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Subject: [PATCH 2/5] netns netfilter: per-netns IPv6 FILTER, MANGLE, RAW  
Posted by [Alexey Dobriyan](#) on Thu, 24 Jan 2008 12:27:48 GMT  
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Now it's possible to list and manipulate per-netns ip6tables rules.  
Filtering decisions are based on init\_net's table so far.

P.S.: remove init\_net check in inet6\_create() to see the effect

Signed-off-by: Alexey Dobriyan <[adobriyan@sw.ru](mailto:adobriyan@sw.ru)>

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```
include/net/netns/ipv6.h          | 6 ++++++
net/ipv6/netfilter/ip6table_filter.c | 40 ++++++
net/ipv6/netfilter/ip6table_mangle.c | 40 ++++++
net/ipv6/netfilter/ip6table_raw.c  | 38 ++++++
4 files changed, 92 insertions(+), 32 deletions(-)
```

```
--- a/include/net/netns/ipv6.h
+++ b/include/net/netns/ipv6.h
@@ -31,5 +31,10 @@ struct netns_ipv6 {
    struct ipv6_devconf *devconf_all;
    struct ipv6_devconf *devconf_dflt;
    struct netns_frags frags;
+#ifdef CONFIG_NETFILTER
+ struct xt_table *ip6table_filter;
+ struct xt_table *ip6table_mangle;
+ struct xt_table *ip6table_raw;
+#endif
};
#endif
--- a/net/ipv6/netfilter/ip6table_filter.c
+++ b/net/ipv6/netfilter/ip6table_filter.c
@@ -26,7 +26,7 @@ static struct
    struct ip6t_replace repl;
    struct ip6t_standard entries[3];
    struct ip6t_error term;
-} initial_table __initdata = {
+} initial_table __net_initdata = {
    .repl = {
        .name = "filter",
        .valid_hooks = FILTER_VALID_HOOKS,
@@ -51,14 +51,13 @@ static struct
    .term = IP6T_ERROR_INIT, /* ERROR */
};

-static struct xt_table __packet_filter = {
+static struct xt_table packet_filter = {
```

```

.name = "filter",
.valid_hooks = FILTER_VALID_HOOKS,
.lock = RW_LOCK_UNLOCKED,
.me = THIS_MODULE,
.af = AF_INET6,
};
-static struct xt_table *packet_filter;

/* The work comes in here from netfilter.c. */
static unsigned int
@@ -68,7 +67,7 @@ ip6t_hook(unsigned int hook,
    const struct net_device *out,
    int (*okfn)(struct sk_buff *))
{
- return ip6t_do_table(skb, hook, in, out, packet_filter);
+ return ip6t_do_table(skb, hook, in, out, init_net.ipv6.ip6table_filter);
}

static unsigned int
@@ -88,7 +87,7 @@ ip6t_local_out_hook(unsigned int hook,
}
#endif

- return ip6t_do_table(skb, hook, in, out, packet_filter);
+ return ip6t_do_table(skb, hook, in, out, init_net.ipv6.ip6table_filter);
}

static struct nf_hook_ops ip6t_ops[] __read_mostly = {
@@ -119,6 +118,26 @@ static struct nf_hook_ops ip6t_ops[] __read_mostly = {
    static int forward = NF_ACCEPT;
    module_param(forward, bool, 0000);

+static int __net_init ip6table_filter_net_init(struct net *net)
+{
+ /* Register table */
+ net->ipv6.ip6table_filter =
+ ip6t_register_table(net, &packet_filter, &initial_table.repl);
+ if (IS_ERR(net->ipv6.ip6table_filter))
+ return PTR_ERR(net->ipv6.ip6table_filter);
+ return 0;
+}
+
+static void __net_exit ip6table_filter_net_exit(struct net *net)
+{
+ ip6t_unregister_table(net->ipv6.ip6table_filter);
+}
+
+static struct pernet_operations ip6table_filter_net_ops = {

```

```

+ .init = ip6table_filter_net_init,
+ .exit = ip6table_filter_net_exit,
+};
+
static int __init ip6table_filter_init(void)
{
    int ret;
@@ -131,10 +150,9 @@ static int __init ip6table_filter_init(void)
/* Entry 1 is the FORWARD hook */
    initial_table.entries[1].target.verdict = -forward - 1;

- /* Register table */
- packet_filter = ip6t_register_table(&init_net, &__packet_filter, &initial_table.repl);
- if (IS_ERR(packet_filter))
- return PTR_ERR(packet_filter);
+ ret = register_pernet_subsys(&ip6table_filter_net_ops);
+ if (ret < 0)
+ return ret;

/* Register hooks */
    ret = nf_register_hooks(ip6t_ops, ARRAY_SIZE(ip6t_ops));
@@ -144,14 +162,14 @@ static int __init ip6table_filter_init(void)
    return ret;

cleanup_table:
- ip6t_unregister_table(packet_filter);
+ unregister_pernet_subsys(&ip6table_filter_net_ops);
    return ret;
}

static void __exit ip6table_filter_fini(void)
{
    nf_unregister_hooks(ip6t_ops, ARRAY_SIZE(ip6t_ops));
- ip6t_unregister_table(packet_filter);
+ unregister_pernet_subsys(&ip6table_filter_net_ops);
}

module_init(ip6table_filter_init);
--- a/net/ipv6/netfilter/ip6table_mangle.c
+++ b/net/ipv6/netfilter/ip6table_mangle.c
@@ -26,7 +26,7 @@ static struct
    struct ip6t_replace repl;
    struct ip6t_standard entries[5];
    struct ip6t_error term;
-} initial_table __initdata = {
+} initial_table __net_initdata = {
    .repl = {
        .name = "mangle",

```

```

.valid_hooks = MANGLE_VALID_HOOKS,
@@ -57,14 +57,13 @@ static struct
.term = IP6T_ERROR_INIT, /* ERROR */
};

-static struct xt_table __packet_mangler = {
+static struct xt_table packet_mangler = {
.name = "mangle",
.valid_hooks = MANGLE_VALID_HOOKS,
.lock = RW_LOCK_UNLOCKED,
.me = THIS_MODULE,
.af = AF_INET6,
};
-static struct xt_table *packet_mangler;

/* The work comes in here from netfilter.c. */
static unsigned int
@@ -74,7 +73,7 @@ ip6t_route_hook(unsigned int hook,
const struct net_device *out,
int (*okfn)(struct sk_buff *))
{
- return ip6t_do_table(skb, hook, in, out, packet_mangler);
+ return ip6t_do_table(skb, hook, in, out, init_net.ipv6.ip6table_mangle);
}

static unsigned int
@@ -109,7 +108,7 @@ ip6t_local_hook(unsigned int hook,
/* flowlabel and prio (includes version, which shouldn't change either */
flowlabel = *((u_int32_t *)ipv6_hdr(skb));

- ret = ip6t_do_table(skb, hook, in, out, packet_mangler);
+ ret = ip6t_do_table(skb, hook, in, out, init_net.ipv6.ip6table_mangle);

if (ret != NF_DROP && ret != NF_STOLEN
&& (memcmp(&ipv6_hdr(skb)->saddr, &saddr, sizeof(saddr))
@@ -159,14 +158,33 @@ static struct nf_hook_ops ip6t_ops[] __read_mostly = {
},
};

+static int __net_init ip6table_mangle_net_init(struct net *net)
+{
+ /* Register table */
+ net->ipv6.ip6table_mangle =
+ ip6t_register_table(net, &packet_mangler, &initial_table.repl);
+ if (IS_ERR(net->ipv6.ip6table_mangle))
+ return PTR_ERR(net->ipv6.ip6table_mangle);
+ return 0;
+}

```

```

+
+static void __net_exit ip6table_mangle_net_exit(struct net *net)
+{
+ ip6t_unregister_table(net->ipv6.ip6table_mangle);
+}
+
+static struct pernet_operations ip6table_mangle_net_ops = {
+ .init = ip6table_mangle_net_init,
+ .exit = ip6table_mangle_net_exit,
+};
+
+static int __init ip6table_mangle_init(void)
+{
+ int ret;

- /* Register table */
- packet_mangler = ip6t_register_table(&init_net, &__packet_mangler, &initial_table.repl);
- if (IS_ERR(packet_mangler))
- return PTR_ERR(packet_mangler);
+ ret = register_pernet_subsys(&ip6table_mangle_net_ops);
+ if (ret < 0)
+ return ret;

+ /* Register hooks */
+ ret = nf_register_hooks(ip6t_ops, ARRAY_SIZE(ip6t_ops));
@@ -176,14 +194,14 @@ static int __init ip6table_mangle_init(void)
+ return ret;

cleanup_table:
- ip6t_unregister_table(packet_mangler);
+ unregister_pernet_subsys(&ip6table_mangle_net_ops);
+ return ret;
}

static void __exit ip6table_mangle_fini(void)
{
+ nf_unregister_hooks(ip6t_ops, ARRAY_SIZE(ip6t_ops));
- ip6t_unregister_table(packet_mangler);
+ unregister_pernet_subsys(&ip6table_mangle_net_ops);
}

module_init(ip6table_mangle_init);
--- a/net/ipv6/netfilter/ip6table_raw.c
+++ b/net/ipv6/netfilter/ip6table_raw.c
@@ -13,7 +13,7 @@ static struct
+ struct ip6t_replace repl;
+ struct ip6t_standard entries[2];
+ struct ip6t_error term;

```

```

-} initial_table __initdata = {
+} initial_table __net_initdata = {
    .repl = {
        .name = "raw",
        .valid_hooks = RAW_VALID_HOOKS,
@@ -35,14 +35,13 @@ static struct
    .term = IP6T_ERROR_INIT, /* ERROR */
};

-static struct xt_table __packet_raw = {
+static struct xt_table packet_raw = {
    .name = "raw",
    .valid_hooks = RAW_VALID_HOOKS,
    .lock = RW_LOCK_UNLOCKED,
    .me = THIS_MODULE,
    .af = AF_INET6,
};
-static struct xt_table *packet_raw;

/* The work comes in here from netfilter.c. */
static unsigned int
@@ -52,7 +51,7 @@ ip6t_hook(unsigned int hook,
    const struct net_device *out,
    int (*okfn)(struct sk_buff *))
{
- return ip6t_do_table(skb, hook, in, out, packet_raw);
+ return ip6t_do_table(skb, hook, in, out, init_net.ipv6.ip6table_raw);
}

static struct nf_hook_ops ip6t_ops[] __read_mostly = {
@@ -72,14 +71,33 @@ static struct nf_hook_ops ip6t_ops[] __read_mostly = {
    },
};

+static int __net_init ip6table_raw_net_init(struct net *net)
+{
+ /* Register table */
+ net->ipv6.ip6table_raw =
+ ip6t_register_table(net, &packet_raw, &initial_table.repl);
+ if (IS_ERR(net->ipv6.ip6table_raw))
+ return PTR_ERR(net->ipv6.ip6table_raw);
+ return 0;
+}
+
+static void __net_exit ip6table_raw_net_exit(struct net *net)
+{
+ ip6t_unregister_table(net->ipv6.ip6table_raw);
+}

```

```

+
+static struct pernet_operations ip6table_raw_net_ops = {
+ .init = ip6table_raw_net_init,
+ .exit = ip6table_raw_net_exit,
+};
+
static int __init ip6table_raw_init(void)
{
    int ret;

- /* Register table */
- packet_raw = ip6t_register_table(&init_net, &__packet_raw, &initial_table.repl);
- if (IS_ERR(packet_raw))
- return PTR_ERR(packet_raw);
+ ret = register_pernet_subsys(&ip6table_raw_net_ops);
+ if (ret < 0)
+ return ret;

    /* Register hooks */
    ret = nf_register_hooks(ip6t_ops, ARRAY_SIZE(ip6t_ops));
@@ -89,14 +107,14 @@ static int __init ip6table_raw_init(void)
    return ret;

cleanup_table:
- ip6t_unregister_table(packet_raw);
+ unregister_pernet_subsys(&ip6table_raw_net_ops);
    return ret;
}

static void __exit ip6table_raw_fini(void)
{
    nf_unregister_hooks(ip6t_ops, ARRAY_SIZE(ip6t_ops));
- ip6t_unregister_table(packet_raw);
+ unregister_pernet_subsys(&ip6table_raw_net_ops);
}

module_init(ip6table_raw_init);

```

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Subject: Re: [PATCH 2/5] netns netfilter: per-netns IPv6 FILTER, MANGLE, RAW  
 Posted by [Patrick McHardy](#) on Thu, 24 Jan 2008 17:40:41 GMT  
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Alexey Dobriyan wrote:

- > Now it's possible to list and manipulate per-netns ip6tables rules.
- > Filtering decisions are based on init\_net's table so far.
- >
- > P.S.: remove init\_net check in inet6\_create() to see the effect

OK, this patch fixes all but one checkpatch warning again.  
Please try to make each patch checkpatch-clean next time  
since that causes unnecessary work. Thanks (and applied).

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