeric	3,0	PollingHistory
CANVASS_ID	numeric	3,0	PollingHistory
STAGE_ID	numeric	3,0	PollingHistory
RESULT_CODE	varchar	10	PollingHistory
ADD_USER	varchar	30	PollingHistory
CHANGE_USER	varchar	30	PollingHistory

Destination Column	Datatype	Size	Source Table
MODE	char	1	PollingHistory
PHONE_NUMBER	char	30	PollingHistory
RESULT_USER	varchar	30	PollingHistory
RESULT_NOTE	varchar	255	PollingHistory
DURATION	int		PollingHistory
STATION	int		PollingHistory
RESULT_ID	int		PollingHistory
RESULT_DATE	datetime		PollingHistory
RESULT_TIME	datetime		PollingHistory
SALE_AMOUNT	int		PollingHistory

DI_Stage

Destination	Datatype	Size	Source Table
SiteCode	Int		(generated)
CANVASS_ID	int		STAGE
STAGE_ID	int		STAGE
CLIENT_ID	int		STAGE
DESCRIPTION	char	50	STAGE
SEQUENCE	int		STAGE
START_DATE	datetime		STAGE
END_DATE	datetime		STAGE
LAST_DATE	datetime		STAGE
PRIORITY	smallint		STAGE
IN_OPERATION	char	1	STAGE
ACTIVE	char	1	STAGE
ADD_DATE	datetime		STAGE
ADD_USER	char	20	STAGE
CHANGE_DATE	datetime		STAGE
CHANGE_USER	char	20	STAGE
SCRIPT_ID	int		STAGE
DEF_TRANSFER_CANVASS_ID	int		STAGE
DEF_TRANSFER_STAGE_ID	int		STAGE
DEF_MOVE_CANVASS_ID	int		STAGE
DEF_MOVE_STAGE_ID	int		STAGE
SCRIPT_URL	varchar	255	STAGE
DISTRIBUTION	int		STAGE
CTGroupID	int		STAGE
IVR_GROUP_ID	int		STAGE
PDMRequest	tinyint		STAGE
PDMStatus	tinyint		STAGE

DI_UsageStep

Destination Column	Datatype	Size	Source Table
SiteCode	Int		(generated)
CLIENT_ID	int		USAGESTEP
CANVASS_ID	int		USAGESTEP
AGENT_ACTIVITY	int		USAGESTEP
DATE	datetime		USAGESTEP
SEQUENCE	int		USAGESTEP
AGENT_ID	varchar	20	USAGESTEP
TOTALTIME	int		USAGESTEP
AGENT_ACTIVITY_DESCRIPTION	varchar	20	USAGESTEP
STAGE_ID	int		USAGESTEP
RECORD_KEY	varchar	30	USAGESTEP
ArchiveStatus	tinyint		USAGESTEP

4. ETL Process Design

Daily data that is imported to update the data warehouse will first be staged in the Staging database where any transformations, calculations or logical checks will be conducted to prepare the data for updating into the data warehouse.

The procedures for loading the daily updates from the different applications' databases to the data warehouse are described in the following sections.

CoverG (MySql) Data

Data from the CoverG database will be staged and updated to the Data Warehouse DB as follows:

1. Import the new data:
 - Read the extracted data files in CSV format into the CG_*_IMPORT tables.
 - Drop the staging area CG_*_PREV tables.
 - Rename the CG_*_CURR tables to *_PREV.
 - Recompile dependent views & procedures, if needed.
 - Move the _IMPORT rows to the CG_*_CURR tables, transforming data types and format.
2. Compare current set of data with data from previous load (for handling deletions and updates)
 - Calculate and save DW_CRC value for each record.
3. For New records (exists in _CURR but not in _PREV):
 - Insert from the CG_*_CURR table into the Data Warehouse table
 - Set current data warehouse record: DW_IsCurrent=0
 - Set new data warehouse record:
 - DW_IsCurrent=1, DW_LastChangeDate=Today, DW_LastChangeType='I'
4. For Deleted records (exists in _PREV but not in _CURR):
 - Insert from the CG_*_PREV table into the Data Warehouse table
 - Set current data warehouse record: DW_IsCurrent=0
 - Set new data warehouse record:
 - DW_IsCurrent=1, DW_LastChangeDate=Today, DW_LastChangeType='D'
5. For Updated records (exists in _PREV and _CURR but with different CRC):
 - Insert from the CG_*_CURR table into the Data Warehouse table
 - Set current data warehouse record: DW_IsCurrent=0
 - Set new data warehouse record:
 - DW_IsCurrent=1, DW_LastChangeDate=Today, DW_LastChangeType='U'

Canvas Data

Data from the Canvas database will be staged and updated to the Data Warehouse DB as follows:

1. Import the new data:
 - Drop the staging area CA_*_PREV tables.
 - Rename the CA_*_CURR tables to *_PREV.
 - Recompile dependent views & procedures, if needed.
 - Copy the production table rows into the CA_*_CURR tables, transforming fields as needed.
2. Compare current set of data with data from previous load (for handling deletions and updates)
 - Calculate and save DW_CRC value for each record.
3. For New records (exists in _CURR but not in _PREV):
 - Insert from the CA_*_CURR table into the Data Warehouse table
 - Set current data warehouse record: DW_IsCurrent=0
 - Set new data warehouse record:
 - DW_IsCurrent=1, DW_LastChangeDate=Today, DW_LastChangeType='I'
4. For Deleted records (exists in _PREV but not in _CURR):
 - Insert from the CA_*_PREV table into the Data Warehouse table
 - Set current data warehouse record: DW_IsCurrent=0
 - Set new data warehouse record:
 - DW_IsCurrent=1, DW_LastChangeDate=Today, DW_LastChangeType='D'
5. For Updated records (exists in _PREV and _CURR but with different CRC):
 - Insert from the CA_*_CURR table into the Data Warehouse table
 - Set current data warehouse record: DW_IsCurrent=0
 - Set new data warehouse record:
 - DW_IsCurrent=1, DW_LastChangeDate=Today, DW_LastChangeType='U'

Director Data

Data from the Director databases will be staged first in their local SQL servers (but a different database) then to the DW server and updated to the Data Warehouse DB as follows:

1. Import the new data:
 - Drop the staging area DI_*_PREV tables.
 - Rename the DI_*_CURR tables to *_PREV.
 - Recompile dependent views & procedures, if needed.
 - Copy the production table rows into the DI_*_CURR tables, transforming fields as needed.
2. Compare current set of data with data from previous load (for handling deletions and updates)
 - Calculate and save DW_CRC value for each record.
3. For New records (exists in _CURR but not in _PREV):
 - Insert from the DI_*_CURR table into the Data Warehouse table
 - Set current data warehouse record: DW_IsCurrent=0
 - Set new data warehouse record:
 - DW_IsCurrent=1, DW_LastChangeDate=Today, DW_LastChangeType='I'
4. For Deleted records (exists in _PREV but not in _CURR):
 - Insert from the DI_*_PREV table into the Data Warehouse table
 - Set current data warehouse record: DW_IsCurrent=0
 - Set new data warehouse record:
 - DW_IsCurrent=1, DW_LastChangeDate=Today, DW_LastChangeType='D'
5. For Updated records (exists in _PREV and _CURR but with different CRC):
 - Insert from the DI_*_CURR table into the Data Warehouse table
 - Set current data warehouse record: DW_IsCurrent=0
 - Set new data warehouse record:
 - DW_IsCurrent=1, DW_LastChangeDate=Today, DW_LastChangeType='U'

5. Preliminary Test Plan

This section documents the server-side and client-side test plans for the data warehouse project.

Server-Side Testing

Server-side testing will be conducted by Proactive with American Business Company observing for validity:

1. Test bulk load into the data warehouse for all databases
For each table:
 - Truncate the _CURR tables and the data warehouse tables
 - Execute the Daily update process for that table
2. Test differential load into data warehouse
After (1), re-load the same data for each table:
 - Should be no changes/updates

Then in the Import set, delete one record, modify one record, change a key field of one record and increment the current date:

- Should be one 'I' record, one 'U' record and two 'D' records
- Check the new and previous data warehouse records for housekeeping correctness

Client-Side Testing

Client-side testing will be conducted by American Business Company with technical assistance from Proactive.

1. Test SAS access to SQL Server
 - Have SAS user connect to data warehouse
 - Have SAS user examine/report one table
 - Have SAS use construct a simple report using two or more tables
 - Have SAS user execute the report
2. Test data validity by comparing reports
 - Have SAS construct a report duplicating a pre-existing report
 - Compare reports for agreement
 - Change one data point affecting report in data warehouse
 - Reload data if needed
 - Compare reports for change/disagreement