

# Infotech Data Append Tool White Paper

**Poornachandrarao Uppaluri, Deputy General Manager.**

**Venkata Rami Reddy E, Manager.**

**J Srinivasa Rao, Project Lead.**

**M Anil Chowdary, Sr. Software Engineer.**

**Infotech Enterprises Limited  
Hyderabad**

## Abstract:

While working on large data conversion projects spanning over several months, we are required to handle the deliveries in batches. In this process, we are required to combine data of all the individual batches into a single database for a consolidated view of the network data. It is a huge challenge to append all the data, build the relationships, performing edge matching, and doing stitching without disturbing the logical and physical connectivity of the network elements.

With a view to overcoming these challenges and to safeguard customer interests without any burden by way of cost or quality, Infotech has developed an innovative and versatile tool called Data Append Tool for ArcGIS and ArcFM databases. The Data Append tool helps our customers in uploading the data from multiple batches into a common master database without losing any data, properties, and relationships. In this paper, we will share more details of the tool, its functionality, and the benefits that can be achieved by our customers.

## About the Author:



PC Rao , M.Tech , works as Deputy General Manager in Infotech Enterprises Limited and brings with him about 11 years of experience in the field of software development in GIS field. He has worked on projects/products in various domains such as power, water, gas, telecom, transportation, government, etc for major customers in USA, Europe, Japan and APAC regions. He has successfully led large software teams for development of applications in large scale data conversion, data migration, and data maintenance projects.

<mailto:Poornachandrarao.Uppaluri@infotech-enterprises.com>

Contact No: +91 –99491 10591



## **Introduction:**

With our rich experience in developing tools for the gas and electric OSP maps, we have developed a versatile and generic software tool named 'Data Append Tool' to append the gas and electric maps data. This software runs on .Net Framework with ArcObjects and ArcFM with Oracle and SDE as the backend databases.

The application is developed generic by considering ArcGIS and ArcFM data model. This can be applied for different types of facility management systems such as electric, gas, and water. It has the facility of preparing the schema and data as per project data model. It can be configured to work according to utility data management systems.

## **Software Environment:**

Data Append Tool uses .Net 2005, ArcObjects, ArcFM with Oracle and ArcSDE as the backend for appending the graphical and non-graphical information. This is developed using C# (Development Language).

Data Append Tool is completely customizable in tune with the appending environment at the client site. On initialization, the tool assists the user to give the user inputs which are necessary for the append tool to run without any user interaction.

## **Features of Data Append Tool:**

We, at Infotech, have developed Data Append Tool combining our domain expertise and our software development skills. Some of the standout features and benefits of this are:

- Minimal use of the mouse
- Verifies Schema mismatches between deliveries
- Null values
- Built-in intelligence to interact with the tool
- Easy-to-use software tool, as the user would be guided through the sequence of operations

All this would mean that Data Append Tool can be used without any training and handholding.

## **Benefits of Data Append Tool:**

- Runs pre-validation
- Appends either SDE or PGDB production deliveries to master ArcSDE geodatabase
- Maintains relationships
- Rebuilds relationships at boundaries using 'Stitch Points'
- Builds whiskers
- Runs post-validation routines

## **Data Appending Process:**

It has the following functionalities:

Utility Option: Enables user to select the utility viz. gas, or electric.

Inputs: Requires the details of source SDE, destination SDE, and Oracle client.



**Run:** User has options to run in three phases: pre-validation, append process, and post-validation

**Pre-validation:** Validates the source data for domain names, sub-types, relationships, mandatory attributes, geometry checks, duplicate conversion IDs and null values, and feature-linked annotation with respect to configuration

All above validations will be performed with destination data model. After successful validation of all the above steps, data gets appended to the destination geodatabase.

**Append Process:** Pre-validated data is ready for the append process. In this process, the tool appends either SDE or PGDB production deliveries to master ArcSDE geodatabase with all the respective feature classes, object tables, relationship classes, partial append of feature/object classes, and their relations.

**Post Validation:** After append process; the relationships at the boundaries are built using 'Stitch Points' between areas. Also, the relationships of 'Whiskers' is built.



**Data Append Tool Screen**



## **Case Study:**

Customer Profile: One of the leading providers of utility services, their principal activities includes utility services, gas, and electric. The company serves over 29 million customers in USA.

The Requirement: They were looking to consolidated data of all the individual batches. They were also looking to use this tool to append the data, build the relationships, perform edge matching, and do stitching. All this was to be done without disturbing the logical and physical connectivity of the network elements.

The Approach: Data Append Tool was designed and developed to:

Append either SDE or PGDB production deliveries to the master ArcSDE geodatabase of the customer  
Maintain relationships  
Rebuild relationships at boundaries using 'Stitch Points' and 'Whiskers'  
Optionally run pre-validation and/or post-validation routines

Software used: Visual Studio .Net 2005, C#.Net, ArcGIS 9.3 Service Pack 1, ArcFM 9.3. Service Pack 1, ArcSDE 9.3 Service Pack 1, and Oracle 10g Release 2.

Finally, the data was appended to the target system using the Data Append Tool.

## **Conclusion:**

Infotech Data Append Tool developed to:

- Append either SDE or PGDB production deliveries to master ArcSDE geodatabase.
- Maintain relationships.
- Rebuild relationships at boundaries using "Stitch Points" and "Whiskers".
- Optionally run pre-validation and/or post-validation routines.