

Traffic Analysis with

Tango[®] allows you to effectively link and organize technical surveillance data and discover information from patterns in communication. Tango helps you manage information such as location, contacts, activity volume, patterns and variations, from users of individual communication devices.

Tango is web-based. With Tango you can create, edit and update pages that summarize all information relevant to a communication device, communication event, person and place. Tango pages are meaningfully linked to other associated pages (see Figure 1). With Tango you can explore and visualize data from your browser, with multiple and dynamic views, helping uncover hidden relationships and behavior patterns.

The screenshot displays a user interface for a person's profile in the Tango system. At the top, there are tabs for 'Person', 'Link Chart', 'Communications', and 'Details'. The main profile area includes a photo of Gabriella Montoya, a name field with a dropdown arrow, a gender dropdown set to 'female', and a 'BATS GUID' field. Below this is a section titled 'Current Additions' with a 'Today' sub-header. This section lists several items with green circular icons and timestamps: 'Link added to: 9647906876394 (Cell Phone Account (MSISDN))', 'Link added to: 19849849846599 (Cell Phone (IMEI))', 'Link added to: Gabriella Montoya (Call Sign)', 'Link added to: Montoya (Call Sign)', 'Link added to: gabriella.jpg (JPEG image)', 'Link added to: Renaldo Montoya call to Paco Lopez at 2009-12-21T06:35:01.000-05:00 (Phone Call Communication Event)', 'Link added to: GABRIELLA MONTOYA call to Roberto Ortega at 2009-12-20T06:35:02.000-05:00 (Phone Call Communication Event)', 'Link added to: GABRIELLA MONTOYA call to Indigo Ortega at 2009-12-21T06:35:03.000-05:00 (Phone Call Communication Event)', 'Link added to: Renaldo Montoya call to Ramon Ortega at 2009-12-20T06:35:04.000-05:00 (Phone Call Communication Event)', and 'Link added to: GABRIELLA MONTOYA call to Renaldo Montoya at 2009-12-20T06:35:30.000-05:00 (Phone Call Communication Event)'. Below the additions are several interactive sections: 'People' with '(Has Spouse) THE TURKEY [x]' and an 'add new link to a Person' button; 'Indirectly Associated with these people' showing 'none'; 'Organizations' with '(Associated With) CAMP VICTORY [x]' and an 'add new link to an Organization' button; 'Places or Facilities' showing 'none' and an 'add new link to a Place or Facility' button; 'Documents Possibly Mentioned In' listing '(Contained In Text) IIR 1 378 5618 01 (IIR Document)' and '(Contained In Text) RENALDO MONTOYA (TIR Document)'; and 'Related Reports' listing '(Mentioned By) IIR 1 378 5618 01 (IIR Document)' and '(Mentioned By) RENALDO MONTOYA (TIR Document)'. At the bottom, there is a 'Workflows tagged "Person"' section with links for 'Bed-down locations', 'Simple Date-based Phone call', 'Time and Location-based filtering', and 'Time-Based Phone Call'. A copyright notice '©2010 Semandex Networks Inc.' is visible at the very bottom.

Figure 1. A Tango person page summarizing associations with other people, organizations, places, documents and related reports. One-click on each link takes you to pages containing details and new links, creating a network of associated pages.

Tango uses advanced semantic processing technologies to exploit and link case information and perform similarity searches across databases to help analysts resolve cases.

Tango helps you uncover associations and correlations:

Automatically link targets based on mutual contacts, (Figure 2), or a shared electronic identifier such as IMSI/ESN. Reveal patterns and correlations across all types of communications made by the device.

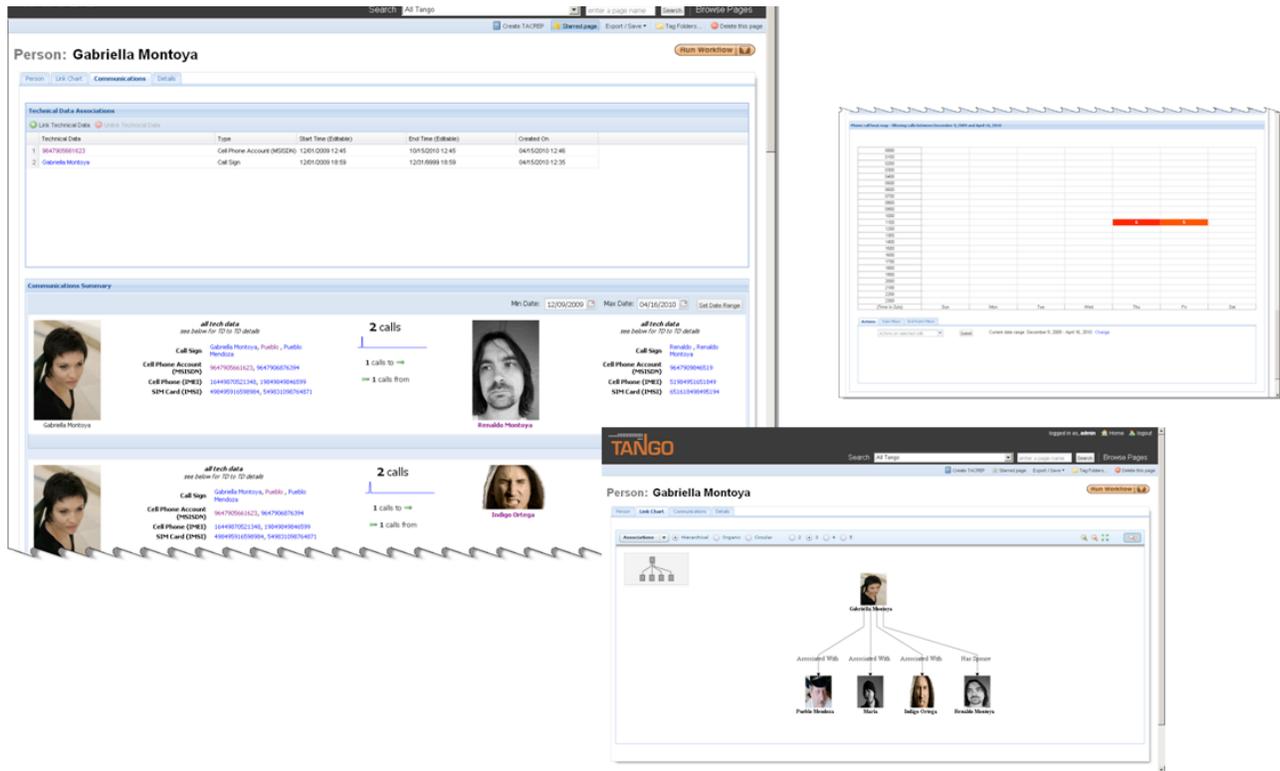


Figure 2. Phone call heat maps: discover who is calling whom, with what frequency, and phone call patterns. Uncover phone call hidden associations.

Tango also provides the following capabilities:

- Rapidly discover correlations in communications traffic, locations and times that enhance the results of traditional phone call analysis.
- Use geospatial correlations to track and locate missing individuals, suspects at large or fugitives.
- Visualize the composition and organizational structure of a criminal network - gangs, narcotic groups, financial fraud enterprises and terrorist cells.
- Find possible informant candidates.
- Identify additional Persons of Interest (POI) by tracking associations to known suspects.
- Identify calls made to a specific number in a specified time frame.
- Uncover calling patterns for an individual and within an organization, and discover changes in behavior through changes in communication patterns (Figure 3).

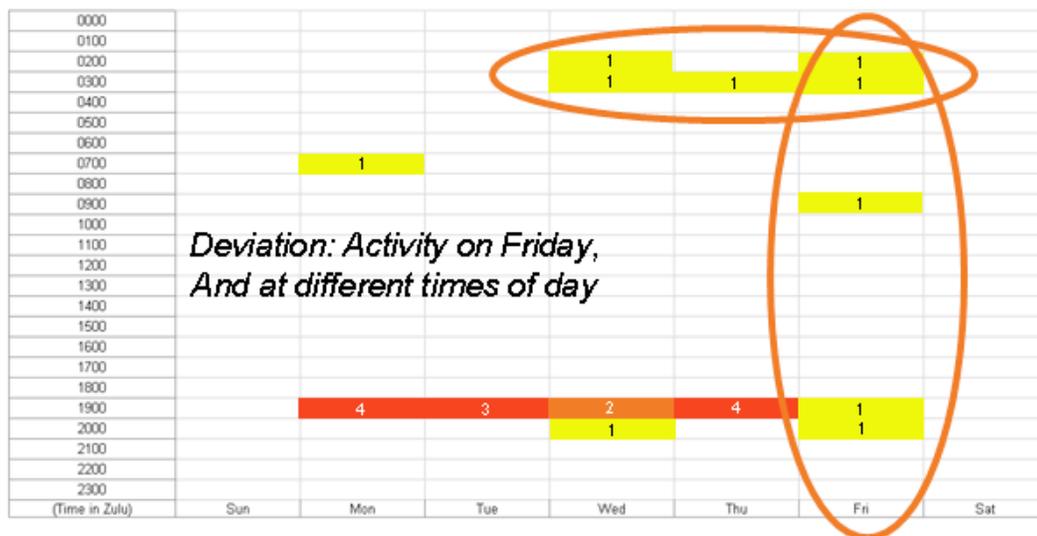
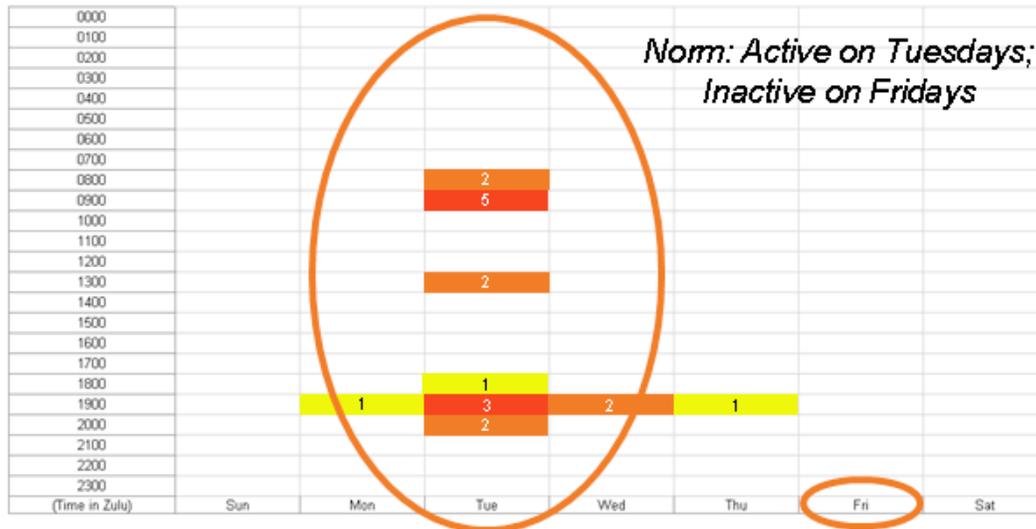


Figure 3. Discover communications patterns and differences in those patterns.

- Discover sources of phone distribution to individuals.
- Uncover associations and correlations between devices and their users linking possible suspects to criminal activities.
- Compare characteristics between known individuals and the possible recipient of a communication (phone call, e-mail, instant message, etc.).
- Be alerted as soon as call records linked to individuals on Watchlists are collected.

Tango Features

Import thousands of call detail records (CDR) directly from technical surveillance devices in a variety of formats including Excel, e-mail, web services interfaces, and databases.

Visualize common contacts, associations, and recent activities across locations and time. Highlight patterns and anomalies in communications, behaviors and events.

- **Web interface** allows everyone on the investigation team access to up-to-date case information. Hot links make it easy to jump from a communication device to its owner and to all call records linked to a person. Supporting documents (photos, surveillance videos, audio clips, receipts, pocket litter) can be attached to any record and easily accessed.
- **Interactive link charts** give user control over the types of links established such as personal associations, communications, events and activities (shown in Figure 4). Zooming and panning allows an analyst to de-clutter charts and view all node information through one-click access to web pages with all supporting data linked (see Figure 5).

Search across all fields or specific fields; set up filters.

Alerts ensure the investigators are kept informed of new collections associated with persons of interest .

Report data in various formats to provide clear understanding of analytic results.

Export advanced analysis to your existing visualization tools such as i2 Analyst's Notebook and Google Earth.

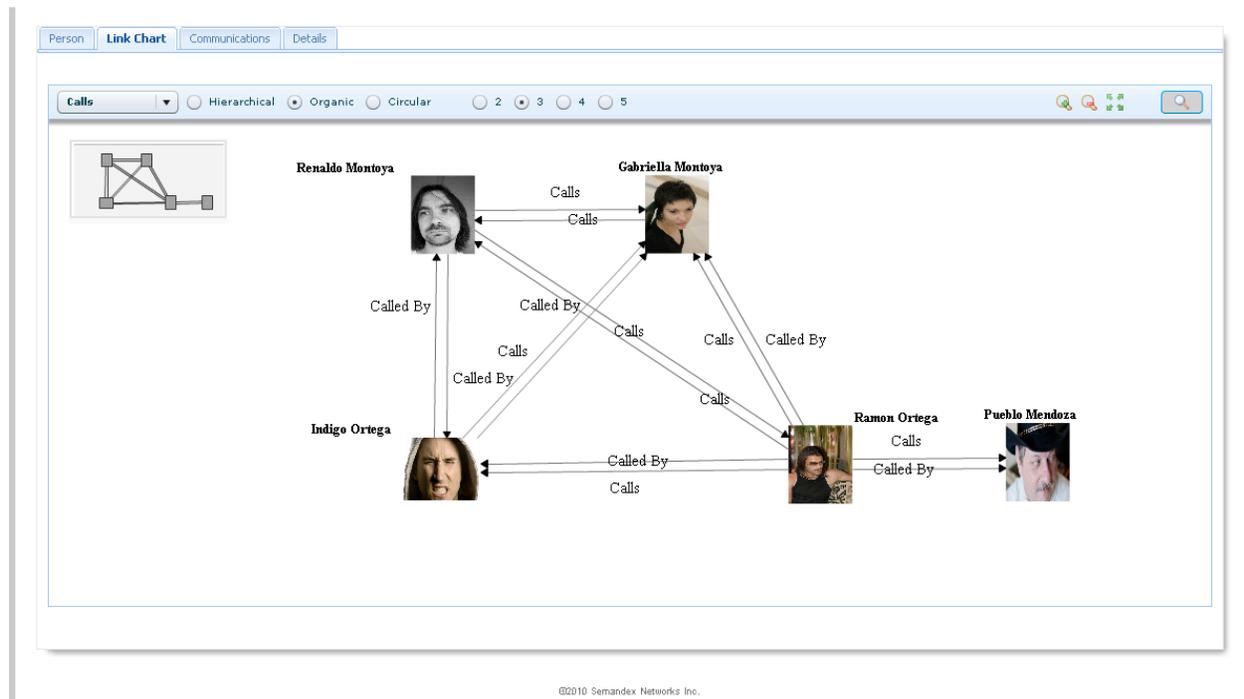


Figure 4. Link chart of phone calls showing who calls whom. Information regarding call time, date, duration and other characteristics can also be displayed as needed. Clicking on an icon brings you to the person's page and additional links.

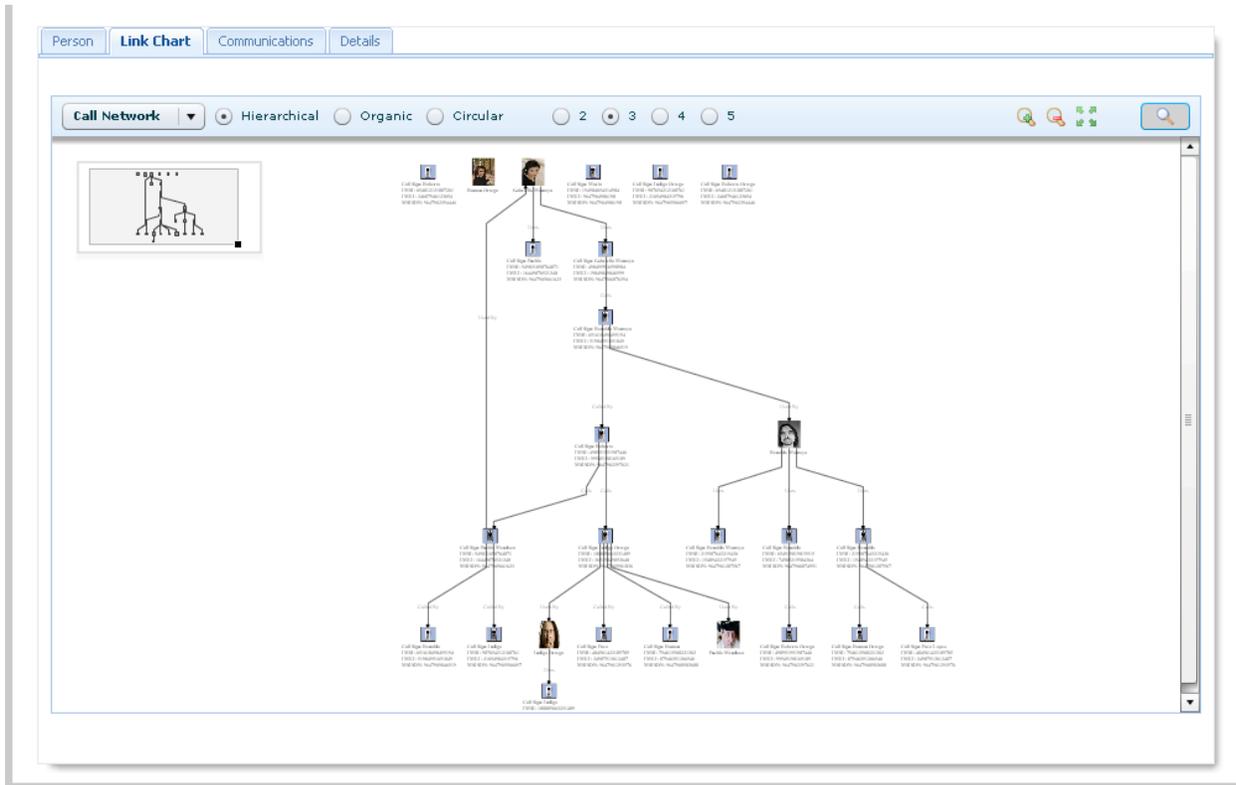


Figure 5. Tango’s visualization capabilities allow the display of all links associated with a Person of Interest based on the phone calls between them. Link charts that display a person’s network of interest can be created from phone call, text message, events and other communications data.

Tango evaluation packages are available. For more information, please contact Semandex at 609-309-5174 or via email at info@semandex.net.



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