



# OSTINATO

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An open, scalable packet/traffic generator

**Srivats P.**



# Agenda

What – Who?

Existing Solutions

Advantage Ostinato

Supported OS

Architecture

Deployment Options

Typical Usage

Feature Tour

History and Current Status

Contributing



# What - Who?

## What is it for?

Networking Protocol Development and Analysis

Functional Testing

Performance Testing

Security Testing

Penetration Testing

## Who is it for?

Programmers/Developers

QA Testers

Security Researchers



# Existing Solutions

Low-End

## Freeware



- PC
- Win Only
- Simplistic
- Crippled
- Don't scale

Medium-End

## Open Source



- Cross Platform
- CLI (mostly)
- Limited Protocols
- Limited Controls
- Narrow Focus
- No Controlled Environment

High-End

## Commercial



- Fully Featured
- Dedicated H/W
- Expensive  
=> Insufficient
- Overkill



# Advantage Ostinato

Scales from low-end to high-end use cases

Viable Alternative to Commercial Tools

Cost Savings

Productivity Improvement

Facilitates new Testing Scenarios

Frees up ports for where they are really needed



# Supported OS



Windows



Linux



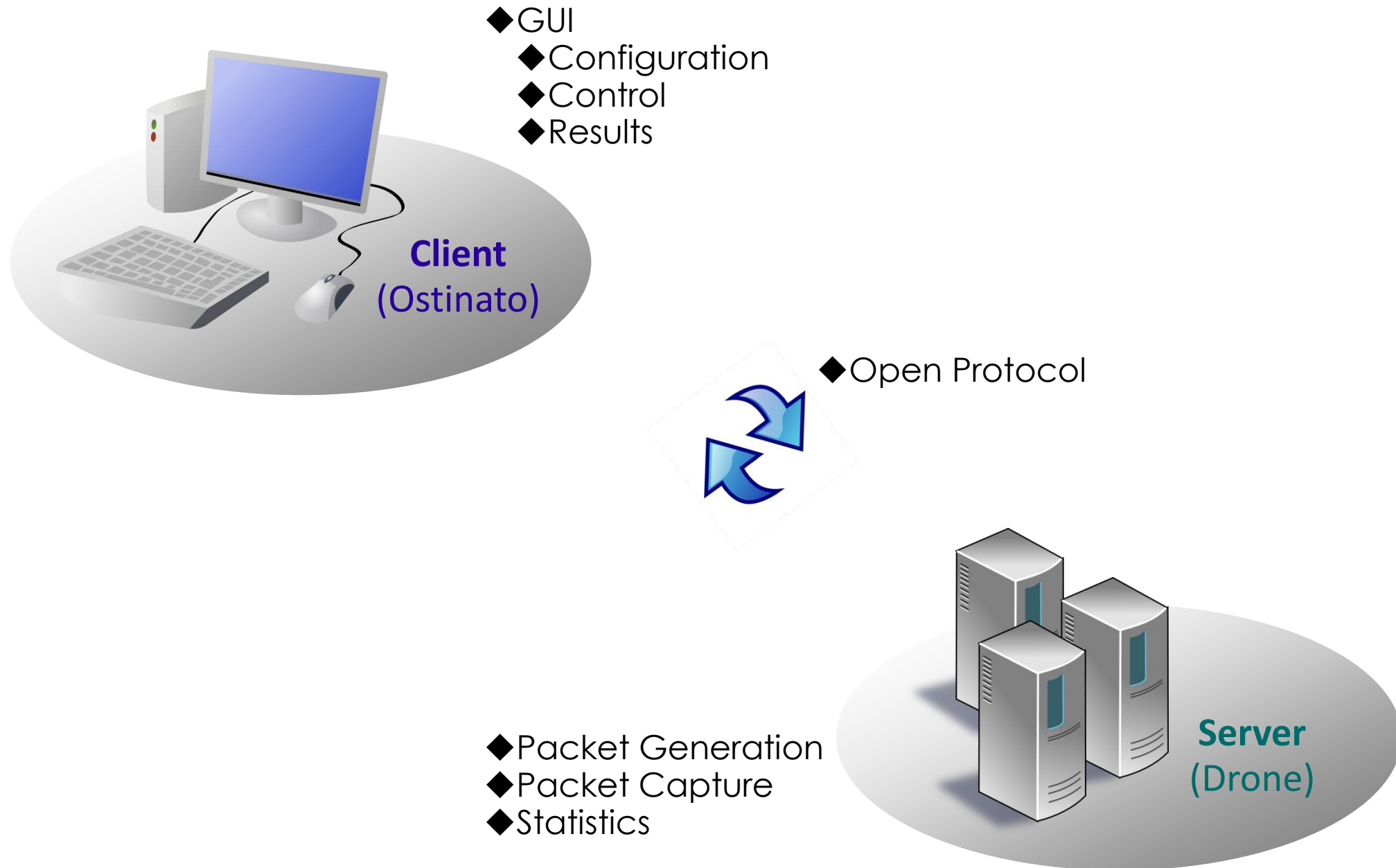
Mac OS X



BSD

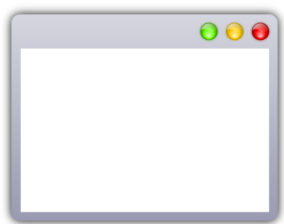


# Architecture





# Deployment Options



## PC Application

- ◆ PC runs both client and server applications



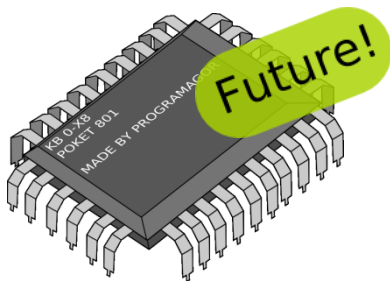
## Live CD/USB

- ◆ Convert any PC to a dedicated traffic generator



## DD-WRT opkg

- ◆ Package Drone (server) for DD-WRT



## Repurpose Custom Hardware

- ◆ Port Drone (server) for custom hardware



## Ostinato Hardware

- ◆ Ostinato hardware running Drone (server)





**INTEROP**

OCT. 18–22 <sup>20</sup><sub>10</sub>

NEW YORK, NEW YORK  
JAVITS CONVENTION CENTER

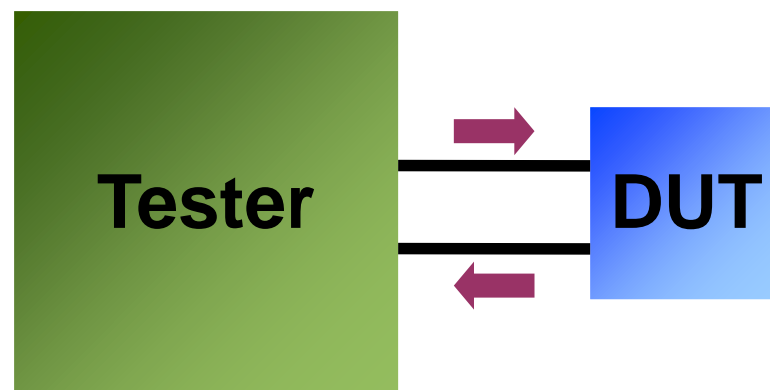
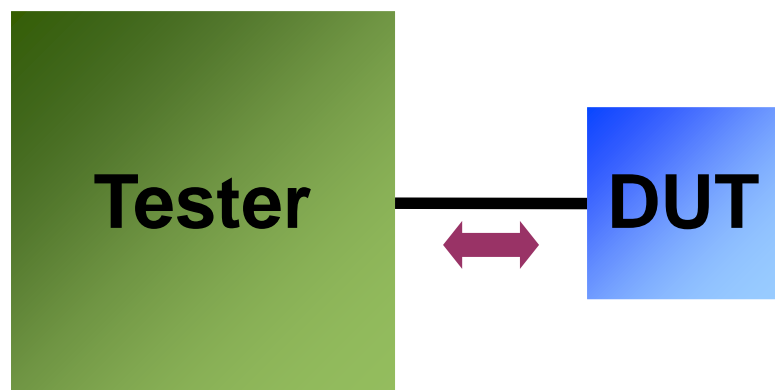


OSTINATO + **napatech** 

= 20 Gbps !



# Typical Usage



Statistics

	Port 0-0 *	<b>Port 0-1 *</b>	Port 0-2 *
Link State	Unknown	Unknown	Down
Transmit State	Off	Off	Off
Capture State	Off	Off	Off
Frames Received	0	2258	
Frames Sent	0	2258	
Frame Send Rate (fps)	0	0	
Frame Receive Rate (fps)	0	0	
Bytes Received	0	135480	
Bytes Sent	0	135480	
Byte Send Rate (Bps)	0	0	
Byte Receive Rate (Bps)	0	0	

Statistics

	Port 0-0 *	<b>Port 0-1 *</b>	Port 0-2 *
Link State	Unknown	Unknown	Down
Transmit State	Off	Off	Off
Capture State	Off	Off	Off
Frames Received	2258	0	
Frames Sent	0	2258	
Frame Send Rate (fps)	0	0	
Frame Receive Rate (fps)	0	0	
Bytes Received	135480	0	
Bytes Sent	0	135480	
Byte Send Rate (Bps)	0	0	
Byte Receive Rate (Bps)	0	0	



# Feature Tour (Layout)

The screenshot shows the Ostinato application window with the following components:

- Ports and Streams:** A tree view on the left shows a port group with four ports. A table on the right lists streams with their names and goto actions.
- Statistics:** A table at the bottom displays various statistics for different port groups.

**Streams Table:**

	Name		Goto
1	udp (fragment)	<input checked="" type="checkbox"/>	Next
2	udp	<input checked="" type="checkbox"/>	Next
3	icmp	<input checked="" type="checkbox"/>	Next

**Statistics Table:**

	Port 0-0	Port 0-1	Port 0-2 *	Port 0-3 *
Link State	Unknown	Unknown	Down	Up
Transmit State	Off	Off	Off	Off
Capture State	Off	Off	Off	Off
Frames Received	0	0	0	11749
Frames Sent	0	0	0	0
Frame Send Rate (fps)	0	0	0	0
Frame Receive Rate (fps)	0	0	0	0
Bytes Received	0	0	0	7950319
Bytes Sent	0	0	0	0

Ports

Streams

Controls

Statistics



# Feature Tour (Protocols)

Edit Stream

Protocol Selection | Protocol Data | Stream Control | Packet View

Frame Length (including FCS)

Fixed Min 64 Max 1518

Simple

L1

☐ None ☒ Mac ☐ Other

L2

☐ None ☒ Ethernet II ☐ 802.3 Raw ☐ 802.3 LLC ☐ 802.3 LLC SNAP ☐ Other

L3

☐ None ☐ ARP ☒ IPv4 ☐ IPv6 ☐ IP 6over4 ☐ IP 4over6 ☐ IP 4over4 ☐ IP 6over6 ☐ Other

L4

☐ None ☐ ICMP ☐ IGMP ☐ MLD ☐ TCP ☒ UDP ☐ Other

L5

☒ None ☐ Text ☐ Other

Payload

☐ None ☒ Pattern ☐ Hex Dump ☐ Other

Advanced

Prev Next OK Cancel

Any text based  
Protocol e.g. SIP,  
HTTP, RTSP,  
NNTP etc.



# Feature Tour (Protocols)

**Edit Stream**

Protocol Selection | **Protocol Data** | Stream Control | Packet View

Media Access Protocol

Wlan

Ethernet II

Internet Protocol ver 4

☐ Override Version 4

☐ Override Header Length (x4) 5

TOS/DSCP 00 ...

☐ Override Length 42

Identification 04 D2

Fragment Offset (x8) 0

☐ Don't Fragment ☐ More Fragments

Time To Live (TTL) 127

Protocol 11

☐ Override Checksum 36 F2

		Mode	Count	Mask
Source	0 .0 .0 .0	Fixed	16	255.255.255.0
Destination	0 .0 .0 .0	Fixed	16	255.255.255.0

User Datagram Protocol

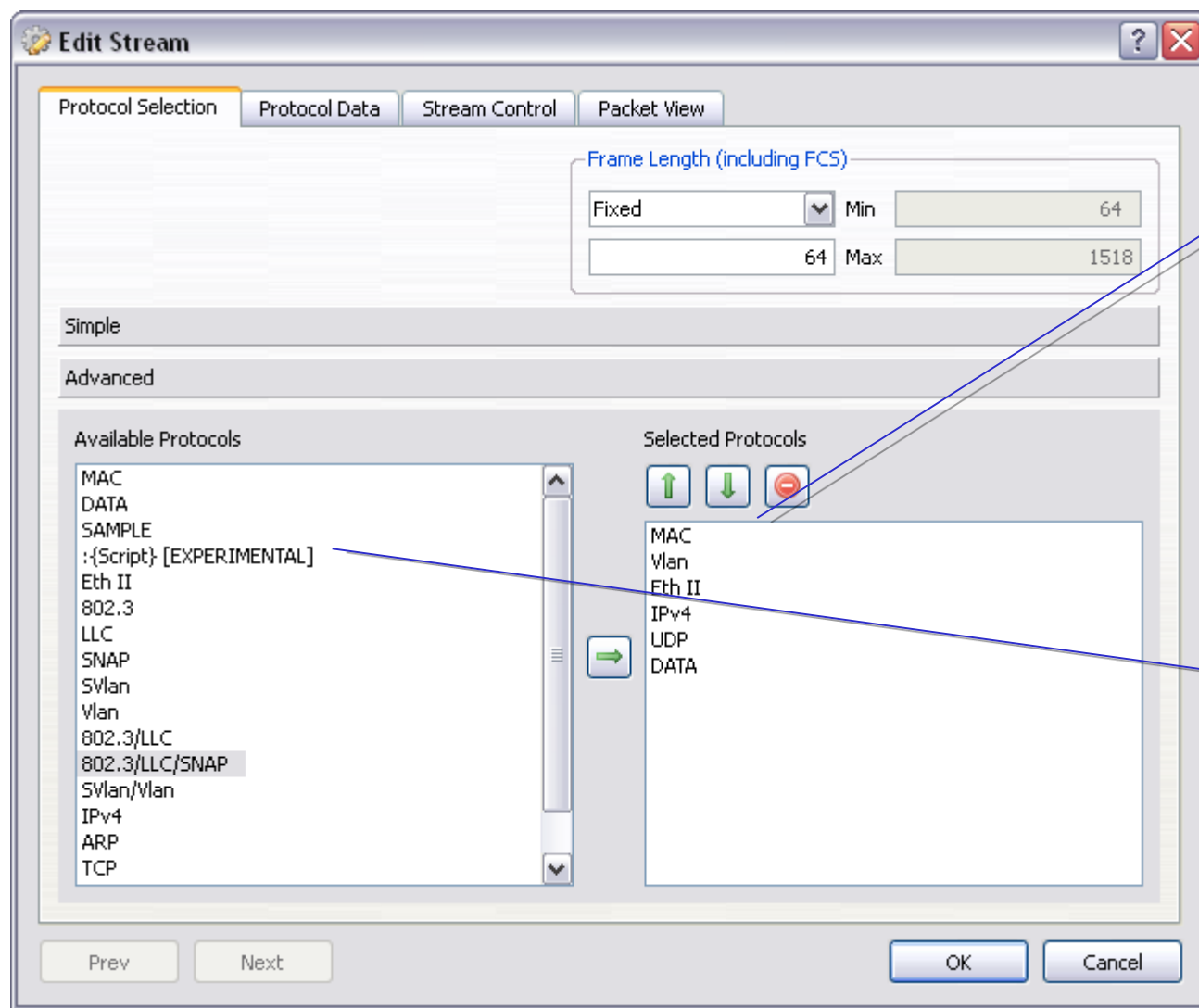
Payload Data

Prev Next OK Cancel

Modify  
ANY field  
of ANY protocol



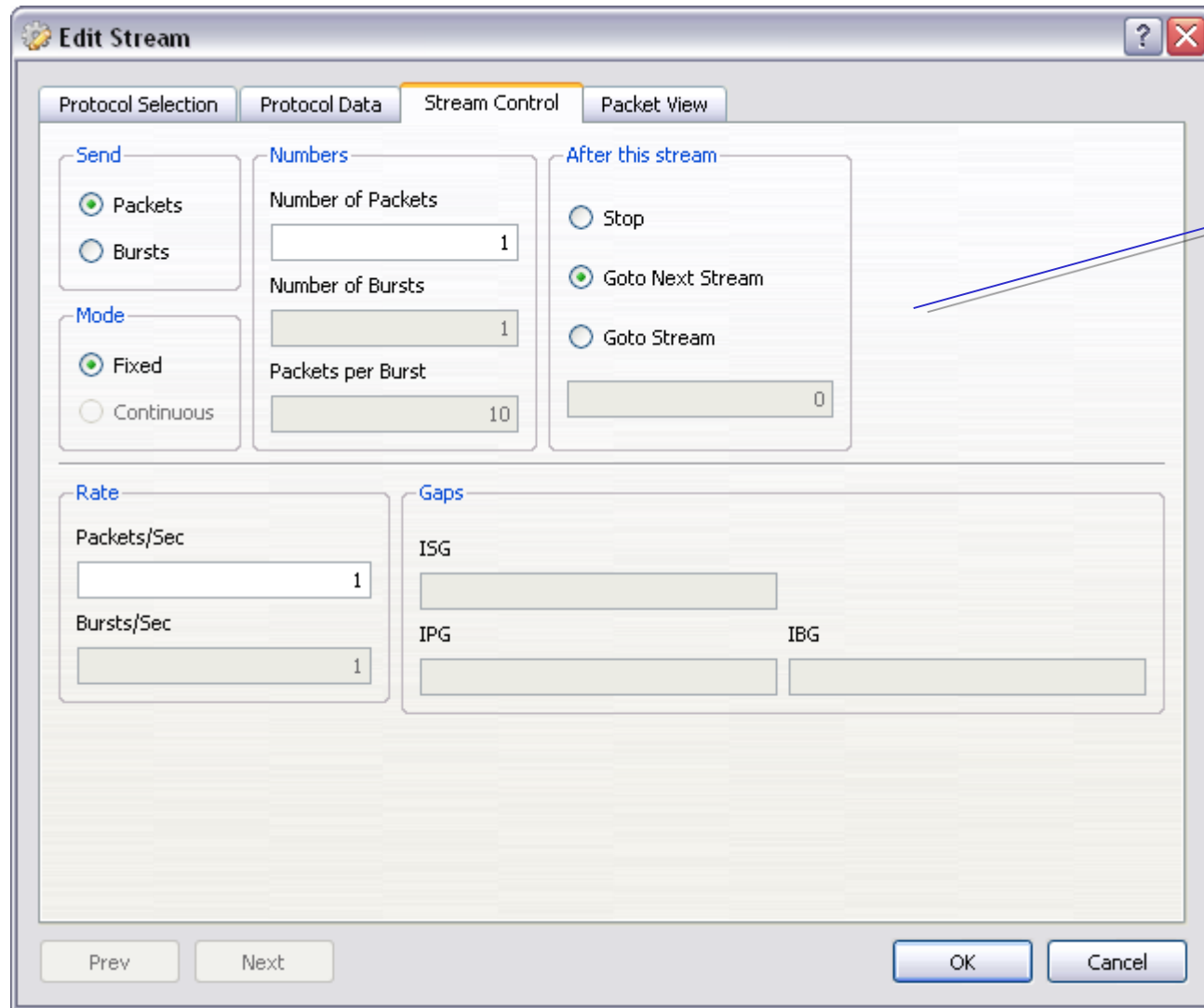
# Feature Tour (Advanced Protocols)



Stack protocols  
in arbitrary  
order

Userscript  
Protocol  
(EXPERIMENTAL)

# Feature Tour (Stream Controls)



The 'Edit Stream' dialog box is shown with the 'Stream Control' tab selected. It contains several sections for configuring stream parameters:

- Send:** Radio buttons for 'Packets' (selected) and 'Bursts'.
- Mode:** Radio buttons for 'Fixed' (selected) and 'Continuous'.
- Numbers:** Input fields for 'Number of Packets' (1), 'Number of Bursts' (1), and 'Packets per Burst' (10).
- After this stream:** Radio buttons for 'Stop', 'Goto Next Stream' (selected), and 'Goto Stream', followed by an input field for the stream number (0).
- Rate:** Input fields for 'Packets/Sec' (1) and 'Bursts/Sec' (1).
- Gaps:** Input fields for 'ISG', 'IPG', and 'IBG'.

Navigation buttons 'Prev' and 'Next' are at the bottom left, and 'OK' and 'Cancel' are at the bottom right.

Rates  
Packets  
Bursts  
Order



# History and Current Status

2007 – Started Hacking

Apr 2010 – First public release 0.1

Nov 2010 – Latest release 0.3





# Contributing

Spreading the word – blog, social media etc.

Packagers/Maintainers

Testing/QA

Programming

C++

Qt Toolkit

Protocol Buffers

LibPcap/WinPcap

Mercurial (Hg)



# More Info



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[ostinato@googlegroups.com](mailto:ostinato@googlegroups.com)



Srivats P. <[pstavirs@gmail.com](mailto:pstavirs@gmail.com)>

# That's all folks!

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Questions?

What does Ostinato mean?